

The Big Bang theory in Theogony by Hesiod

The creation of the universe has long fascinated civilisations, including the Hellenic world. Though only fragments of ancient Greek literature have survived, they suffice to illuminate the thoughts and imagination of early Greeks. Hesiod, in his epic Theogony, weaves in a few verses (116–128) a luminous narrative of the cosmos's birth. Modern astrophysics, through the Big Bang theory, teaches that the universe sprang from an exceedingly dense and searing singularity, unfolding ever since in ceaseless expansion. Viewed through a mystical and interpretative lens, one may discern echoes of contemporary cosmology in Hesiod's poetic cosmogony. He imparts his vision in a spirit of philotes, friendship and harmony, claiming divine inspiration from the Muses, the daughters of Zeus, thus offering an epic that is both majestic and enduring for his contemporaries and generations yet to come.

Introduction

Among the scientific theories concerning the origin of the universe, the Big Bang theory¹ is the most widely accepted by astrophysicists. In his epic poem Theogony, Hesiod presents the creation of the cosmos in a poetic and evocative manner. The parallels between modern astrophysics and the verses of Theogony, particularly those that recall the Big Bang, go beyond mere coincidence, inviting us to contemplate with an open, reflective mind.

The narrative of the universe's birth begins at verse 116. Verses 1–115 recount, first, the sacred rite of the Muses' aquatic purification; second, the hymning of the gods; and finally, at Zeus' behest, Hesiod's mystic initiation into the Apollonian arts of music and poetry, granting him divine inspiration to chant and foretell both past and future.

Hesiod stands as, on one hand, the second most celebrated epic poet of antiquity, and on the other, a creator whose themes arise from both imagination and lived experience. Escaping from criticism is rather difficult. Even Homer has often been characterised as a fictional narrator, despite archaeological and scientific evidence supporting the truths embedded in his narratives.

The true meaning of the word “Myth”

Contrary to modern assumptions, Hesiod does not merely recount fanciful tales. The distinction between *μῦθος* [*mythos*] (*myth*) and *παραμύθιον* [*paramythion*] (*fairy tale*) is crucial. Contemporary science and popular opinion often treat both as synonymous, assuming they describe events that are false or

¹Un Univers homogène de masse constante et de rayon croissant rendant compte de la vitesse radiale des nébuleuses extragalactiques, 1927, Georges Lemaître, Catholic Priest, Astronomer and Physist at University of Leuven. “The universe in a nutshell, Stephen Hawking. Έκδ. Κάτοπτρον, 2001, σελ.23”,

1 purely imaginative. Yet, according to Liddell & Scott, *παραμύθιον* signifies con-
 2 soling, exhortatory, or instructive stories. At the same time, *μῦθος* encompasses
 3 any verbally transmitted account, including historical events, regardless of
 4 whether it is true or false.

5 Misunderstanding “myth” fosters misconceptions and the dismissal of pre-
 6 served truths, such as the Trojan War, the Minoans, and the Mycenaean civilisa-
 7 tions.

8 At the core of every myth lies the truth. Confusing *myth* with *paramyth* pro-
 9 duces flawed reasoning (*παρά-λογον λόγον*), misjudged understanding (*παρα-*
 10 *φρονούσης φρονήσεως*), misconceived thought (*παρα-νοοῦντος νοῦ*), and ulti-
 11 mately a falsifier (*παρα-χάρακτον*) of truth.

14 Elements of the Big Bang Theory

16 The Big Bang theory suggests that the universe has a starting point, which
 17 is considered to have occurred 13.7 billion years ago. Before that, there was no
 18 space, mass, time, or energy. During the beginning, there was a very high density
 19 and high temperature stage, a singularity² that exploded or, according to others,
 20 expanded³, unrolling the universe. The explosion’s or expansion’s products
 21 started staving off each other, and since then, the universe has been ever-expand-
 22 ing⁴. Evidence of the Big Bang is considered to be the existence, in the visible
 23 universe, of huge quantities of the “light elements”⁵ hydrogen and helium, as
 24 well as the discovery of Cosmic Microwave Background radiation, which is
 25 thought to be the remnant of the singularity’s heat. That discovery earned astro-
 26 physicists Arno Penzias and Robert Wilson⁶ a quarter each of the 1978 Nobel
 27 Prize. As far as the creation of space is concerned, Stephen Hawking, George
 28 Ellis⁷, and Roger Penrose⁸ extended the theory of General Relativity and, in 1968
 29 and 1979, published works claiming that the singularity did not appear in space
 30 but rather that space began inside the singularity.

