

Anaxagoras on Mind

STAVROS I. BALOYIANNIS*

"... mind is infinite and self-powerful and mixed with nothing"

Anaxagoras

Abstract

Among the theories on Mind of Pre-Socratic philosophers, the originality of Anaxagoras' concepts is particularly impressive. The compact, strong, precise Anaxagoras' thought, the uniqueness of his ontology, plenty of new scientific horizons and further perspectives, attempting to link the real world with metaphysics, the substance with the energy, the Mind (nous) with the human existence and the universe, the man with the cosmos, place Anaxagoras in an exceptional high level in the pantheon of Greek philosophers. According to Anaxagoras, the Mind (nous) is infinite and self-powered. Mind is the supreme principle, the greatest power, that is mixed with nothing but it exists alone itself by itself, whereas all other entities include a portion of everything. Mind is the purest of all entities, with a unique authenticity. It rules over all entities that have life, both greater and less, as the superb creative power, which controls the function and the activity of everything and puts all things in order, setting them in a continuous motion. Anaxagoras claimed that the rotation of the things causes them to be more distinct and active. In addition he had the idea, that the material elements may be divided endlessly. Therefore neither is there a least but there is always a less, even invisible in its unlimited smallness. Subsequently each substance or thing may be both small and great. It is reasonable to conceive that "being" is not "non being or non existing", and all things include a portion of every type of basic substance, being basically "homoiomeric". Nothing comes into being nor decays totally. Every type of substance can also emerge from every type of substance. Only mind (Nous) is always the same, self-existent, timeless (achronon), eternal, unchangeable, perfect. Concerning cosmology, Anaxagoras thought that the Mind (Nous) provoked

rotation of the primordial chaos and ordered the redistribution of diffusely existing elements, which started to be separated. Ultimately, the continuous rotation induced the creation of cosmos, the structure of the celestial world, the emergence of the universe. Prior to creation of the universe by the Mind, everything was in undifferentiated condition, in a chaotic state, until the continuous rotation in the form of a vortex (perichoresis), caused the formation of the world by the fusion of the various visible material masses. Anaxagoras' philosophy, associating the theoretical elevation with the scientific pragmatism is an important precursor to modern scientific theories, including the theory of relativity and the generation of the universe. Moreover, Anaxagoras' concept of the omnipotent Mind is a significant milestone in the field Neurophilosophy.

Key Words: Anaxagoras, mind, philosophy, cosmology, neurophilosophy

Introduction

In the field of Neurophilosophy, the ingenious doctrine of Mind (nous), introduced by Anaxagoras, in the 5th century BC, was a strong initial step towards the harmonization of physical philosophy with metaphysics and an essential link between existential philosophy and theology. Anaxagoras' concept of the autonomous, infinite, powerful eternal Mind, which is the purest of all things, the master of itself and dominates on everything, controlling all the elements and directing all the physical interactions in the universe¹ in a proper way, as well as his original subtle theory on the matter and energy, predict in a prophetic way the revolutionary data of the modern science and philosophy².

¹See and Grujić P. The Concept of Fractal Cosmos: I. Anaxagoras' Cosmology, *Serb. Astron. J.* 2001;163: 21-34.

²D E Gershenson, Greenberg DA: Anaxagoras and the Birth of Physics (A History of Physics: its Concepts, Methods and Theories. Series I: Natural Philosophy before Aristotle). Introduction par Ernest Nagel. New York, Blaisdell 1964.

* Professor Emeritus

The ingenious and unique in originality Anaxagoras' philosophy reflects the anxious endeavor of the human being to approach the truth, revealing also the strong metaphysical agony of the human soul. Anaxagoras' doctrine on the unique and eternal omnipotent Mind, in addition to Heraclitus' concept of the Word (Λόγος)³ exercised a deep influence upon Platonic, Aristotelian and New-Platonic philosophies, surviving also in the modern philosophical streams as an essential theoretical connection between philosophy, Theology⁴ and Neuroscience⁵.

On the life of Anaxagoras

Anaxagoras was born in the city of Clazomenae in Asia Minor, during the seventh Olympiad (between 500-497 or 533 BC). He was descendant of an aristocratic noble family. His father Hegesibulus (Ηγησίβουλος), was intellectual and introduced his son to Anaximenes' philosophy⁶.

Anaxagoras was the first of the pre-Socratic philosophers, who visited Athens in 494 BC, transmitting there the richness and the originality of Ionian School of philosophy. He remained a resident of the city of Athens for at least thirty years. Athens at that time, after the victorious Persian wars, became the main educational, political and cultural center of the Mediterranean world for many years. In Athens, Anaxagoras developed a lifelong maintaining friendship with Pericles, the Athenian general and political leader, who adopted Anaxagoras' philosophical and cosmological doctrines, being acquainted

with natural philosophy⁷. Plutarch wrote that Pericles was also elevated above any superstition⁸ by Anaxagoras' contribution, since the principles and doctrines of the natural philosophy enable the man greatly to remove ignorance and inexperience.

Euripides (480–406 BC), also was deeply inspired by the innovative views of Anaxagoras' philosophy, in his attempt to enter in the mystical amazing world of the human soul and to try to interpret the various psychological phenomena and passions in his tragedies and dramas.

At the time of Socrates' birth, Anaxagoras was already in the fourth decade of his life, older than Empedocles. Socrates became acquainted with Anaxagoras doctrines attending lectures by Archelaos, an Anaxagoras' disciple⁹.

