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The image of woman in philosophy



### Reconstructing Hypatia

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## Reconstructing Hypatia

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### **Abstract**

Hypatia has gone down in history as the female philosopher who was murdered by the angry fanatical Christian mob in Alexandria and signaled the end of the free thinking and expression of the ancient world, including the philosophical and scientific activities. This article aims at the reconstruction of this quasi-mythical quasi-historical woman based on the available information of the philosophical material of her famous student Synesius, as well as on the works of her contemporary astronomers and mathematicians. The texts used are the *Commentary* of her father and collaborator, Theon, on the *Almagest* of Claudius Ptolemy, the work *Arithmetica* of Diopantus and the *Commentary* of Eutocius on the *Conics* of Apollonius of Perga. After the study of the recent research of historians of science, I present here my suggestion concerning the unknown ontological system of Hypatia as well as a working hypothesis about the possible presence of Hypatia's ideas in the later published *Commentary* of Eutocius. Lastly, I conclude to a philosophical and scientific profile of Hypatia and I give some comments regarding the widely accepted anti-christian and feminist profile of her.

**Keywords:** *Hypatia, Synesius, Almagest, Diophantus, Eutocius, Conics, Apollonius of Perga*

## 1. Introduction

*This article is devoted to all the women of the past who have not been recognized for their work due to the male-dominated ideology and also to all the women of the present in various places in the Earth who are not allowed to exercise their basic rights in education.*

Even only the utterance of the name of the great philosopher and scientist of the late Antiquity triggers a lot of reactions to most of the people from the period of Enlightenment until now, since she has become a widespread feminine symbol of the independence of thought against the despotic power of theocracy. Such a perception of Hypatia, though correct in general terms, is simplistic, since it is necessary for a comprehensive picture of her to take into account a lot of parameters which affected that period, the boundary between two diametrical epochs.

Are we right if we relate her with the contemporary feminist theories? Was her gender one of the parameters which affected her tragic end? Was Hypatia a typical representative of the ancient pagan way of life in opposition to the already dominant Christian atmosphere of belief and allegiance? Which were those elements of the character and behavior of Hypatia that irritated the great attack against her?

In this article I try to present in juxtaposition the two profiles of Hypatia (350/370–415), her profile entailed by the few real evidences available to us and the other profile as it has been formulated by her reception in the period after the Enlightenment until now. Lastly, I end up with some conclusions about the distance or proximity between these two figures of a woman who unambiguously dared to work in an environment which proved to be dangerous for free expression of ideas and theories.

In Chapter 2, I present the image of Hypatia as it was constructed by the psychological and conceptual needs of a European society striving to face the conservatism of the Christian church, the usual target of the liberal Enlightenment

scholars. The form of Hypatia was further cast in the 20<sup>th</sup> century by the feminist groups so that she appears as a symbol of the endeavor of the women to find their rightful position in the society.

In Chapter 3 I present the philosopher Hypatia through the epistles and the hymns of her great student Synesius, the later bishop of Cyrene, whose works indicate his intense influence from both the Neoplatonic doctrines and the so-called *Chaldean Oracles*. Since he has not referred to any other teacher except Hypatia, the respectful Lady, it is reasonable to rely on the extensive ontological and cosmological descriptions of Synesius in order to reconstruct the unknown Hypatia's system.

In Chapter 4 I present the scientist Hypatia as she emerges from the main astronomical and mathematical texts related to the titles of works survived in *Suda*. Another important footprint in our research is the commentaries of her father Theon whose she was the main supporter and collaborator. In this way I will try to make visible her possible involvement in scientific activities and extant commentaries under the names of other authors. In this regard, I give a synoptic presentation of her astronomical and algebraic activities based on the existing literature and lastly, I give my own contribution to a possible involvement of Hypatia in the *Commentary* of Eutocius on the *Conics* of Apollonius of Perga, based on a number of passages of the commentaries of Theon on the *Almagest* of Claudius Ptolemy and on the *Elements* of Euclid.

## **2. The reception of Hypatia in the Enlightenment and afterwards**

The period of Renaissance signified the return of the integrated ancient scientific and philosophical thought on the stage after centuries of a dominant theocratic system, Catholicism in the West and Orthodoxy in the East. Indeed, in Medieval Times the relative activities had to be exhibited in forms that would not appear hostile to the religious framework. In spite of the restrictive environment, important Me-

dieval philosophers and scientists (either in Byzantium or later in the West) managed to present innovative works but they could not question the entire ideological structure. Scholars as Nicephorus Gregoras in Byzantium and the Franciscan philosophers of science in England prepared the great revolution of thought of the Renaissance. The contribution of Pletho and the Greek scholars exiled later from Constantinople is also unambiguous<sup>1</sup>. In the end of Renaissance the historical science is revived, Platonic views have come into light in balance to the scholastic Aristotelian views and a new paradigm emerged concerning the nature of motion and the heliocentric system<sup>2</sup>. This was the first phase of the great change in the European thought, integrated in the Enlightenment.

According to Dzielska (1997), Enlightenment is the period of the re-emergence of Hypatia in the texts of the philosophers and the books of the novelists. Indeed, she was the most suitable personality to support the new ideological schema, without the necessity of resorting to the historical details of her life or her works. The title of the historical essay of the Irish freethinker John Toland (1670-1722) *Hypatia or the History of a most beautiful, most virtuous, most learned and in every way accomplished lady, who was torn to pieces by the clergy of Alexandria to gratify the pride, emulation and cruelty of the archbishop commonly but undeservedly titled St Cyril* (1720) is eloquent about his opinion concerning the Christian Church of Alexandria as the predecessor of the corrupted Catholic Church. He narrates in this work that the male humans have been stigmatized irreparably through this abominable crime<sup>3</sup>. We can mine from these words the very early relation of the killing of Hypatia to her sex, an approach, which will become more intense in the 20<sup>th</sup> century narratives.

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<sup>1</sup> Wilson N. G., *From Byzantium to Italy: Greek Studies in the Italian Renaissance*, 2016.

<sup>2</sup> Koyre, *From the closed world to the infinite universe*, 1968.

<sup>3</sup> Dzielska M., *Hypatia of Alexandria*, Trnsl. Kousounelos G., Enalios, 1997, p.18.

Within this context, Voltaire (1694-1778) writes in his work *Examen important de Milord Bolingbroke ou le tombeau du fanatisme* (1736) that “this brutal murder was executed by the dogs of Cyril followed by a fanatic gang”. She was murdered, Voltaire says, because she believed in the Greek gods and in the capabilities of the human spirit without imposed doctrines<sup>4</sup>. For Voltaire, the murder was the result of the great fight between the violence of the religious fanaticism and the nobility and independence of the Greek spirit.

Edward Gibbon (1737-1794) in his work *The History of the Decline and Fall of the Roman Empire* says that Hypatia was killed due to her belief in the Greek religion. The organization of the slaughter by Cyril, according to Gibbon, is an additional evidence of the development of Christianity as the critical cause of the decline and fall of the ancient world<sup>5</sup>.

Later, in the second half of the 19<sup>th</sup> century, the English physician, protestant and anti-Catholic philosopher John William Draper (1811-1882) deals with the relationship between religion and science. His book *History of the Conflict between Religion and Science* (1874) examines the possibility of coexistence between religion and science. He dismisses at last any possibility of their harmonization and he presents the history of science as the “narrative of the conflict of two contending powers, the expansive force of the human intellect on the one side, and the compression arising from traditional faith and human interests on the other”. For Draper the development of Christianity is the main cause of the repression of science<sup>6</sup>. “The Greek philosophy is represented by Hypatia, while the ambitions of the Church by Cyril... After the murder of Hypatia the position of philosophy in the intellectual metropolis of the world was determined; henceforth science must sink into obscurity and subordination. Its public existence will no

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<sup>4</sup> Ibid, p.19.

<sup>5</sup> Ibid, p.22.