31 The view that space was created within the singularity, rather, opposes the
 32 Aristotelian logic of “cause and effect”, which implies that the singularity, re-
 33 gardless of its smallness, occupies some infinitesimal space.

²The universe in a nutshell, Stephen Hawking. Katoptron, 2001, pg.23

³site Stephen Hawking <http://www.hawking.org.uk/the-origin-of-the-universe.html>, and <http://www.big-bang-theory.com/>

⁴See footnotes 1 και 2, pgs.23, 92

⁵See footnote 4

⁶https://www.nobelprize.org/nobel_prizes/physics/laureates/1978/

⁷The Cosmic Black-Body Radiation and the Existence of Singularities in our Universe, Steven W. Hawking, George F.R. Ellis, *Astrophysical Journal*, vol. 152, (1968) pp. 25-36, Definition of singularity sct. II. The nature of the singularity sct. vi.

⁸The Singularities of Gravitational Collapse and Cosmology, Steven W. Hawking, Roger Penrose, *Proceedings of the Royal Society of London, series A*, 314 (1970) pp. 529-548. ιστότοπος <http://rspa.royalsocietypublishing.org/>

1 Until future scientific announcements prove otherwise, astrophysics re-
 2 serves its opinion and replies, “I do not know”⁹ to the following questions: What
 3 is the origin of the singularity? What is its nature? Why, where and how was it
 4 created?

5 Furthermore, science developed the concept of necessary and sufficient con-
 6 ditions to achieve a specific result.

7 For an explosion to take place, the “necessary” condition consists of the co-
 8 existence of a) space within which the explosion will take place, b) mass to be
 9 exploded and c) catalyst to trigger the process of the explosion, while the “suf-
 10 ficient” condition consists of the existence of the appropriate state of affairs like
 11 mass density, pressure and temperature.

14 Interpretation of Theogony’s verses

16 Hesiod, without violating the Aristotelian logic of “cause-effect”, describes
 17 not only the necessary and sufficient conditions for an explosion to take place,
 18 but also the results of the explosion till nowadays.

20 Necessary condition for the Big Bang

22 The necessary condition for the Big Bang is described in Theogony, and is
 23 coming into being as follows:

- 24
- ✓ **space:** First of all, Chaos came into being. But then *Theog. v. 116*
 - ✓ **mass** Gaia, broad-chested, always the unshakable seat of all *Theog. v. 117*
 - ✓ **catalyst** and Eros, the most beautiful among the immortal gods, *Theog. v. 120*
 dismemberer for all Gods and humans *Theog.. v. 121*

Hesiod chooses his words and presents the facts in a manner that cannot be dismissed as mere coincidence.

First of all, Chaos came into being

Hesiod selects the word “primary” (πρώτιστα-[*prootista*]) and not “in the beginning” (ἐν ἀρχῇ-[*en archee*]) as used by other texts referring to cosmogony. The word “ἀρχή-[*archee*]” etymologically originates from the verb «ἄρχω-[*archoo*]» (to rule, to govern) and is interpreted as “ἐναρξίς-[*enarxis*]” (*starting*). Usual uses of the word “*archee (beginning)*” are found in mathematics, like “we define point A as the beginning... of a line segment, of a circle’s periphery, as

⁹<http://www.big-bang-theory.com/>

well as in daily expressions like: “beginning of a street, time period, conversation, etc.” Furthermore, Basil, the father of the Christian Orthodox religion, writes¹⁰:

*Because by nature, the **beginning extends** itself to both sides, ...*

And in the next paragraph:

There was a stage older than the one of the universe’s creation that was appropriate to the supernatural powers, the ones beyond time, the eternal, the non-visible.

Therefore, both the usual use and the theological meanings of the word “beginning (ἀρχή-[*archee*])” cannot and do not indicate the moment the universe began.

The word “*primarily* (πρώτιστα-[*prootista*])” is the superlative form of the word “πρῶτος-[*prootos*] (*first*)” and expresses the ultimate first. In that sense, this is the only word that can accurately mark the moment the universe began. At the same time, the word indicates that nothing existed before that moment.

Remarkable is also the meaning of the word “γένετ’[*o*] (*geneto[o]-took place*)” that etymologically comes from the verb “γίγνομαι ([*gignomai*]-*become*)” and is interpreted as “*be born*” for humans (passive voice), “*be produced*” for things (middle & passive voice) and “*coming into being*” for happenings (active voice).