Anaxagoras, after thirty years of beneficial contribution in Athens, during which he used to teach philosophy and cosmology continuously, being detached from the common social life and the practical matters of life "owing to the lofty thoughts with which he was inspired"¹⁰, he banished from the city and retreated to Lampsacos¹¹, where he established school of Philosophy, been much honored by the citizens.

The reason for escaping from Athens was that Anaxagoras was indicted by Cleon of a charge of impiety and condemned to death, because he did not recognize the sun and the moon as divine entities but "declared the sun to be a mass of burned metal" and in-

³Though the Word is true evermore, however men are unable to understand it when they hear it for the first time as before they have heard it at all. For, though, all things come to pass in accordance with this Word, men seem as if they had no experience of them, when they make trial of words and deeds such as I set forth, distinguishing each thing according to its nature and showing how it truly is. But other men don't have consciousness of what they are doing when awake, even as they forget what they do in sleep" (DKB1) and "Though the logos is common, the many live as if they had a wisdom of their own" (DKB2) See also Baloyannis SJ: Heraclitus from Ephesus and our times. 50, 1-21, 2013.

⁴Among the Pre-Socratic philosophers Anaxagoras and Heraclitus are characterized by an obvious monotheistic orientation, stating that the Mind or the Word, as the supreme authority governs, controls and determines everything.

⁵See also Baloyannis SJ: Galen and the Neurosciences. J. Neurol. Stroke 2016; 4 (1): 00116. DOI: 10.15406/jnsk.2016.04.00116.

⁶Anaximenes (585 BC – 528 BC) was a natural philosopher born in Miletus.

⁷Mentioned by Plutarch (59A16). According to Plutarch, the main masters of Pericles were Damon, who was teacher of music and Anaxagoras, who was teacher of philosophy, ethics, politics, rhetoric and oration. Both offered to Pericles a perfect paradigm of self-control, moderation, justice, discretion, peaceful mind and tranquility. (Plutarch Pericles 6.1). See also Breebart A B: Plutarch and the Political. Development of Pericles, Mnemosyne 1971; 24:260-272.

⁸Plutarch: The Parallel Lives, The life of Pericles 6, 1.

⁹See also Plato Apol. 26 D. "He asserts that I say the sun is a stone and the moon is earth. Do you think of accusing Anaxagoras, Melitos, and have you so incorrect opinion of these men and think them so unskilled in knowledge, as not to recognize that the books of Anaxagoras from Clazomenae are full of these doctrines?"

¹⁰Plutarch: The Parallel Lives, The life of Pericles 16, 5.

¹¹Lampsacos was a thriving city, located on the eastern side of the Hellespont, colonized in the 6th century BC by Phocaeans and Miletians (Strabo 13.1.18). After the end of the Persian wars Lampsacos joined the Delian League. Eminent citizens of Lampsacos were the historian Charon and the orator Anaximenes.

¹²Diogenes Laertius, Lives of Eminent Philosophers, Book II, Chapter 3, 8.

sisted that the celestial bodies are burned material globes. He also declared that the moon doesn't have its own light, but it is illuminated by the sun^{13,14}.

The charges against Anaxagoras obviously had a political reason, related to his friendship with Pericles, been therefore motivated by Pericles' political opponents¹⁵.

Anaxagoras died in Lampsacos in 428 BC, after a long valuable contribution to philosophy and to cultural elevation of the city. He has been respected and honored by the citizens, who awarded him an exceptional honorable public burial, despite the fact that he was not a native citizen¹⁶.

Diogenes Laërtius cited only one book written by Anaxagoras, which unfortunately, didn't survive, but only some excerpts of it lie embedded in the manuscripts of other writers, mostly in neo-Platonic Simplicius¹⁷, Plutarch and Sextus Empiricus¹⁸.

Some authors claim that the Derveni's Papyrus¹⁹, which was found in the excavations, which were performed in ancient Liti, near Thessaloniki in 1962, reflects Anaxagoras' doctrines, written presumably by one of his

disciples²⁰.

The philosophical system of Anaxagoras

The Dominant place of Mind

The Mind (Nous) possess a dominant position in Anaxagoras' philosophical system. Everything is set and directed by Mind, which is the causative power of all creation²¹. The Mind (Nous) is unique, original, eternal, authentic, autonomous, unlimited, unmixed with anything else, remaining pure and alone itself by itself, self-powered, self-subsistent, self-sufficient, separated completely from all other elements²², having the capacity to control²³ and harmonize the function and the interactions of all entities in nature²⁴ including those that have soul²⁵. In addition, Mind (Nous) is the finest and the purest of all things²⁶. The Mind is free, infinite over time and space²⁷, stable and unchangeable, unique²⁸. The Mind does not participate in the substance of other things, and is far from material components.

¹³It is the sun that puts brightness into the moon. Fragm. 18

¹⁴See also Hipp. Phil. 8; Dox. 561 "He said the moon is made of earth and has plains and valleys in it".

¹⁵Anaxagoras trial was held in 456 BC. His theory on celestial bodies may possibly be connected with the fact of the fall of a meteorite stone in the Aegos Potamois (Goat Rivers), which happened between the years 467 - 469 and uncovered the real nature of celestial bodies.

¹⁶Aristotle: Rh. 1398 b14; D.L. 11.15. Anaxagoras requested before his death, that an annual holiday must be granted to school boys "in memoriam" of his death.