<sup>6</sup> Reuben J. A. *The Making of the Modern University: Intellectual Transformation and the Marginalization of Morality*, 1996, p. 34.

longer be tolerated. Indeed, it may be said that from this period for some centuries it altogether disappeared”<sup>7</sup>.

Additionally, Bertrand Russell, in his Work *History of Western Philosophy* (1946), remarks that “the chief claim of St. Cyril to fame is the lynching of Hypatia, a distinguished lady who, in an age of bigotry, adhered to the Neoplatonic philosophy and devoted her talents to mathematics... After this, Alexandria was no longer troubled by philosophers”<sup>8</sup>. We see that Russell follows the perception of the typical contrariety between the religious obscurantism and the scientific domain which can operate only under the freedom of thinking.

The popularity of Hypatia was increased during the 19<sup>th</sup> century due to literature. She becomes the central heroine in the poetry of Charles Leconte de Lisle (1818-1894). In his drama *Hypatie et Cyrille* (1857), Cyril declares: “My daughter, wake up, the Lord invites you./ Your gods are dead, their impure worship is rejected:/ Confess at last the one and only holy truth”. Hypatia answers: “Souls are guided toward the unique ideal:/ I have not forgotten Timaeus and the Phaedo;/ Did not John speak as Plato once did?/ The words differ little, the meaning is the same./ We both confess the supreme hope,/ And the God of Cyril, respected in my heart,/ Like the Attic Bee, spoke the truth.” He refers in his poem *Hypatie* (1874) that the deceitful Galilean (implying Jesus Christ) condemned her and that after her fall the body of Venus and the spirit of Plato returned to the blue sky of Greece. We can perceive a slight drift in the thought of Leconte. We can observe at first in his drama the panhuman vision of Hypatia, as she includes in her cosmological system all the religions, even that of the Christian God of Cyril and John the evangelist who in fact inherits the Platonic truths. Later in his poem Leconte calls Jesus deceitful in obvious hostility to the Platonic philosophy and the Greek mythology.

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<sup>7</sup> Draper J.W., *History of the Intellectual Development of Europe*, 1869, pp.324-325.

<sup>8</sup> Russell B., *History of Western Philosophy and its Connection with Political and Social Circumstances from the Earliest Times to the Present Day*, (1946), p. 387.

Diodata Saluzzo Roero (1774–1840) in her poem *Ipazia ovvero delle filosofie* (1827) gives a quite unhistorical tale about Hypatia who concludes to convert to Christianity persuaded by Cyril and killed at last by a fanatic priest. We can see here another attempt of the Italian poet playwright and author, member of the *Accademia degli Arcadi*, to reconcile the late antiquity philosopher with Christianity. The affinity of the feminist movements to the personality of Hypatia continues in the 20<sup>th</sup> century: The author Carlo Pascal (1886–1926) in his work *Figure e Caratteri* (1908) notices that the murder of Hypatia was an anti-feminist act which marks the beginning of a change in the treatment of women, as well as the decline of the ancient civilization in general<sup>9</sup>.

The English feminist and social campaigner Dora Russell (1894–1986) published a book on the inadequate education of women and inequality with the title *Hypatia or Woman and Knowledge* (1925)<sup>10</sup>. Russell remarks in the Preface of the book: “Hypatia was a University lecturer denounced by Church dignitaries and torn to pieces by Christians. Such will be probably the fate of this book: therefore it bears her name. What I Have written here I believe, and shall not retract or change for similar episcopal denunciations”<sup>11</sup>. She mentions in the beginning of her book that there is indeed a sex war in all the ages: “I cannot bring myself to look upon Medea as some elemental being from a dark and outrageous past. As for Jason he never did appear to anybody as other than an ordinary male”<sup>12</sup>. Apparently the choice of the name of Hypatia for the title of Russell’s book comes from the fact that Hypatia was a philosopher persecuted by the people of Church due to her courage that in spite of being a female she continued to teach philosophy, astronomy and mathematics. Hypatia became through her unbelievable end the symbol of a woman, who did not hesitate to accomplish her educating work within an environment which did not endure the free expression of philosophy and science, often identified with

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<sup>9</sup> Booth C., *Hypatia: Mathematician, Philosopher, Myth*, 2017, p. 25.

<sup>10</sup> Ibid, p. 26–7.

<sup>11</sup> Russell D., *Hypatia or Woman and Knowledge*, 1923, Preface.

<sup>12</sup> Ibid, p.1.



magic. Hypatia was the last link in the chain of free education and she was a female link; similarly, in the times of Russell, females were trying to be accepted in free education mainly impeded by the conservative powers of the Church. Hypatia was the most appropriate person to signal the recovery of the natural way of life, which stopped violently with the slaughter of the Greek philosopher.

### 3. Hypatia as a philosopher

Hypatia's philosophical orientation, the curriculum she used in her lectures and the theoretical or experiential character of her 'school' are greatly disputed. Some support that she preferred the rationalistic approach of Porphyry, and others the theurgic paradigm of Iamblichus. Hypatia was a very capable mathematician and astronomer, as well as a philosopher keen on dialectics, head of a School of Neoplatonic orientation, following the Platonic doctrines as enriched by the Neoplatonic interpretation and commentaries. At the same time she was aware of the theories and the method of Aristotle, as well as the sayings of other philosophers. He was a famous teacher offering courses in public, according to Damascius' *Vitae Isidori reliquiae*. Damascius admires her mainly as mathematician, remarking that her mathematical achievements were highly esteemed in the beginning of the 6<sup>th</sup> century<sup>13</sup>. Socrates Scholasticus (380-440) records in his work *Ecclesiastical History* that she undertook the philosophical School of Plotinus<sup>14</sup>. This information is valuable concerning her philosophical system. She is positioned clearly in the Neoplatonic movement established by Plotinus (c.204-270) and continued by Porphyry (c.234-c.305) and Iamblichus (250-325). We know that the Neoplatonists were

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<sup>13</sup> Dzielska M., *Hypatia of Alexandria*, Trnsl. Kousounelos G., Enalios, 1997, p.109.

<sup>14</sup> Ibid, p.109.

trisected in the School of Athens<sup>15</sup>, School of Pergamum<sup>16</sup> and School of Alexandria<sup>17</sup> of Hypatia.

The Neoplatonic School after Iamblichus operated in a mixed fashion, on the one hand through philosophical reasoning and on the other hand in terms of apocryphal practices and theurgy. Another factor to be taken also into account for the understanding of the spiritual atmosphere of that period is the diffusion of an apocryphal text, the *Chaldean Oracles* or *Words*, appeared in the end of 2nd century A.D. attributed to two shady figures, Julian the Chaldean and his son Julian the Theurgist. They have affected greatly all the consequent Neoplatonic thought, especially Iamblichus, Proclus and Damascius. It is reasonable to suppose that the *Oracles* had been studied by Hypatia, based on an additional supporting evidence: the terms and descriptions in the hymns of Synesius are very similar to the extant fragments of the *Oracles*.

Moreover, the influence of the personality of Theon, father of Hypatia and head of the Museum of Alexandria and great commentator of Euclid and Claudius Ptolemy on her daughter was inevitable. Among Theon's lost works are those men-

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<sup>15</sup> It was founded by Plutarch the Athenian (350-430) who refounded the Platonic Academy. The next leaders were Syrianus (-437), Proclus (412-485). The last seven Neoplatonists were the schoolmaster Damascius (458-550), Isidore of Gaza, Hermeias and Diogenes from Phoenicia, Priscianus from Lydia, Eulamius from Phrygia and Simplicius from Cilicia, who were compelled by Justinian to close the School and go to the Persian court of Khosroe I. Asclepigenia (-485) daughter of Plutarch, was a prominent teacher of Proclus.

<sup>16</sup> It was founded by Aidesius (d. 355) student of Iamblichus and teacher of Maximus of Ephesus, Chrysanthius of Sardis, Eusebius of Myndus, Priscus and Julian the Great. Sosipatra (c. 1st half of 4th century) was initially wife of the philosopher Eustathius of Cappadocia (student of Iamblichus and Aedesius) and later of Aedesius. Her son Antoninus was a philosopher and theurgist in Canopus, Egypt, contemporary of Hypatia.