It is concluded, therefore, that Chaos is neither human nor a thing that has been born or produced. Chaos came into being primarily. The lexicon of Liddell-Scott presents the nature of Chaos as “the first state of the universe”, as infinite space, infinite area; in general, as infinite. The word Chaos etymologically comes from the verb “χάσκω ([*chaskoo*]-*gape*), χαίνω ([*chainoo*]-*yawn*)”. Therefore, Chaos is the gap and consequently the space.

Hesiod characterises Chaos as “Ζοφερόν ([*zoferon*]-*dusky*)”:

dwelt the Titans on the other side of pitch-dark Chaos.¹¹

Theog. v. 814

Immediately after Gaia broad-chested

Immediately after Chaos, the broad-chested Gaia came into being, the mass, the “singularity”. Orpheus uses numerous epithets in the hymn “To Gee every seed’s fumigation¹²”, like Goddess, mother, all-nurturing, bringing fulfilment, destroyer of all, promoting growth, yielding fruits, bursting good time...Instead

¹⁰“**Discourse on the Hexaemeron**”, dsc. a, unite II, para 4

¹¹Theogony, A. Athanassakis, Johns Hopkins University Press, Baltimore, 1983 sites <https://msu.edu/~tyrrell/theogon.pdf> and <http://www.sacred-texts.com/cla/hesiod/theogony.htm>. All translation in English language of Theogony’s verses, included in this work, are inspired by the above documents. However, modifications have been introduced by the author of this work in order to much the author’s point of view.

¹²The Mystical Hymns of Orpheus, Tomas Taylor, London, MDCCCXCVI (1896)

of using one of them, Hesiod chooses the epithet “broad-chested”. Why? There are various possible interpretations for this. We adopt the following view.

The chest protects the two main organs of life: the lungs and the heart. Consequently, the broad-chested Gaia encompasses and protects the universe’s generative organs. Being generative Gaia is by nature:

Gaia, broad-chested, is always the unshakable seat of all the immortals who hold the peaks of snowy Olympus, and dark Tartaros in the recesses of the wide-wayed chthon, *Theog. v. 117*
Theog. v. 118
Theog. v. 119

After Eros came into being... dismemberer

After Chaos and Gaia came into being the catalyst, the “λυσιμελής-[lysime-lis] dismemberer” Eros (Ἔρως), who is not the archer son (Eroos, Ἐρωος) of Aphrodite and Hares.

According to Liddell-Scott, “λυσιμελής-(*lysimelis*)” is an epithet of Hypnos and is translated as “dismemberer”. At that moment of the creation, only Chaos and Gaia were in existence. Therefore, Eros could only act as a dismemberer to them.

Completion of the necessary condition for the explosion

The first system has been formed. Chaos, Gaia and Eros are present. According to thermodynamics, the created system contains specific energy that depends only on its state, not on how it arrived at that state. The energy situation of that system is described in verse 700.

divine ineffable heat (Καῦμα [kavma]) occupied Chaos *Θεογ. στ. 700*

Καῦμα: burning heat (Liddell-Scott).

If divine ineffable heat still exists in verse 700, one may reasonably conclude that it existed even more intensely at the moment when Eros triggered the initial reaction.

Gaia, chthon: two distinct entities amongst them

Gaia broad-chested, chthon wide-wayed. It is worth noting Hesiod’s way of writing the words “Γαῖα-Gaia” (24 repetitions), “γαῖα-gaia” (27 repetitions), “Γῆ-Gee” (once), “γῆ-gee” (8 repetitions) and “χθὼν-chthon” (18 repetitions).

The use of majuscule and minuscule in writing the words does not indicate any mistake or omission. We do not adopt the conventional view that treats these terms as synonyms. We retain our own interpretation of “Γῆ (Gee),” the analysis of which lies beyond the scope of this presentation.

Hesiod places the humans on chthon:

Oath who, for most men on chthon... *Theog.*
v.231
From then on, for the immortals, the tribes of men on chthon *Theog.*
v.556
to the ash trees for mortal men who dwell on chthon *Theog.*
v.564

Gaia and chthon are two distinct entities, and the wide-wayed chthon is always seated stably on broad-chested Gaia.