¹⁷The philosopher Simplicius was one of the last members of the Neo-Platonic school. He was born in Cilicia in 490 AD and studied philosophy by Ammonius Hermiae and Damascius. The majority of his writings consists of commentaries on Aristotle and other authors, including Epictetus. Agathias Scholasticus characterized Simplicius as one of the most eminent philosophers of his Era.

¹⁸See also Baloyannis SJ: Sextus the Empirical and the modern medical philosophy. *Encephalos* 50, 62-74, 2013.

¹⁹The Derveni's Papyrus was found at the burial remnants of a gentleman of aristocratic descent. The papyrus, which describes a naturalistic and allegorizing interpretation of Orphic claims, has been evaluated as the most ancient legible book of Europe (1st half of the 4th century BC). In 2015, the Derveni's Papyrus was included in the list of the International Registered Unesco's Programme "Memory of the world". See also Th. Kouremenos, G.M. Parassoglou, K. Tsantsanoglou. *The Derveni Papyrus*, (ed). With Introduction and Commentary by -. *Studi e testi per il corpus dei papiri filosofici Greci e Latini* 13. Firenze (Leo S. Olschki editore) 2006.

²⁰See Betegh G. *The Derveni Papyrus: Cosmology, Theology, and Interpretation*, Cambridge: Cambridge University Press, 2004.

²¹Euripides in his Tragedy "Trojan Women" declared that Mind is an inner God of human beings.

²²See DK B11: "In everything there is a share of everything except Nous, but there are some things in which Nous, too, is present" See also Heraclitus Fragm. 108 "Of all whose discourses I have heard, there is not one who attains to understanding that wisdom is apart from all" (Stobaeus, Anthology, III, 1, 174).

²³See also Heraclitus Fragm. B41, DK22 "Wisdom is one thing. It is to know the thought by which all things are steered through all things" (Diogenes Laërtius, Lives of the philosophers, IX, 1).

²⁴"And nous discerned them all: the things that are mixed together, the things that are being separated off, and the things that are being dissociated. And whatever sorts of things were going to be, and whatever sorts were in the past and now vanished, and as many as are now and whatever sorts will be in the future, all these Nous set in order" B12.

²⁵"Nous has power over all things, both greater and smaller, that have life" DK12,12.

²⁶"For it is the finest of all things and the purest, and indeed it maintains all discernment about everything and has the greatest strength" (59 B12).

²⁷See also 2 Corinthians 3, 17 "Now the Lord is that Spirit: and where the Spirit of the Lord is, there is liberty".

²⁸Aristotle *De anima* i. 19; 405 b 19. "Anaxagoras alone says that mind does not suffer change, and has nothing in common with any of the other things".

The Mind according to Anaxagoras is the unique power, which created Cosmos from the previous chaos, by rotating the previously unmoved mass of various ingredients²⁹. Over time, the rotation throws lighter ingredients towards the edges of the perpetual whirl activity and pushes the heavier ones to the center³⁰. The velocity of the rotation is the highest possible rapidity, in comparable with any other similar phenomenon in nature³¹. Thus, Nous created all the celestial bodies³², which are afterwards in a state of continuous movement inside the expanding universe^{33,34}.

The Mind (Nous) is also incorporated in the human being and acts as the main power of the soul³⁵, which prevails over the body and configures its functionality fully, penetrating entirely the existence of all entities who are alive³⁶. The mind, controls and directs properly all the mental functions, all the brain processes concerning both knowing and perceiving, the memory and the imagination, the emotions and the social behavior, the speech and the writing, the symbolic meanings and art, as well as the judgment and the creativity. In particular, Mind dominates on the inner life of the man³⁷, inducing peace and serenity.

The concept of Mind in the spectrum of the broad philosophical reflection

Anaxagoras' doctrine on Mind exercised a significant

²⁹See also Cic. de Nat. Deor. i. 11; Dox. 532. "Whence Anaxagoras, who was a pupil of Anaximenes, first taught that the separation and character of all things were determined and arranged by the power and reason of infinite mind..."

³⁰See Theophr. Phys. opin. Fr. 4; Dox. 479 "...And Anaxagoras postulated intelligence (vouv) as the cause of motion and of coming into being, and when this caused separation worlds were produced and other objects sprang forth".

³¹Fragm. 9, Simplicius in Physics 45,14

³²See also Hipp. Phil. 8; Dox. 561 "Sun and moon and all the stars are fiery stones that are borne about by the revolution of the aether. And sun and moon and certain other bodies moving with them, but invisible to us, are below the stars".

³³Aet. Plac. ii. 1; 327. The universe is one. ii. 8; 337. The universe is perishable.

³⁴See also Aristotle Meta. i. 4; 985 a 18. "Anaxagoras uses mind as a device by which to construct the universe".

³⁵According to Thales, the energy of the soul is "restless, constant and continuous" (Aetius IV 2.1). Aristotle insists Anaxagoras makes a sharp distinction between soul and mind, in contrast to Democritus, who identifies both of them. "On anima A2 404 s 25-D5.

³⁶See. "and Nous has power over all things, both greater and smaller, that have life".DK 12.11),

³⁷See Baloyannis SJ. Being and Mind. J Neurol & Stroke 2016, 5(1): 00167.

influence upon the philosophical orientation of the later thinkers, who endeavored to discover the depths of the human soul and to analyze the interior unseen links between soul and body and the proper roots for the interpersonal interactions in the society and the expectation of the life in eternity.