<sup>17</sup> After Hypatia, there were some important philosophers in Alexandria, who worked not in public and taking more precautions after the crime against Hypatia. Among them: Ammonius of Hermiae (440-517/536), son of Aedesia and teacher of Simplicius (c.480-c.540), Damascius, Olympiodorus the Younger (495/505 – d. 565) and John Philoponus (490-c. 570), Isidore of Alexandria (c. 450-520) teacher of Damascius.

tioned by *Suda*: *On Signs and Observation of Birds and the Sound of Crows*, *On the Rising of the Dog-Star (Sirius)* and *On the Inundation of the Nile*, being indicators of a man who is not simply an astronomer but he also believes in the astrological influence of the stars on the Nile as well as in the science of omens. Theon is also recorded in the *Anthologia Palatina* as the author of poems of astrological content. Theon's name also appears in the *Catalogue of Codices of Greek Astrologers*<sup>18</sup>. Therefore the influence of Theon on Hypatia was possibly not only scientific but also apocryphal or we could better say that the science in Hellenistic times in Alexandria included the apocryphal sector.

Since none philosophical text of Hypatia herself has survived, the only way to get a sense of the theories developed, the methods used, the possible ceremonies held in her school is through the texts of her students. The most famous of her students is Synesius, a prominent person of the society of Cyrene. Synesius was a man prolific in writing and he is often very confessional about the behavior and relations of his associates in the School of Hypatia, where he attended from 390 until 396 and afterwards in the years 401-402, 404, 407 and 410-412<sup>19</sup>. Synesius is the author of a number of books, as *Dio*, *On dreams*, *On an astrolabe*, as well as of 159 epistles and 10 hymns. The hymns are richest in philosophical concepts of Neoplatonic scent, sometimes in Christian guise. The epistles capture with utmost clarity the events of his time, such as the everyday life of the people and the public relations between prominent persons mainly aiming at mutual support. They also include valuable information about various philosophical ideas and ritual acts. Synesius appears through these letters as an emotional, spontaneous, enthusiastic man, dedicated to his revered teacher, whom he considers a spiritual summit. He is also bound by bonds of spiritual love with his partners as shown by the worshipful way in which he addresses them. He is a model of a man who combines inner study with outer action, since he is a member of

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<sup>18</sup> Dzielska M., *Hypatia of Alexandria*, Trnsl. Kousounelos G., Enalios, 1997, pp. 141-5.

<sup>19</sup> *Ibid*, p. 62.

Hypatia's circle, delving into philosophy, astronomy and construction of scientific instruments, while he is also an official of Cyrene (an embassy envoy to Constantinople, with requests for tax relief concerning his region) and subsequently a spiritual representative of the Christian community of his country as bishop of Cyrene.

Synesius in his Epistle 137 to his associate Herculian refers to their teacher characterized as the leader of the philosophical rituals (*ῥογια*); in this regard, she is considered as a high priestess of rituals through which the student of philosophy is led to the final stage, that of theurgy, where he becomes initiate in an absolute union with the divine. He describes their course of philosophy offered by Hypatia as the tool for digging up their spiritual eye<sup>20</sup>. Additionally, in his Epistle 143 to Herculian he begs him not to reveal the rituals they shared in the School, a clear indicator that there was a secret course of lessons and rituals offered only to the prepared<sup>21</sup>. This information, combined with the information about public teaching (*δημοσίᾳ ἐξηγεῖτο*) of Hypatia mentioned by Damascius, lead us to suppose reasonably of a mixed system

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<sup>20</sup> "We have seen with our eye, we have heard with our ears the lady who legitimately presides over the mysteries of philosophy. And if human interests join those who share them in a bond of union, so a divine law demands of us who are united in mind, which is the best part of us, to honor each other's qualities... Goodbye then, study philosophy, and go on digging up the eye that is buried within us." (Livius.org)

<sup>21</sup> "You have not kept your promise, my dear friend, the promise which you made that you would not reveal those things which ought to remain hidden. I have just listened to people who have come from you. They remembered some of your expressions and begged me to reveal the meaning of them. But according to my custom I did not pretend to them that I understood the writings in question, nor did I say that I knew them. You no longer need any warning from me, my dear Herculian, for it would not be enough to convince you. Rather look up the letter which Lysis the Pythagorean addressed to Hipparchus, and when you have found it, oblige me by reading it frequently. Perhaps you will then experience a complete change of mind in regard to you uncalled-for revelation. 'To explain philosophy to the mob,' as Lysis says in his somewhat Dorian dialect, 'is only to awaken amongst men a great contempt for things divine.' How often have I met, time and time again, people who, because they had rashly listened to some stately little phrases, refused to believe themselves the laymen that they really were!" (Livius.org).

of lessons like in the School of Pythagoras, where there were two classes of students, one for the *listeners* and the other for the *mathematicians*. The presence of rituals apart from theoretical analysis does also show the double method of Hypatia, as the head of the School in Alexandria. In this regard, she seems to be a theurgist philosopher, as was later the case of Proclus, who also combined dialectics with mystical experience.

Synesius in his Epistle 4 to his brother Euoptius expresses his enormous respect for their teacher Hypatia and to the whole chorus of companions who enjoyed hearing her divine voice<sup>22</sup>.

The other indirect evidence about the philosophical concepts involved in the courses offered by Hypatia are the 10 hymns of Synesius. We can locate in them many descriptions found previously in the *Oracles* and later in the detailed analysis of Proclus in his *Platonic Theology* and his Commentaries on the Platonic dialogues. Obviously, it is not an undue supposition to consider that the main influence on those parts of Synesius' philosophical and mystical works is Hypatia's lectures and initiatory ceremonies; thus we can conclude that her courses of lessons were full of special ontological truths with a characteristic Neoplatonic scent.

In **Hymn 1**<sup>23</sup>, Synesius addresses to the God, calling him a father and a principle moved by itself (a view reminiscent of the Platonic soul as a self-moving being) and also a distributive principle of beings, endowing to each category of them features and functions. God is also the most pure unity (henad) of all unities, the first monad of the monads, the element that bridges the extremes through its henadic nature of each of them. It is reasonable to suppose that this description of the nature of the One was a part of the main body of the Neoplatonic system of Hypatia, which appears in similar

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<sup>22</sup> "...give my regards to the Most Reverent and God-loving philosopher, and to the blessed circle who enjoy her divine voice; and above all, to the most holy father Theotecnus and our companion Athanasius" (my own translation).

<sup>23</sup> Dzielska M., *Hypatia of Alexandria*, Trnsl. Kousounelos G., Enalios, 1997, pp.61-63.

terms later in the ontology of Proclus. Then he speaks of a hierarchy of intellects under the one intellect, of the descent of the intellect into the matter, but also of the peculiar state of the intellect which, though it is an indestructible begetter, has in a sense been entrapped in matter and divided from the rest of the divine rulers. What distinguishes the intellect in relation to the other begetters is its unity and completeness (wholeness); it is a whole in every way, it lacks nothing, it is a whole diffused within the whole. Then he addresses to his soul and speaks of the final union to the father in terms of a chorus, like a chorus of the god within the god, an image very close to the chorus of the students of Hypatia described before in Epistle 4.

In **hymn 2**<sup>24</sup>, an interesting cosmology is offered by Synesius, which, in my opinion, indicates relevant views of Hypatia's cosmological system: the ether reaches the fire and the moon constitutes the limit of the world. Beyond the eighth spheres, some stars move in the opposite direction, clearly implying the reverse movement of the unmoving stars, where is the territory of the great intellect, which, through its wings, delimits the ends of the ruler of the world. After the begetters, the ageless angels follow, who occupy the middle position, looking both towards the intellect from which they grasp the principle of good and towards the ends of everything. In the depths of the world, nature gives birth to a noisy and thoughtful multitude of demons. From this race of demons, come the heroes but also the breath that animates the earth with its multifaceted forms.