The sufficient condition for the explosion

The rod-map towards the sufficient condition for the explosion is described in Theogony as follows:

- ✓ action of Chaos, genesis of Erebus and dark Night
From Chaos came into being Erebus and dark Night· Theog. v. 123
- ✓ action of Erebus and Night, genesis of Ether and Day
From Night came into being Ether and Day, Theog. v. 124
- ✓ In which way did Genesis happen? A mixture in Philotes.
after she was mixed in philotes with Erebus. Theog. v. 125

Of utmost importance is the understanding of the meaning of the word “φιλότης-philotes” (friendship, love, affection according to Liddle & Scott) as a figure of speech. Systematically, Hellenes, as well as foreign scholars and translators of Theogony, attribute the word philotes to an erotic act in 25 out of the 26 repetitions of the word. The only potential exception is the verse:

Then she bore Deceit and Philotes *Theog. v. 224*

The lexicon of Liddell-Scott gives to the word philotes the notion of erotic act only “...in erotic relationship between man and woman...”

Instead, the paper interprets Philotes and mainly “mixture in philotes” as the “sufficient condition” for achieving a specific result. This connection between the concepts of “philotes” and “sufficient condition” is, firstly, not in line with the dominating view concerning the word “philotes” and secondly, not given by the lexicon. However, this interpretation aligns with the metaphorical concept of figures of speech in Hellenic literature.

Barren translations would lead to paralogous syllogisms. For instance:

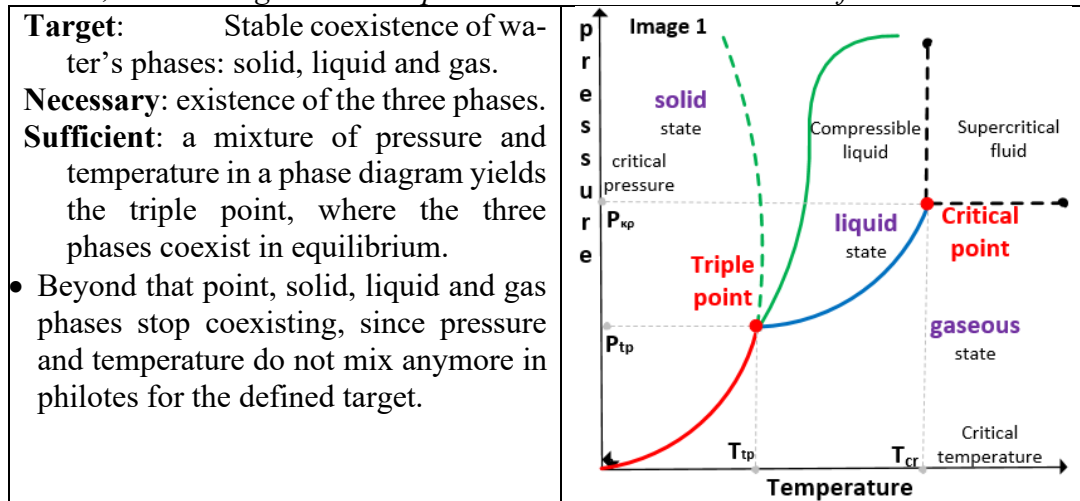
- “The situation is **pregnant** with dangers [κατάστασις **ἐγκομονοῦσα** κινδύνους]” = situation that has been in ~~sexual intercourse~~!
- “something **gestated** by imagination [**ἀποκύημα** φαντασίας]” = imagination that has been in ~~sexual intercourse~~!

Barren translation implies annulation of the figures of speech of the language, and especially of poesy. One would then wonder what the point of analysing poems would be!

Thermodynamics – mixture in philotes

Thermodynamics provide an excellent example of “mixture in philotes” (as shown in Figure 1).

Figure 1. Typical Phase Diagram¹³. The Solid Green Line Applies to most substances; the dotted green line depicts the anomalous behaviour of water.



Action of Chaos

The wheel of creation starts moving. The sufficient condition for the explosion begins to be formed. In the presence of the dismemberer Eros, Chaos acts first, bringing Erebus and dark Night into existence. Erebus is not characterised by any epithet, whereas Night is characterised as “dark-μέλαινα-[melaina]”, “gloomy (δνοφερή-[dnoferē])” and “Erebus-like (ἐρεβεννή-[erevennee])”

from gloomy Night and those whom salty Pontos bore. *theog. v. 107*
From Chaos were born Erebus and dark Night *theog. v. 123*
without having slept with any of the Gods, the Erebus-like Night *theog. v. 213*

“Tῆ-Gee” is also characterised as gloomy, while Gaia is not.

of gloomy night and murky Tartaros *theog. v. 807*

Action of Erebus and Night being mixed in philotite

Initially, Night moves from the gloomy, Erebus-like state (black-hole darkness) toward the dark (spatial, cosmic darkness).