In Plato

According to Plato the human soul is immortal³⁸, invisible, unchanged and unchangeable³⁹ and it is the most precious component of the human existence. The soul is the cause of life and expresses the true self of the human being.

The human soul (Psyche) was in existence before the birth of the body and it continues to exist after death, which is simply the separation of the soul from the body⁴⁰. The soul is homogeneous, simple, uniform, not composed of various elements, that might be dissociated after its separation from the body. The human soul is characterized by cognitive function and intellectual properties and can regulate and control the body in all its activities, although body and soul are essentially distinct⁴¹.

In the Republic Plato introduced the tripartite notion of the soul⁴² claiming that the human soul is composed

³⁸Plato, Republic (608d) "Haven't you realized that our soul is immortal and never destroyed?" and also Phaedo (107c) "... that, if the soul is immortal, we must care for it, not only in respect to present time, which we would call life, but in respect to eternity, and if we neglect it, the danger now would be terrible... since the soul takes with it to the other world nothing more than its education and nurture (107d).

³⁹Plato 79d1-7 "When the soul investigates by itself, it passes into the realm of what is pure, always existing, immortal and unaltered and on account of its kinship with it, always remains with it, whenever it comes to be itself by itself and is able to do so; it ceases from its wandering and always stays in the same condition on account of its laying hold of things of the same kind and this condition of it is called 'wisdom.'"

⁴⁰Phaedo 64c4-8 "Is it anything other than the separation of the soul from the body? And that being dead would be this, the body's having come to be apart, separated from the soul, itself by itself and the soul's having come to be apart, separated from the body, itself by itself? Could death be anything other than this?"

⁴¹The soul as being the seat of reason is mentioned in Phaedo, and the soul as being the seat of motion is mentioned in Phaedrus and in the Laws X.

⁴²Plato analyzes this tripartite division of the soul by an allegory, concerning a charioteer driving two horses. The white noble horse on the right is the spirited part of the soul. The black ugly horse on the left is the irrational part and the Charioteer represents the rational part of the soul, which is reason, like the head of the body or the guardians, the philoso-

of the rational component⁴³, the spirited (courageous) one⁴⁴, and the irrational component of desires⁴⁵. The relation between the tripartite soul and the body has to be that of mutual interaction and interdependence⁴⁶.

In addition, Plato underlined that the human being is governed by two principal causes, the necessity and the intelligence⁴⁷, with intelligence being the primary one.

The Mind as searching for the truth, the logic, the moral and spiritual values, the ethics, as well as the pure knowledge and wisdom is obviously connected with the rational component of the soul, which would be the only proper place for the Mind. At the same time the Mind is closely related with the function of the brain⁴⁹, as far as perception, memory, judgment, imagination, thinking and planning is concerned.

Plato agrees after Anaxagoras⁵⁰ that the mind is possible to be the supreme power⁵¹ and the only creative cause in the world, which handles the elements and the harmonic ratios in order to organize the universe, setting

pher kings in the ideal republic. See also J. V. Robinson, 'The Tripartite Soul in the Timaeus', *Phronesis* 35 (1990) p. 106.

⁴³This is the part of the soul that loves rationality, truth and ultimate wisdom.

⁴⁴This is the part of the soul, plenty of ambitions that wishes self-preservation, courage, victory, distinctions, achievements, winning, challenge and honor and feeling sometimes anger and envy.

⁴⁵According to Plato there are numerous desires and appetites for physical satisfactions and comfortable and pleasurable life, which may be frequently in conflict with each other, disturbing the serenity and the homeostatic balance of the soul. The role of the irrational component of the soul in the human psychological reactions has been emphasized by Sigmund Freud and his disciples, who also claim that the psychological well-being or the homeostatic equilibrium requires a harmonious relationship between the different parts of the soul.

⁴⁶See also Giannakopoulou Maria (2002) *Plato on soul and body*. PhD thesis, University of Glasgow.

⁴⁷See also Cornford FM. *Plato's Cosmology*, London. 1997.

⁴⁸Plato *Timeous* 46e.

⁴⁹Plato *Phaedo* 96b "... and does the brain furnish the sensations of hearing, sight and smell, and do memory and opinion arise from these, and does knowledge come from memory and opinion in a state of rest?"

⁵⁰Phil. 28 C. "All the wise men agree that Mind is a king of heaven and earth for us". And Plat. *Phaedo* 97d "As I considered these things I was delighted to realize, that I had found in Anaxagoras a teacher of the etiology of things quite to my mind, and I thought he would tell me whether the earth is flat or round".

⁵¹Plato *Kratyl.* 413 C. "Anaxagoras is right in saying that this is mind, for he says that mind exercising absolute power and intermixed with nothing disposes all things, running through all of them".

everything in order in a perfect way⁵².

In Aristotle

According to Aristotelian philosophy, the Mind is closely connected with the Soul⁵³. Mind is part of the rational component of the soul, which is the most functional part of the human existence, of instrumental value⁵⁴. The rational component is the center of cognition and logical analysis⁵⁵ and may be considered as being the most precious part of the man.

The Mind is also the divine element of the man, which remains intact after death, unchangeable and immortal⁵⁶. In addition, the mind is one and continuous in the same sense as the thinking⁵⁷.