Then a significant description of God follows, as both father and mother, male and female at the same time, a 'feminist' concept compatible with the Neoplatonic circles where the woman had an equal share with man in matters of wisdom and spiritual leadership<sup>25</sup>. God is also described as the

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<sup>24</sup> Dendrinios M., *Hypatia, Astronomy, Mathematics and Philosophy in the Twilight of the Ancient World*, Armos, 2021, pp.67-69.

<sup>25</sup> Sosipatra was the head of the School of Pergamum, Asclepigenia, daughter of Plutarch of Athens, was the teacher of Proclus, and Aidesia, wife of Hermes and mother of Ammonius, was a famous person of the time.

aion<sup>26</sup> of aions, showing here the embodiment of the more general Mediterranean perception of aions, of those beings who shape time and govern various cosmic levels, a term already used in Gnosticism. God is also the center of beings and the unit of immortal numbers, the *pre-inessential* (προα-νούσιοι), that is, those that precede the non-essence that is the source of essence, thus introducing an ontological suggestion about numbers quite original; in my opinion, this theory about the ontological structure of numbers could be the tip of the ‘iceberg’ of a Neopythagorean system developed by Hypatia based on Pythagorean ideas circulated in Alexandria. Such a system seems to complete the current scientific-mathematical image of Hypatia as a commentator on Diophantus’ *Arithmetic* and *Conics* of Apollonius of Perga, to be discussed later.

The hymn proceeds with a wish for the soul to stay away from indelicate passions (within the framework of Platonic prudence) so that it does not weigh down its feathers, reminiscent of the image of the winged soul of the Platonic *Phaedrus*. The end of the hymn is again marked by an orgiastic dance among the shoots of the God on the earth.

The **3rd hymn**<sup>27</sup> is the longest of Synesius, constituting essentially an extensive teaching. There is a reference to the four-elementary structure of the world from earth, water, air and ether. Later he speaks of the demonic elements of matter (a train of snakes, a winged serpent, a demon of matter, a cloud of the soul) from which he asks to be protected. The system described by Synesius can be attributed, in the major part, to his teacher, Hypatia. It is clearly a polytheistic system as can be deduced from his continuous reference to a number of gods and demons. The torches in the hymn represent the central fire, the inner core of the divine, which not even the gods have the authority to gaze upon. The intellect descends into matter and, although it reaches the bottomless pit, it fixes its gaze on the unprecedented species, possibly referring to the good.

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<sup>26</sup> Aion (αἰών) is a Greek name for the entities of time.

<sup>27</sup> Dendrinos M., *Hypatia, Astronomy, Mathematics and Philosophy in the Twilight of the Ancient World*, Armos, 2021, pp.80-87.

God is characterized as father of all fathers, father of himself (*αὐτοπάτωρ*), fatherless (*ἀπάτωρ*), the one that is prior to the one, the seed of beings, the center of all things, the *pre-inessential* intellect. God is also characterized as an intellect covered by its own rays, the root of the worlds, the light that shines both upwards and downwards, the eye of itself, that beyond the gods, that beyond the intellects, an intellect that bears the intelligibles, the guide of flows, the source of sources, the principle of principles, the root of roots, the monad of monads, the number of numbers, unit and number, intellect and intellectual, the intelligible and the pre-intelligible, the one and everything, the one through all, the one before all, the seed of all, the female and the male –as in the previous hymn– and finally a dancer in the ineffable depths. It is also called the giver of birth and the birth, the illuminant and the illuminated, the nature of natures, reminding of the Aristotelian characterization of God as an intellect that thinks of itself. It is also the manifest and the hidden, that which has been divided but remains undivided, recalling the Pythagorean opposite pairs.

The hymn then refers to the birth of a child by the father and to the creation by the will of this child of an ineffable intermediate nature which is a pre-essential being, that is, a being that precedes every essence (*προούσιον ὄν*). The child reminds us of Christ in the Christian theology, but it is more compatible to the first and second intellect in Proclus (*Platonic Theology* 5:5) and also to the paternal intellect (fr. 37,39,49,108,109), the second intellect (fr.7) and the intellect from intellect (fr.5) in the *Oracles*. Synesius' triadic reference of the father, the child and the intermediate nature should not be confused with the corresponding Christian 'persons' of the Triadic God, since they are placed more meaningfully in the philosophical context of Neoplatonism, where the triads play a central role in Iamblichus and later in Proclus. The ontological system of Proclus<sup>28</sup> includes indeed a triad of or-

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<sup>28</sup> Cf. Dendrinou M., "Integrated dialectic in Plato's Parmenides: a comparative analysis of Proclus' and Ficino's Commentaries on Parmenides", *Dia-noesis: A Journal of Philosophy*, 16, 2024, pp. 189-210. <https://doi.org/10.12681/dia.39539>



ders of the higher beings: intelligibles–intelligibles and intellectuals–intellectuals, where the second order is a mediator between the two extremes and each of them also triadic, as well as a lower triad of orders of beings: supermundane–supermundane and mundane–mundane, where again there is a mediator connecting the two extremes. Synesius insists in the monad-triad or the triad-monad. He praises both the monad and the triad since the monad exists as triad and the triad exists as monad. Synesius' triad, obviously Neoplatonic in nature, can reasonably be considered to originate from his teacher's system, and thus we can contend that the triad is a prominent feature of Hypatia's ontological system too.

The hymn then describes a primordial birth of the child, in which some beings, called aions, take part. Neither the time with its deep flow did see this birth, indicating that the time existed even before the appearance of being, since the will of the conceived child created the pre-essential being. This primordial time, the old aion, did not discern this child at the moment it emerged from its swaddling clothes, and then a new aion is born. This contrast between deep-flowing time (the old aion) and the new aion is very interesting, as it sheds additional light on the ontologically indeterminate time in which the one-being of the second hypothesis of the Platonic *Parmenides* participates (Plato, *Parm.*, 151e-152a).

The father to whom Synesius addresses is the father of the worlds, the father of the aions and the creator of the gods. He is praised by the guides of the worlds, the intellects under the form of the stars, the beings around the world, the beings within the world, the beings of the zones (ζωναῖοι), those outside the zones, those who direct the parts of the world and the thresholds, but also the heroes and finally the soul itself and all the plants and animals of the earth. The father, according to Synesius, undertakes the genesis of mortal things as images of ideas, up to the ultimate part of the world; this theory, maybe formulated under the influence of his teacher, is obviously of Platonic origin. Besides, the next two references show in the most eloquent way his Greek education, which is in complete contrast to the dominant Christian concepts: (1) regarding the issue of evil, it is clearly stat-

ed that it is not lawful –that is, it is outside the divine law– that different parts of being could be in conflict with each other, (2) regarding the issue of the duration of the world, he follows the Greek cyclical concept of time, according to which the world is eternal, far from the eschatological Judeo-Christian concepts of the end of the world. Are these positions perceptions also of Hypatia about the evil and the duration of the world? It is quite reasonable, since both concepts are consistent to the general ancient Greek view. Also, Synesius' reference to the active gods who have undertaken the protection of the town of Chalcedon shows the continuation of the classical Greek concept of protective gods.

The hymn of Synesius closes with interesting descriptions of the origin, nature and operations of the human soul, which could reasonably indicate the continuity of Platonic concepts within the School of Hypatia, whose Synesius was a member: God the Father placed the soul in the world and through the soul sowed the intellect in the body. Within the sensible world, the soul, instead of its actual nature as a servant of the divine will, became a slave, as it succumbed to the magical arts of matter. The soul tries to save itself from this entrapment by opening its twin wings, the appropriate gifts for escaping from matter. That is why the soul turns to God, asking for hollow wings to use them to fly, aiming at cutting the bond that holds it in the earth and loosening the buckle that holds the twin passions<sup>29</sup> (perhaps of anger and madness) with which the cunning nature bends souls to the earth. The best for the soul is to avoid the fate of the body and with a huge leap to return to its source, but there is also another possibility for the soul: to be preserved for a time as bodily shadow in Hades until it returns again in some new body. Synesius, living amidst material cares and pains, asks in the end, to unite with the light and not to enter again into the destruction of earthly things, implying his liberation from the cycle of reincarnations. But as long as his soul remains in the bonds of the earth, may the fate of gentleness accompany

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<sup>29</sup> The twin passions: maybe the anger and the unwise-ness corresponding to the spirited and appetitive parts of the Platonic soul.

it. All these wishes seem to be a part of ceremony used in Hypatia's School and directed by his beloved teacher.