The motion of the soul is the actualization of potentiality. All the functions of the soul, including thinking, might be considered as "movements of the soul"⁵⁸. Cognition is the proper function of the rational component of the soul⁵⁹, since the sensitive soul is motivated mostly by the sensation⁶⁰, which is related with an exterior sense-object⁶¹ and accounts for all manifestations of life, in addition to mental processes. The soul has the capacity of perception and also the activity of this capacity, which is the objectionable perception of the external world. The proper cognition is related to wisdom⁶², to insight, to scientific knowledge, to moral values, to right

⁵²Phil. 30 D. "Some long ago declared that always mind rules the all".

⁵³"What then is called the 'intellect' of the soul (I mean the mind by which the soul compose opinions and understands) is not, before it understands, in act of any reality. Hence, it is a reasonable inference that it is not involved in the body" *De Anima* III, 4, 429 a 22-24.

⁵⁴"Concerning that part of the soul (whether it is separable in extended space, or only in thought) with which the soul knows and reflects, we have to consider what is its distinguishing characteristic, and how thinking comes about" *De Anima* III, 4, 429 a 10-13.

⁵⁵*De anima*. III. 4, 429a 23.

⁵⁶*De anima*. III. V, 430a 22-23.

⁵⁷Aristotle, *De anima* 407a8-10.

⁵⁸*De anima* III. III, 427b 8.

⁵⁹*De anima*. I. III, 407a 7-8.

⁶⁰"Since we perceive that we see and hear, it must either be by sight that one perceives that one sees or by another [sense]" (*De Anima* 425b12).

⁶¹*De anima* II, 5, 417 a 9-14. In addition Aristotle restricts things that are perceivable intrinsically to the proper objects of each sense and the common objects that can be perceived by more than one sense (*De anima* 418a18-20).

⁶²*Metaphysics*. XI. I, 1059a 18-21).

beliefs and to purified concepts⁶³.

Thinking is the expressed Act of Mind. Rational thinking leads to prudence, science and wisdom⁶⁴, as well as to insight, precise expression of thoughts and creativity.

Aristotle agrees after Anaxagoras, that the Mind must be pure, integral, impassive⁶⁵ and dominant. The Mind understands everything correctly, obtaining self-authorization and possessing his own dynamics⁶⁶.

Aristotle attempting to interpret the multidimensional character of Mind's activity, has introduced the consideration of the active and the passive Mind. The active and the passive mind collaborate continuously in order to allow discursive thinking and ethical behavior to emerge.

The main distinction of them is based on the fact that these intellects differ in an essential property, the temporality. The passive mind is perishable and the active is immortal and eternal. Thus the active mind could exist in the absence of the passive.

Analytically, the active mind or active intellect (vous ποιητικός), who is 'immortal and everlasting' (αθάνατος και αϊδιον), makes all things and the passive mind becomes all things⁶⁷.

The active mind (ἐνεργεία ή ἐντελεχεία νοῦς) is a form of energy that is defined in a way similar to energy. Thus the active mind is the primary energy of the living being, which is superior to the nutritive soul. Concerning the properties of the active Mind, Aristotle stated that this Mind is separated and unaffected and unmixed, being in its essential actuality⁶⁸.

The passive mind is basically perishable and temporal, since a passive potentiality requires, as a rule, an active counter part⁶⁹. Subsequently it is reasonable that the passive intellect cannot be the efficient cause of thinking.

According to Thomas Aquinas⁷⁰, who was influenced

enced deeply by the Aristotelian philosophy, the passive Mind partakes of temporality⁷¹, while the active Mind recruits clear theologian and spiritual character, being dissociated from the material body⁷². Thomas Aquinas insists, that a distinct active intellect belongs to each human being, severing at death to exist in eternity.

Alexander of Aphrodisias describes the agent intellect as the "first cause, which is the cause and source of the being of all other things⁷³ and the "first intellect (the active Mind)" thinks nothing but itself⁷⁴.

The Aristotelian view on passive mind, under the light of Neurosciences

The Aristotelian concept of passive Mind, which is perishable, temporal and closely related with corporal activities corresponds clearly with the mental functions of the brain, which are based on multiple cortical and subcortical processes, that are related with consciousness⁷⁵, perception of the sensosensorial informations, memory, imagination, emotions, behavior, learning, judgment, creativity, rational, symbolic and constructive

near Naples and Aquino castle. Thomas attended the University of Naples, where he studied "quadrivium" and Aristotelian philosophy. He continued to study Aristotle under the supervision of St. Albert the Great (Albertus Magnus) at the Universities of Paris and in Cologne. In 1256 Thomas was appointed as Master of Theology at the University of Paris, and later he released lectures in Naples, Orvieto and Rome. Thomas died in Fossanova, in 1274 and Canonized in 1323. He was proclaimed a Doctor of the Church (Doctor Universalis) by Pope Pius V in 1567. Thomas is extremely productive as an author. His best, well known works are the theological syntheses (Summa contra gentiles, Compendium Theologiae, and Summa Theologiae), the commentaries (Commentary on Aristotle's Nicomachean Ethics and Commentary on Pseudo-Dionysius' De divinis nominibus) and the philosophical treatises (On Being and Essence and On the Principles of Nature). Thomas agrees with Aristotle that the intellectual powers differ from the sensitive powers, underlining that God is the absolutely first efficient cause. See also Chenu MD. Toward Understanding Saint Thomas 1964 and Black DL. Mental Existence in Thomas Aquinas and Avicenna. Mediaeval Studies. 1999; 61:45-79, Brian D, Stump E, (eds.) The Oxford Handbook of Aquinas Oxford: Oxford University Press, 2012.