In **hymn 4**<sup>30</sup>, the father god is characterized by additional references: good of goods, star of stars, world of worlds, idea of ideas, thus constituting the innermost core and nature of the worlds, stars, goods and ideas. Then the father of the aions and the noetic worlds is declared as the source of a breath that drips like ambrosia on the masses (*ὄγκοι*) of bodies and lights up a second world. The term *masses* reminds us of the structure of the sensible world in the form of masses referred to in the 7th hypothesis of the Platonic *Parmenides*<sup>31</sup>. The worlds in the Neoplatonic context are distinct levels of existence flowing from the absolute One. In this context, the second world is the soul between intellect and matter.

Of particular interest is then the deep philosophical interpretation of the unprecedented and primitive glorious offspring. It seems to be the Christian Son but, taking into account the series of the other terms and functions, is more related to the Orphic Phanes Erikepaïos. This intermediate principle is described on the one hand masculine as a *kouros*, and on the other hand feminine as a mother or a daughter or a sister, who has been extracted from the hidden root. This offspring is *logos* (the *word* or the *cause*) born to the begetter father, a feature dominant in both Heraclitean ontology<sup>32</sup> and Christian theology. It inherits the basic property of the begetter, its generative nature, since the begetter father as the seed of all things makes his offspring also a begetter. It is an ontological principle that allows all three natures, and the corresponding worlds, the highest, the middle and the youngest,

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<sup>30</sup> Dendrinos M., *Hypatia, Astronomy, Mathematics and Philosophy in the Twilight of the Ancient World*, Armos, 2021, pp. 91-94.

<sup>31</sup> "Such masses of others would be others of each other, if others exist and one does not exist." "Certainly." "There will, then, be many masses, each of which appears to be one, but is not one, if one does not exist?" "Yes." (*Parm.*, 164d).

<sup>32</sup> Cf. Vertzagia, D, "Anthony A. Long. Selfhood and Rationality in Ancient Greek Philosophy: From Heraclitus to Plotinus. New York: Oxford University Press, 2022". *Conatus - Journal of Philosophy*, 8 (1), 2023, pp. 339-353. <https://doi.org/10.12681/cjp.34784>

to enjoy the good gifts and the fruitful life that poured out by the father god. It is this seed that gives movement to the celestial spheres, just as in the *Timaeus* the soul of the world, torn like a chi<sup>33</sup>, activates the two opposing spheres of the planets and the unmoving stars. Similarly, in the hymn the glorious offspring of the father flows in two opposing directions, holding together the celestial cavity and the indestructible path of the aions. It also gives life and distributes the different works to all categories of beings, the celestial, the aerial, the epichthonian and the subchthonian. The offspring of the father is the master and regulator not only of the animate but also of the inanimate. It is also characterized as a second sun and the generator of an afterglow, referring to the sun of the Platonic *Republic*, where the sensible sun is the image of the true Sun, the absolute Good. It is also intellect of the intellect, soul of the soul, and nature of natures.

We can see in the above described cosmological system the triadic nature of the Neoplatonic orders as well as the triadic structure (empyrean, ethereal and material) of the world (fr.203) in the *Oracles*, while a class of entities, called Iynges, are meant as summits of fire, ether and matter (fr.76). If we relate this system to Synesius' teacher, Hypatia, we can suggest that she has been deeply influenced from the *Oracles*, as Iamblichus and later Proclus.

In **hymn 9**<sup>34</sup>, Titan appears, an entity enriched with very interesting properties. Titan (supposedly the Saturn-*Kronos* related to time-*chronos*) is a being that got to know the offspring of the god, in juxtaposition to the old aion (in hymn 3), who had not seen the primordial birth. When the father's offspring was manifested and spread, it had such power that it created 'spaces' where neither Titan nor the corrupting forces of matter had access. Nevertheless, Titan had the important role of distributing the 'spaces' where the gods reside. We can take *Titan* either as a comprehensive term including all the order of Titans or as the superior Titan, that is, Saturn. Saturn plays a critical role in the *Platonic Theolo-*

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<sup>33</sup> Letter X of the Greek alphabet.

<sup>34</sup> Dendrinós M., *Hypatia, Astronomy, Mathematics and Philosophy in the Twilight of the Ancient World*, Armos, 2021, pp. 98-99.

gy of Proclus, representing the summit of the intellectuals. It is also interesting that a millennium later the Titans and especially the couple of Saturn and Venus play a central part in Plethos' cosmology. Apart from the supercelestial gods, according to Pletho<sup>35</sup>, there is the order of Titans, who are the illegitimate children of Poseidon; they are not inferior to the previous ones in substance differing only in the aim, since Titans, with Saturn as the head, are assigned the creation of the mortal beings. Between the supercelestial gods (intellects) and the irrational species of the universe (entirely dependent on matter) is the rational soul including the stars, the demons and the human souls. Human beings uniting immortal and mortal nature are created through Saturn and Venus, with their immortal part guided by the Olympian Pluto. How can we explain that the Synesius' Titan, a being aware of the primordial birth and privileged by distributive powers concerning the gods, acquires again, a million years later in Pletho, special generative powers under the supervision of Saturn and Venus? The importance of Saturn as a reverent god in Proclus is foreshadowed in Synesius privileged with the observance of the first birth and getting a more decisive position later in Pletho. If we attribute the narration of Synesius' hymn 9 to his teacher Hypatia, could we suggest the existence of a possible closed tradition with scattered clues, which included the Chaldean wisdom appeared in the *Oracles*, the Neoplatonic philosophy of Iamblichus, Plutarch of Athens, Syrianus, Hypatia, Proclus, Damascius and later Psellus and Pletho? This suggestion is intensified by the characterization of Hypatia by Psellus as the 'Egyptian wise woman'.

#### 4. Hypatia as a scientist

In the 10th century *Suda* Lexicon, Hesychius' 6th century material about Hypatia refers: "She wrote a Commentary on Diophantus, the Canon of Astronomy and a Commentary on the Conics of Apollonius". This information from *Suda*, the

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<sup>35</sup> Pletho, *Traité des lois*, pp. 106-8.

Epistle 15 of Synesius about a scientific instrument and his work *On an Astrolabe* are the only recorded evidence for the scientific activities of Hypatia. Therefore, what follows is an attempt to reconstruct her as a scientist based on the above titles, the texts of Synesius and a number of ancient commentaries of other authors, where we suppose with high possibility that she has been involved.

Researchers who have contributed essentially on ancient mathematics and the possible contributions of Hypatia are Waithe (1987) and Cameron (1990) on the Commentary of Theon on the *Almagest*, and Heath (1910) and Deakin (1994) on Diophantus' *Arithmetica*. Besides, McKinney (2010) has studied extensively the Comments of Theon on the Euclid's *Elements* and on the *Almagest*, as well the Comments of Eutocius on the *Conics* of Apollonius of Perga.

### Synesius' works

In Synesius' Epistle 15 to his teacher Hypatia he describes a densimeter, an instrument used to measure the density of liquids. The description, offered in detail, is the first record of such an instrument. Synesius asks Hypatia to order the casting of copper for the instrument, so that he can then purchase it. Since Synesius addresses Hypatia indicates her definite involvement not only in theoretical philosophy but also in the technology of physical instruments<sup>36</sup>.