⁷¹"Passivus vero intellectus corruptibilis est, idest pars anima, quae not est sine praedictis passionibus, est corruptibilis" Sancti Thomae de Aquino, Corpus Thomisticus. Sententia libri De anima, liber II.

⁷²Summa Theologica, II,62,3.

⁷³De anima 89.9-19

⁷⁴De intellectu 109.23-110.3.

⁷⁵Baloyannis SJ. The consciousness from the neurobiological view point. In: The world of the Science and Religion. A. Nickolaides (ed) Thessaloniki 2008, pp.91-116.

⁶³De anima. III. III,427b 9-11.

⁶⁴Metaphysics. XI. I, 1059a 18-21.

⁶⁵De anima III. IV, 429a 15-16.

⁶⁶De anima III. IV, 429a.

⁶⁷"And one sort of mind exists by coming to be all things and one sort of mind exists by producing all things, as a kind of positive state, like light. For in a certain way, light makes colors existing in potentiality colors in actuality". De anima III. V, 430a 15-17.

⁶⁸See also Brentano Franz: The Psychology of Aristotle (in particular his doctrine of the active intellect). Translated by George Rolf. Berkeley: University of California Press, 1977.

⁶⁹Phys. III.3.

⁷⁰Saint Thomas Aquinas (Tommaso d'Aquino) (1224-1274) was a Dominican priest and Scriptural theologian, who attempted to synthesize Aristotelian doctrines with the principles of the Roman Catholic Church. He was born in Roccasecca,

thinking, development of verbal and written communication, development of arts and music⁷⁶ and mostly the development of interior life.

The mental functions are performed, by continuous activation of extensive neuronal networks, which develop innumerable synapses between neurons on the dendritic branches and spines, the soma, the axons and axonic collaterals, where numerous neurotransmitters are released in the synaptic cleft, activating their highly specialized receptors, which are located on the postsynaptic membrane.

By the synaptic activity all the informations are transmitted from neuron to neuron in the form of chemical, electric and electromagnetic energy.

The perichoresis (περιχώρησις, mutual indwelling), described by Anaxagoras may be related to continuous transport of neurotransmitters, proteins and organelles by the perpetual axoplasmic flow in the neurons and the neuronal processes in the neuronal networks and tracts of the brain.

In the philosophy of Plotinus

Plotinus⁷⁷, claimed that the supreme principle in the world is the One, who is the only primary authority⁷⁸ with creative properties⁷⁹. The One is the absolute prime principle of all, which is greater than the being and the thinking. The One is entirely simple and expresses the absolute Beauty⁸⁰ and the supreme Goodness (hyperagathon)⁸¹.

The first direct derivative of the One, by the process of active brightness (έκλαμψις, έκλampsis), is the Mind

or Intellect⁸², which is the second fundamental principle. The Mind is the principle of essence or intelligibility, whereas the One is the principle of Being. The Mind is the eternal instrument of the One's causality, the image of eternal reality. The internal activity of the One is its own hyper-intellectual existence. Its external activity is expressed by the activity of Mind. The quality of life is the life of Intellect. One of the properties of the intellectual and really happy life is its self-sufficiency⁸³, which is based on the cognitive identification with all that are intelligible and longing for the Good.

The Soul is the third fundamental principle. The Soul is not the principle of life but the principle of desire for external objects and the author of all living things. If the objects of intellect would be external to it, the intellect could not recognize justice, virtue and beauty. The Soul is related to Mind similarly to the way that Mind is related to One. Consequently the Mind is between One and Soul. The human being is essentially a soul employing a body, as an active instrument of its terrestrial temporal life.

In conclusion, in Plotinus' Hierarchy the One, conceived as the Source of all principles and of the supreme Beauty particularly, is the First Hypostasis. Nous, who is the principle of pure intellection derived directly from the One, is constituted as the Second Hypostasis. Soul as being the third hypostasis is the image of Mind, that may move towards the One, through the purification of its heterogeneous elements. The matter is equivalent to evil, when it is considered as a goal of life, a source of desires and passions and mainly whenever it causes the deprivation of all types or intelligibility.

A person can behave by acting solely intellectually and the soul would be elevated to spiritual world, towards the absolute Goodness, beyond the tragic narrow cage of the perishable body⁸⁴.

⁷⁶Baloyannis SJ. The language of music. Music and the brain. In: K. Ch. Karagounis and G. Kouroupetrorglou (Eds.): "The Psalms as an Autonomous Science", 2015. Proceedings of the 1st Int. Interdisciplinary Musicological Conference, 9 June-3 July 2014, Volos, Greece pp.124-134.

⁷⁷Plotinus was one of the most influential philosophers of the Hellenistic era. He was born in Lycopolis, and studied philosophy by Ammonius Saccas in Alexandria. He had a thorough theoretical knowledge of Geometry, Mechanics, Optics, and Music. In 245 he went to Rome, where he remained until his death in 270. The three main principles of Plotinus' metaphysical philosophy are 'the One' or Good, the Intellect, and the Soul. As Porphyry wrote "Plotinus seemed ashamed of being in the body and set the principles of Pythagoras and of Plato in a clearer light than anyone before him". Plotinus' writings were edited by Porphyry who had fifty-four treatises before him and divided them into six sets of nine—the Enneads.

⁷⁸En. VI 9(9) 2, 25-30.

⁷⁹En. III 8. 1; V 1. 7, 9; V 3. 15, 33; VI 9. 5, 36.

⁸⁰«The supreme beauty, κάλλος υπέρ κάλλος» En. VI, 7, 32, 29.

⁸¹En. V 3. 14; VI 8; VI 9. 3.

⁸²En. VI, 9, 5, 26.

⁸³En. I. 1. 4-5.

⁸⁴En. 1 6(1) 6, 12-13. See also Davarinou PG: Plotinus' attempts to go beyond the Platonic philosophy. Thesis. Athens 1995.

John Philoponus on Mind

According to John Philoponus (490-570 A.D.)⁸⁵, who attempted to harmonize the philosophical thinking with the Christian doctrines, the Mind is distinguished (a) in the theoretical, which refers to the high intellectual functioning of the human soul and (b) in the practical one, which is associated mainly with the senso-sensorial perception, the memory and the imagination. Philoponus insists that Aristotle, considers the human Mind as an immortal and eternal substance, which is separated from the human body⁸⁶. However, Philoponus had the feeling that all mental processes involve some kind of bodily participation and modification, although they are not controlled by physical states. He believed also that a rigorous physical and spiritual regime might allow the man to avoid any influence of the body tendencies upon his mental processes, since the mind is the supreme gift of the divine, which entered in the human body in the creation.

The patristic view of Mind

In the manuscripts of the fathers of the Church, the Mind is characterized as the supreme existential element, as expressing "the image of God"⁸⁷, the freedom of intention and the self-determination⁸⁸ of the human being. The Mind which is free from passions and cultivates the virtues continuously, being in a state of spiritual elevation participates in the mystical experience of the divine brightness. Saint Athanasius considers that the Mind plays a very important role in the vision of God⁸⁹ and Saint Basil said, that the Mind would be able to see the divine Beauty by the grace of Holy Spirit⁹⁰.

⁸⁵John Philoponus, is also known as John the Grammarian or John of Alexandria. He was a Christian philosopher and scientist, who lived in Alexandria, closely related to Alexandrian Neoplatonic school, as a pupil of Ammonius, son of Hermias. He was engaged in the theological debates of his time. He attempted impressively to amalgamate Aristotelian with Platonic and Neo-Platonic philosophy, as well as the medical doctrines of Galen, offering also his original concepts. His works include extensive Philosophical Commentaries, as well as arguments against Aristotelian and Neoplatonic philosophy such as "Against Proclus, On the Eternity of the World" and "Against Aristotle, on the Eternity of the World". See also Triantari-Mara S. The knowledge and the faith in John Philoponus, Epectasi, Katerini 2001.

⁸⁶In De intell. 16.90–6; 38.84–90; 57.62–9.

⁸⁷John Damascinos 2, 12, PG 94, 920 B.

⁸⁸Nemesius Emesis 39, PG 40, 764 BC.

⁸⁹70 PG 25,776 CD.and PG 25,61 A.

⁹⁰Saint Basil, PG 31, 909 C-D.

According to Saint Gregory, the Theologian the Mind, which is the rational part of the soul is distinguished in to mind (νοῦς), to Word (Λόγον) and to spirit (Πνεῦμα), having as prototype the Holy Trinity. He characterized the Mind as being "divine of form (θεοειδής)" and believes that with the communication with God, the Mind could be elevated to theognosia (θεογνωσία, vision of God)⁹¹.

Saint Makarios from Egypt claimed that the heart, which is the most important and central part of the human body, is also the precious place, the Chair of the Mind⁹². The Mind is the most precious part of the soul, which is multi-dimensional, just like the body which is composed of many parts. The soul and the Mind must be illuminated by the Light of God. The Mind after purification, being free from any passion and psychosomatic influence may become the "Eye of the soul", that can contemplate the Glory of God, the glory of the divine Light⁹³.

According to Evagrius from Pontus, the Mind is omnipotent being able to see all the World. The soul following the process of Catharsis (purification) may reach in apathy and in the pure knowledge, living in brightness, in a state of continuous and uninterrupted prayer⁹⁴.

According to Maximus the Confessor, the Mind is equivalent to Heart⁹⁵, which whenever is in a state of purity may distinguish everything clearly and correctly. The Mind in a condition of inner purity may proceed beyond space and time living in a state of eternal beatitude⁹⁶.

According to Saint John from Damascus the brain is the Chair of being and the center of the mental faculties. The ventricular system of the brain includes the spirit of the soul⁹⁷.

In Saint Gregory the Palamas, the Mind expresses the "Image of God"⁹⁸. The Mind is the eye of the soul and by it the vision of God (epopsia) and the experience of the uncreated light become possible. The Mind may participate in the supreme mystery of the total restoration and spiritual regeneration of the man, resulting in the unique mystery of Theosis (deification) by the Grace

⁹¹Saint Gregory the Theologian Sermon 28,17. PG 36, 48 C.

⁹²Saint Makarios from Egypt, Spiritual Lectures, Lecture 15, K PG 34,589 A-B.

⁹³Saint Makarios from Egypt, Spiritual Lectures, Lecture, 17', Δ PG 34, 625 C-D.

⁹⁴Evagrius from Pontus: Chapters on Gnosis, Ed. W. Frangeberg, chapt. 38, p. 457.

⁹⁵MPG 91, 664 A.

⁹⁶Philokalia Vol 2, p. 5.

⁹⁷John from Damascus: On Gnosis MPG 94, 529 A.

⁹⁸Philokalia Vol.4, p. 142.

of God.

Saint Symeon the New Theologian underlined that the Mind, whenever is purified from the passions and is able to control all its desires is raised beyond the appreciable things and approaches the true knowledge in the light of God⁹⁹.