In his *Essay on an astrolabe* Synesius writes to the person receiving that gift: "I am therefore offering you a gift most befitting for me to give, and for you to receive. It is a work of my own devising, including all that she, my most reverent teacher (Hypatia), helped to contribute, and it was executed by the best hand to be found in our country in the art of the silversmiths" (Livius.org, trnsl. by A. Fitzgerald). Synesius says explicitly that he designed the astrolabe with the help of Hypatia. Therefore, it is certain that all of Theon's astronomi-

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<sup>36</sup> Dendrinis M., *Hypatia, Astronomy, Mathematics and Philosophy in the Twilight of the Ancient World*, Armos, 2021, pp. 25-26.

cal knowledge about the astrolabes was passed on to his daughter and from her to her student<sup>37</sup>.

### Hypatia's *Canon of Astronomy* and the *Commentary* of Theon on the *Almagest* of Claudius Ptolemy

Hypatia was the main collaborator of her father Theon concerning astronomy and mathematics. It seems that she helped her father a lot in his great commentaries on the *Almagest* of Claudius Ptolemy, on the *Elements* of Euclid, as well as on the *Conics* of Apollonius of Perga. There are also definite indications that Theon studied the work of Diophantus<sup>38</sup>, something which fits to the information of *Suda* that Hypatia had commented on Diophantus.

The mentioned in *Suda* work of Hypatia *Canon of Astronomy* is probably related to Theon's *Commentaries* on Ptolemy's *Draft Canon*, and may have been written by Theon in collaboration with his daughter, without excluding the possibility that it is another work by Hypatia herself, now lost<sup>39</sup>.

According to Waithe<sup>40</sup>, Theon was already working on his *Commentaries* on the *Almagest* when he asked Hypatia to review the manuscript. Hypatia then realized that her father's comments on Book III raised many conceptual, methodological and mathematical issues that neither Theon nor even Ptolemy had noticed. To clarify these issues, Hypatia recalculated the mathematical values of astronomical events described by ancient astronomers, including Ptolemy. The *Astronomical Tables* offered by Theon as the *Draft Tables* of Ptolemy are, according to Waithe, the work of Hypatia *Canon*

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<sup>37</sup> Ibid, p. 135.

<sup>38</sup> Christianidis J., and Skoura I., "Solving problems by algebra in late antiquity: New evidence from an unpublished fragment of Theon's commentary on the *Almagest*", *SCIAMVS* (14), 2013, 41-57.

<sup>39</sup> Dendrinos, Markos, *Hypatia, Astronomy, Mathematics and Philosophy in the Twilight of the Ancient World*, Armos, 2021, pp. 134-135.

<sup>40</sup> Waithe, Mary Ellen, *Ancient Women Philosophers: 600 B.C.-500 A.D.*, 1, Dordrecht, The Netherlands: Martinus Nijhoff Publishers. [Commentary to Book III of Ptolemy's *Syntaxis Mathematica*], 1987, pp. 184-5.

*of Astronomy*. Working on the mathematical and astronomical issues of Theon's initial Commentaries, the final form of the Commentaries in Book III was created, which, according to Waithe, should be considered as work of Hypatia. Waithe does not rule out that something similar happened with the final composition of Theon's Commentaries concerning also the remaining books of Ptolemy.

After the study of the conflicting views concerning the identity of the author of the *Commentaries* of Theon on Ptolemy's *Almagest* (*Mathematical Syntax*), my opinion is that we must pay serious attention to the significant change in the headings of the Commentaries in Books I, II, III and IV. The headings in Books I and II of Theon's Commentaries are: "Of Theon of Alexandria, a memorandum to the first (second) book of the *Syntax* of Ptolemy, of his own edition". The heading in Book III is: "Of Theon of Alexandria, a memorandum to the third book of the *Mathematical Syntax* of Ptolemy, of an edition subsidiarily read by my daughter Hypatia, the philosopher". The heading to Book IV is: "Of Theon of Alexandria, a memorandum to the fourth book of the *Mathematical Syntax* of Ptolemy". The distinction between the terms *edition* [ἐκδοσις] (compilation and presentation of a text by someone) and *commentary* [υπόμνημα] is particularly important. According to Rome, these headings distinguish Theon's original edition from an edition after the involvement of Hypatia.

Let us look now that part of *Almagest* which, based on the suggestions of Knorr (Cameron<sup>41</sup>), constitutes the most likely active intervention of Hypatia in Ptolemy's commentary. This is the part of Book III, Chapter 1, where the total number of degrees of the celestial circle (360°) is divided by some sexagesimal number: 365 days, 14 minutes and 48 seconds [τξε ιδ' μη"]. Divisions with a sexagesimal number as a divisor are also found in various places in the commentaries on the remaining books of the *Almagest*, an indication that Hypatia has possibly left her mark there as well.

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<sup>41</sup> Cameron A., "Isidore of Miletus and Hypatia: On the Editing of Mathematical Texts", *Greek, Roman and Byzantine Studies* 31, 1990, 103-127, p. 108.



### *Arithmetica* of Diophantus

We know from *Suda* that Hypatia has written a Commentary on the work of Diophantus. Hypatia's commentaries on Diophantus' *Arithmetica* probably extend throughout the work. According to Heath (1910), there are notes, observations, and interpolations in the various versions of manuscripts that may have also included comments of Hypatia.

Based mainly on Heath and his analysis of problems of the book II (1-7, 17, 18), considered as inserted passages that probably belong to Hypatia, but also on Deakin's analysis, who speaks of the insertion of two student exercises at the beginning of Book II (these are problems 6 and 7), we could suggest that the problems II. 1-7, 17, and 18 are some of the problems introduced by the great mathematician. We must not forget that these are speculations of researchers based on similarities and differences among the various manuscripts, since no work entitled as hers has survived.

If we look at these problems one by one, as they appear in a standard edition of Diophantus' *Arithmetica*<sup>42</sup>, we can read that the problems 1-7 and 17 of Book II are listed as spurious, another indication that they are part of the creative intervention of the possibly first commentator; that is Hypatia. An additional indication of the connection of problem 7 with Hypatia is, according to Deakin<sup>43</sup>, that a 9-word phrase in the Greek text is identical to a corresponding one in Euclid's *Data*, the publication of which was undertaken by Theon, with whom his daughter collaborated closely.

### *Commentary* of Eutocius on the *Conics* of Apollonius of Perga

No attempt has been made so far to assess the possible commentaries of Hypatia on the *Conics*, until my presentation (Dendrinos, 2021) of a hypothesis based on a common pas-

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<sup>42</sup> *Diophantini Alexandrini*, 1843.

<sup>43</sup> Deakin M., "Hypatia and Her Mathematics", *The American Mathematical Monthly*, Volume 101, Number 3, 1994, 234–243, p. 240.

sage concerning the so-called *compounded ratio* (συγκείμενος λόγος) in Eutocius' Commentaries on *Conics*, Theon's Commentaries on Euclid's *Elements*, and Theon's Commentaries on the *Almagest*.

As McKinney<sup>44</sup> points out, the concept of compounded ratios appears twice in Euclid's *Elements* VI.23 and VIII.5. Indeed, in the VI.23 it is proved that equiangular parallelograms are to one another in the ratio compounded out of the ratios of the corresponding sides, whereas in the VIII.5 there is an analogous proposition for the case of numbers. Thus, the idea of compounded ratios could be regarded as a generalization of the duplicate and triplicate ratios.

McKinney observes that the definition of the compounded ratio in Eutocius' Commentary on the *Conics* is the same as the definition 5 of the Book VI of Euclid's *Elements*<sup>45</sup>, adding that this definition is not included in the typical editions of Euclid's *Elements* but only in the edition of Theon, which obviously includes also comments and additions of Theon. For McKinney the specific definition seems disappointing and deficient<sup>46</sup> and he refers that the integrated definition of the consisted fraction is found only in the Comments of Theon on the *Almagest*<sup>47</sup>. The mentioned passage (the translation is mine) is as follows: "A ratio is said to be compounded of two or more ratios, when the quotients of the ratios multiplied together form a certain quotient of ratio. Let AB to DG have a given ratio, and DG to EZ another ratio; I say that the ratio of AB to EZ is compounded of the ratio of AB to DG and the ratio of DG to EZ if the quotient of the ratio of AB to DG multiplied by the quotient of the ratio of DG to EZ forms the quotient of the ratio of AB to EZ"<sup>48</sup>.