According to Saint Augustinus the Mind (*mens*) is the image of God (*imago Dei*), as it has the ability to know, distinguish, evaluate and form the thoughts and the volition of the human being¹⁰⁰. Nevertheless God remains "... beyond all thinking"¹⁰¹ above all knowledge¹⁰².

Anaxagoras on the matter

Anaxagoras claimed that the matter may be divided and diminished endlessly, resulting in invisible elements, which may continue dividing. Therefore the division of the matter is infinite¹⁰³. Each division leads unto immense number of further divisions. Thus from the small element derives the smaller and further the even smaller, whereas the final absolute minimum never exists. The size of the material components affects only the ability to make them perceptible by the vision¹⁰⁴. All elements mixed, form the perceptible world, each item of which contains all the building blocks of matter¹⁰⁵. Therefore the elements of the matter become "homoiomerous"¹⁰⁶, in spite of the eventual morphological and functional differentiation¹⁰⁷. In contrast to Empedocles' concepts, who claimed that the matter consists of four key elements the "rhizomes" i.e. the Earth, the water, the air and the fire, Anaxagoras claimed that there is a high number of homoeomerous elements, which had been mixed together by the accelerated rotation and were further divided by the Mind in order to create the Universe. Infinitely, smaller items, properly connected and amalgamated form sizeable masses, which are perceptible by vision or by the other senses¹⁰⁸.

Everything pre-existing naturally is derived from immense "homoiomerous" components that dynamically

divided constantly, never driven in the "nothingness", but always existed together in an undifferentiated condition before the procedure of cosmogony. The Mind gave the proper shape in all pre-existing, and existing entities, constructing them harmoniously by its synthesizing capacity¹⁰⁹. Although there is a clear distinction between mind and matter in Anaxagoras' philosophy, in fact the Mind dominates on the matter activating all its properties and functionalizing it properly. The motion is the obvious phenomenon of the changeability of all substances and the way of the transition from matter to energy¹¹⁰.

One of the fundamental principles of Anaxagoras is the identification of being with the existing. The Being is constantly derived from the existing, since it is impossible and also irrational to be generated from the non-Being^{111,112}.

Anaxagoras described the eclipse of the moon and attempted to explain the phenomenon, hypothesizing that at the time of the lunar eclipse the Earth inhibited the sunlight to be reflected by the moon insisting that the Sun is the primary source of light in the solar system and the other celestial bodies perform cyclical movements around the Sun¹¹³.

Anaxagoras cosmological concepts were original and revolutionary. It is important to emphasize that Anaxagoras said that before the creation of the universe by the Mind everything was in confused, chaotic and undifferentiated state. The Mind was the creative power, which has the ability to generate and regenerate the universe¹¹⁴.

It is amazing that Anaxagoras views on Cosmos were released many centuries before the theory of the nebula by Swedenborg, Kant and Laplace and the theory of Cosmic reionization¹¹⁵ and the nucleosynthesis (BBN)¹¹⁶.

⁹⁹Symeon the New Theologian SC 156, 236, 48-53.

¹⁰⁰De Trinitate X, 11, 17. XV, 27, 50.

¹⁰¹PG 90, 333 C.

¹⁰²PG 3, 1025 AB.

¹⁰³See also Fränkel, H. (1968): Zeno von Elea im Kampf gegen die Idee der Vielheit, in: Umdie Begriffswelt der Vorsokratiker, Wege der Forschung, Band IX, ed. H-G Gadamer, Darmstadt

¹⁰⁴DK 59 A46.

¹⁰⁵DK B12.

¹⁰⁶See also P. Leon: The Homoiomeries of Anaxagoras, «The Classical Quarterly», XXI (1927) p. 138.

¹⁰⁷Lucretius De rer. nat. I 834-839.

¹⁰⁸DK A1 314 α 16-314b.

¹⁰⁹DK B12. See also Simplicius on Heaven, 608, 29-31.

¹¹⁰According to Einstein, $E = mc^2$.

¹¹¹DK I, 236; 28:18. Parmenides, B. Fr. 8.

¹¹²DK I, 231; Parmenides, B. Fr. 3.

¹¹³See also Linton C M: From Eudoxus to Einstein: A History of Mathematical Astronomy Cambridge University Press 2004. and Gershenson, Daniel E. and Daniel A. Greenberg (1964). Anaxagoras and the Birth of Scientific Method. New York: Blaisdell.

¹¹⁴Whitney C: NASA Technology Views Birth of the Universe. Jet Propulsion Laboratory, California Institute of Technology, Pasadena.

¹¹⁵Robertson B E, Ellis R S, Furlanetto S R, Dunlop J S. Cosmic reionization and early star-forming galaxies: a joint analysis of new constraints from Planck and the Hubble space telescope. *Astrophys. J.* 2015;802:19.

¹¹⁶Richard H. Cyburt, Brian D. Fields, Keith A. Olive, and Tsung-Han Yeh. Big bang nucleosynthesis: Present status.

Anaxagoras is among the greatest philosophers of the world, who introduced the Mind as the supreme, infinite, dominant, autonomous, authentic creative power, which constructed the universe by multidimensional synthesis of the matter by "homoimerous" elements, that may be divided immensely and infinitively never ending. He recognized the velocity as the main factor of transition from matter to energy. Anaxagoras theories and hypothesis carry the prophetic message of the contemporary conclusions of the astrophysics, bonding also philosophy with science harmoniously.

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