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<sup>44</sup> McKinney C. B. P. Conjugate diameters: Apollonius of Perga and Eutocius of Ascalon, Ph. D. dissertation, University of Iowa, 2010, p. 96.

<sup>45</sup> The definition VI.5 exists in Theon's Comments on *Elements*, edition of Heiberg but in the edition of Green Lion (McKinney, 2010, p. 100-101).

<sup>46</sup> McKinney C. B. P. Conjugate diameters: Apollonius of Perga and Eutocius of Ascalon, Ph. D. dissertation, University of Iowa, 2010, p.101.

<sup>47</sup> Ibid, p.105.

<sup>48</sup> Commentaires de Pappus et de Theon d' Alexandrie sur l' Almageste (1967-1984) Λήμματα, pp. 532-535.

At this point I start to develop my theoretical assumption aiming at locating the possible intervention of Hypatia in the Commentary of Eutocius on the *Conics*. At first we have to take into account the known research collaboration of Hypatia with her father Theon on the *Almagest*, as well as on the mathematical issues concerning the *Elements* of Euclid. Theon wrote, as we saw previously, his Commentaries on the *Almagest* with Hypatia as a collaborator and additionally as editor especially concerning the Commentaries on Book III of the *Almagest*. In the context of the 11th proposition of Apollonius' *Conics*, Apollonius introduces the term *compounded ratio*, following the terminology of Euclid's *Elements*, since he was a famous student of Euclid. The issue of *compounded ratio* is therefore an issue that begins (from the sources we have) with Euclid and then proceeds to Apollonius' *Conics*, then to Ptolemy's *Almagest*, then to Theon's Commentaries on the *Almagest* and finally to Theon's Commentaries on Euclid's *Elements*. However, the definition of the *compounded ratio* is not found in the standard editions of the *Elements* but only in Theon's Commentaries on the *Elements*, as well as in Theon's Commentaries on the *Almagest*. When does the same definition reappear? In Eutocius' Commentaries on Apollonius' *Conics*. It seems, therefore, that Eutocius used Theon's Commentaries on these two works, as these definitions do not appear in the other surviving editions of Euclid's *Elements*, but only in Theon's both Commentaries on the *Elements* and Commentaries on the *Almagest*. We also know for certain, as we saw through Hesychius' reference in *Suda*, that Hypatia also wrote Commentaries on Apollonius' *Conics*, thus before Eutocius. It was also common in antiquity for commentators to use the texts of earlier commentators on the same subject. It is therefore reasonable that Eutocius consulted and used Hypatia's earlier Commentary for his own Commentary, or, in other words, Hypatia's Commentary was possibly revived through Eutocius' Commentary. Hypatia's study may be scattered throughout the extant Commentary of Eutocius, but we could assume with a high degree of probability that the parts of Eutocius' Commentary that refer to the *compounded ratio* echo or are the same as some correspond-

ing passages of Hypatia's Commentaries on the issue of *compounded ratio*, a concept first defined by Theon, and which his collaborator and daughter would have been informed or even contributed to a large extent.

## 5. Conclusions

Who was Hypatia and what does she represent? Was she the brave person who dared to turn against the dark powers of illiteracy imposed by the Church? Was she a dispassionate philosopher who was not afraid of any threat, determined to integrate her work of illuminating any apprentice oriented towards her independently of their religious faith? Was she a martyr for the sake of science and freedom of thinking or a martyr for the sake of Hellenism dishonestly attacked by the emerging Christianity? Who persecuted her, the official Church or a violent mob without the authorization of the episcopate?

After the presentation of her numerous activities and the reactions to her work we can answer calmly and unaffected, as much as possible, by the great crime against her.

I think that she did not have this end exclusively due to her gender, but we can reasonably argue that her gender increased the rage of her opponents. The Christian fathers had introduced another standard for the right woman, as a servant of the Church and also as a follower of the male members who were the legal representatives of the new religion. The role of the female priest recognized in the ancient ceremonies and mysteries<sup>49</sup> as well as in the gnostic movements was rejected by the Orthodox, leading some women who needed a close relation to the divine to the ascetic and monastic life. The ascetic ideal was not alien to the pagan way of thinking and it was widely used in the Neopythagorean cycles. Hypatia possibly embraced this style of life as we can conclude if we take into account that she never married and she never was involved in erotic relations, based also on the

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<sup>49</sup> Cf. Griva A., *Aphrodites: Aspects and Cults of the Goddess Aphrodite during the Archaic Period with Sappho as a Guide*, Smili, 2022.

occurrence of her abrupt rejection of the man who fell in love with her. She is referred persistently as the most beautiful and clever woman of her times. Charles William Mitchell (1885) has painted her naked in a position full of sexual attraction but we may doubt that this erotic connotation has a correspondence in reality since it is more reasonable to imagine her covered in her white garment, the characteristic cloth of a philosopher. The paintings are a good source for taking information about the way of the reception of the historical persons in different times and not so much about the real appearance of them in their time, as we see also in the famous *Academy of Athens* of Raphael with the various philosophers of the antiquity. We cannot answer with certainty if she would be killed in this way by the Christian mob in the case she was male. The rage of the attack indicates, in my opinion, the anger and the violence of a male crowd against a female who dared to share her theories with a male audience, giving the impression of the despicable, for them, implied superiority of women versus men.

History is a branch which has often suffered from interpretations taken for granted as they were facts. This is more intense in cases where the historical evidence is poor and the personality under study is specifically attractive as a novel character, as Hypatia. Therefore, we must be very careful and precise in our assessments following a balanced way in coordination with the poor available information, separating clearly our suggestions from the real facts. Very often, we meet the largely imaginary image of the last defender of the Greek national religion against the advancing Christianity, an image largely adopted by the analysts and writers of the Enlightenment era accompanied with an intense anti-Christian rhetoric. On the contrary, Hypatia is presented as a simple servant of ratio stripped of her ancestral religion, as Dzielska describes her: "Nowhere in the sources Hypatia is mentioned as a devoted pagan, while her lectures, although described in mystical-religious terminology, do not include magical rituals that are particularly characteristic of the groups that cultivated the post-Iamblichian philosophical tradition. She made no attempt to gain the favor or achieve the subjugation of the

numerous divine powers—gods, demons, and heroes. Her circle did not use magical methods to understand the nature of the world; there is no mention of sacrifices to the gods, the use of cult objects, the performance of night services, statues that came to life, and the like. Even John of Nikiou, although he presents her as an ordinary witch practicing black magic, does not mention anything about cultic practices on her part... They (the members of the group of Hypatia) may also have read and recited texts of Christian content”<sup>50</sup> and elsewhere: “Hypatia felt no attraction to Greek polytheism or local cults... She felt no obligation to support her Platonism with magic and ritual practices, oracles or sorceries”<sup>51</sup>.

It is surprising how Dzielska, after such a thorough study, arrives at such an image of Hypatia. In an era when theurgy, rituals and magic were the natural complement to the rational approach, especially in the Neoplatonic line that Hypatia followed, how does Dzielska conclude with certainty that Hypatia distanced herself from the common practices of the time? How is it possible that a person described as a leader of the ‘mysteries of philosophy’ is stripped of ritual practices, invocations of divine entities? Isn’t it reasonable that she was attracted of the worship of her own gods (Greek polytheism) instead of reciting Christian texts? Dzielska’s description seems to me to be a complete distortion of reality, at a time when the power and allegorical meanings of the Greek gods were insurmountable and frequently discussed by her Neoplatonic ancestors and later ones. It is almost certain to me from the indications we have that in their secret sessions the invocations of the names of the gods and demons would have been on the agenda, and it was one of the reasons why these sessions were secret. Moreover, there is an indication, nearly a certainty, of her involvement in polytheistic rituals if we are based on the way her student Synesius handles the invocations in his hymns, despite his simultaneous Christian status, as well as on his everyday language in his epistles, as in the Epistle 136 to his brother Euoptius (also a bishop)

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<sup>50</sup> Dzielska M., *Hypatia of Alexandria*, Trnsl. Kousounelos G., Enalios, 1997, pp. 123-4.

<sup>51</sup> Ibid, p. 156 (the translation is mine).

where he invokes the god Zeus ( $\nu\eta\ \Delta\acute{\iota}\alpha$ ). The secrecy of Hypatia's teaching and the commitment her students had undertaken not to share it (see Epistle 143) could also be due to the fact that the theological framework within which their so-called 'philosophical rituals' operated was indeed the ancient Greek pantheon. Such a sharing would indeed be very dangerous after the events of the destruction of the Serapeum<sup>52</sup>.

## References

### *Principal sources*

- Apollonii Pergaei, *Conicorum Libri Octo et Sereni Antissensis de Sectione Cylindri & Coni Libri Duo* Ed. M. Halleius, 1710, digitized by Google - Απολλωνίου Περγαίου *Κωνικών το πρώτον (έως και το έκτον) μετά των Ευτοχίου Ασκαλωνίτου υπομνημάτων*
- Apollonius of Perga, *Conics. Books One – Seven*, English translation by Boris Rosenfeld, The Pennsylvania State University, available at: <https://www.math.uh.edu/~shanyuji/History/Appendix/Appendix-11.pdf>
- Apollonius of Perga *Treatise on Conic Sections*, edited by T.L.Heath, 1896, Cambridge University Press, edited in modern notation with introductions including an essay on the earlier history of the subject.
- Claudii Ptolemaei *Syntaxis Mathematica*, edited by J.L.Heiberg, Lipsiae, Teubneri, 1898.
- Commentaires de Pappus et de Theon d' Alexandrie sur l' Almageste*, texte etabli et annote par A. Rome, 1967–1984, Biblioteca Apostolica Vaticana, Εθνική Βιβλιοθήκη της Ελλάδος
- Commentaires de Pappus et de Théon d'Alexandrie sur l'Almageste. Tome I: Pappus d'Alexandrie, Commentaire sur les livres 5 et 6 de l'Almageste* par A. Rome, 1931, Città del Vaticano, Biblioteca Apostolica Vaticana (Studi e Testi 54)
- Απολλωνίου *Κωνικά*, Testimonies Greek-Latin, Book 1, Evangelos Stamatidis (Ed.), Published by the Technical Chamber of Greece, 1975.*Diophantini Alexandrini Opera Omnia cum Graecis Commentariis*, Editit et Latine interpretatus est Paulus Tannery, *Volumen I, Diophanti quae exstant omnia continens*, Lipsiae, in Aedibus B. G. Teubneri, 1843.
- Diophantini Alexandrini Opera Omnia cum Graecis Commentariis*, Editit Paulus Tannery, *Volumen II, Continens Pseudepigrapha, Testimonia Veterum, Pachymerae Paraphrasin, Planudis Commentarium, Scholia*

<sup>52</sup> Dendrinos, Markos, *Hypatia, Astronomy, Mathematics and Philosophy in the Twilight of the Ancient World*, Armos, 2021, pp. 192-5.

- Vetera, Omnia Fere Adhuc Inedita, Cum Prolegomenis et Indicibus*, Lipsiae, in Aedibus B. G. Teubneri, 1845.
- Διοφάντου Αριθμητικά Η Άλγεβρα των Αρχαίων Ελλήνων, Έκδ. Ε. Σταμάτη, ΟΕΔΒ, 1962.
- Pletho, *Πλήθωνος Νόμων Συγγραφή* (Georges Gemiste, Plethon, Traite de lois, par C. Alexandre), Elibron Classics, Adamant Media Corporation, 2006.
- Πτολεμαίου *Πρόχειροι Κανόνες*. *Ptolemy's Handy Tables* Vol. 1b. Tables A1–A2. Transcription and Commentary by Raymond Mercier, Publications de l'Institut Orientaliste de Louvain 59b. Université Catholique de Louvain. Louvain-la-Neuve, 2011.
- Συνεσίου του Κυρηναίου, *Επιστολαί, μετά των σχολίων του Διδασκάλου Νεοφύτου Ιεροδιακόνου του Πελοποννησίου*, εκδοθείσαι σπουδή τε και επιστασία Γρηγορίου Ιεροδιακόνου Δημητριάως του Κωνσταντά, εν Βιέννη της Αουστρίας, 1722.
- Συνεσίου Επισκόπου Κυρήνης Άπαντα, ΑΠΘ, <http://digital.lib.auth.gr/record/137215>
- Livius.org (Jona Lendering), *Articles on ancient history, Texts os Synesius*, <https://www.livius.org/articles/person/synesius-of-cyrene/synesius-texts/>
- Secondary sources*
- Booth Charlotte *Hypatia: Mathematician, Philosopher, Myth*, London: Fonthill Media, 2017.
- Cameron, Alan, “Isidore of Miletus and Hypatia: On the Editing of Mathematical Texts”, *Greek, Roman and Byzantine Studies* 31, 1990, 103-127.
- Christianidis J., and Skoura I., “Solving problems by algebra in late antiquity: New evidence from an unpublished fragment of Theon’s commentary on the Almagest”, *SCIAMVS* (14), 2013, 41-57.
- Deakin Michael, “Hypatia and Her Mathematics”, *The American Mathematical Monthly*, Volume 101, Number 3, 1994, 234–243.
- Dendrinis, Markos, *Hypatia, Astronomy, Mathematics and Philosophy in the Twilight of the Ancient World*, Armos, 2021.
- Dendrinis Markos, “Integrated dialectic in Plato’s Parmenides: a comparative analysis of Proclus’ and Ficino’s Commentaries on Parmenides”, *Dia-noesis: A Journal of Philosophy*, 16, 2024, pp. 189-210. <https://doi.org/10.12681/dia.39539>
- Draper J.W. *History of the Intellectual Development of Europe*, New York, 1869.
- Dzielska Maria, *Hypatia of Alexandria*, Trnsl. George Kousounelos, Enalios, 1997.
- Griva Anna, *Aphrodites: Aspects and Cults of the Goddess Aphrodite during the Archaic Period with Sappho as a Guide*, Smili, 2022.
- Heath, T.L., *Diophantus of Alexandria: A Study in the History of Greek Algebra*, Cambridge University Press, 1910.



- Koyre Alexandre, *From the closed world to the infinite universe*, Baltimore, Johns Hopkins Press, 1968.
- McKinney Colin B. P. *Conjugate diameters: Apollonius of Perga and Eutocius of Ascalon*, Ph. D. dissertation, University of Iowa, 2010, available at Iowa Research, <https://ir.uiowa.edu/etd/711>
- Neugebauer O., *A History of Ancient Mathematical Astronomy*, Springer Verlag, New York, 1975.
- Reuben, Julie A. *The Making of the Modern University: Intellectual Transformation and the Marginalization of Morality*, University of Chicago Press, 1996.
- Russell Bertrand, *History of Western Philosophy and its Connection with Political and Social Circumstances from the Earliest Times to the Present Day*, George Allen and Unwin LTD, Great Britain, 1946.
- Russell Dora, *Hypatia or Woman and Knowledge*, London, 1923.
- Vertzagia Despoina, “Anthony A. Long. Selfhood and Rationality in Ancient Greek Philosophy: From Heraclitus to Plotinus. New York: Oxford University Press, 2022”, *Conatus - Journal of Philosophy*, 8 (1), 2023, pp. 339–353. <https://doi.org/10.12681/cjp.34784>
- Waithe Mary Ellen, *Ancient Women Philosophers: 600 B.C.–500 A.D.*, 1, Dordrecht, The Netherlands: Martinus Nijhoff Publishers. [Commentary to Book III of Ptolemy’s *Syntaxis Mathematica*], 1987.
- Wilson N.G., *From Byzantium to Italy: Greek Studies in the Italian Renaissance*, Bloomsbury Publishing, 2016.