The wheel of production keeps moving. Erebus, in the presence of the dismemberer Eros, is mingled in philotes with Night and brings Ether and Day into existence, entities that Orpheus hymns as well.

¹³[https://el.wikipedia.org/wiki/Κρίσιμο_σημείο_\(θερμοδυναμική\)](https://el.wikipedia.org/wiki/Κρίσιμο_σημείο_(θερμοδυναμική)) and https://en.wikipedia.org/wiki/Triple_point

Figure 2. *The Road Map towards the completion of the sufficient condition*

Chaos gloomy	Erebus	Ni	gh	t	Ether
		gloomy	erebus- like	dark	Day
	bu	rn	ing	he	at
					Heat

From Erebus (absolute blackness), we gradually arrive at the Day (absolute light).

Day is the light that produces heat and, ultimately, is the sufficient condition for the explosion.

The then universe is on fire! The necessary and sufficient condition for the explosion is met. Necessary and sufficient coexist. Necessary: Chaos, Gaia, Eros. Sufficient: the ineffable heat of Chaos, the genesis of Day.

The big bang takes place

The Big Bang is described in Theogony as follows:

Gaia first brought into existence the equal to herself, starry Uranus *Theog. v. 126*

Verse 127 describes the scientifically proven, ever-expanding Uranus

Starry Uranus, so that he covers everything, *Theog. v. 127*

Only one entity, Gaia, brings into being the equal to herself, starry Uranus, whose mission is to cover everything. Therefore:

$$\mathbf{Gaia = starry Uranus}$$

In that equation, one can see the analogue of the principle of energy conservation, which science named thousands of years later as the “first law of thermodynamics”.

An idea about the noise of the explosion is given in verse 703.

Such a loud (δοῦπος [doupos]) sound would arise (ὀρώρει [oroorei]), *Theog. v. 703*

Liddel-Scott: δοῦπος-[doupos]: any dead, heavy sound, thudding. ὀρώρει-[oroorei]: from the verb ὀρνυμι-[ornymi] = make to arise, call forth.

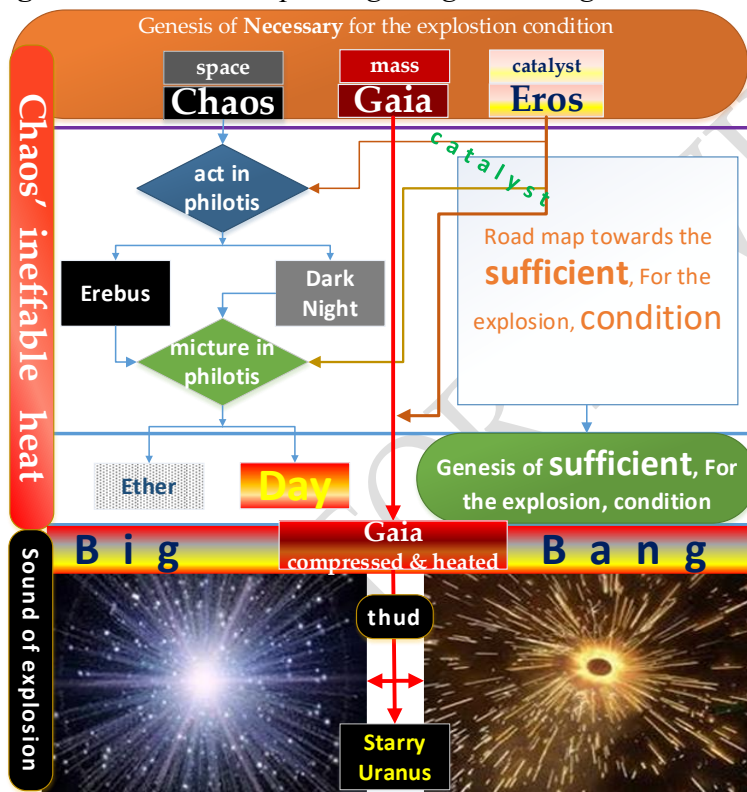
Hesiod in Theogony describes the first and later entities that came into being by Gaia. Within the starry Uranus, the life-death circle never stopped existing. Astrophysicists know that the cycle of star creation and death continues, and

therefore Gaia continues to act in the presence of the dismemberer Eros. Jan Pierre Vernant, in his book «L'univers, les dieux, les hommes», explains why the castration of Uranus signals the liberation of natural forces, the beginning of movement and therefore of time, as well as the eternal bearing of children via the birth of Aphrodite.

The inexorable Χρόνος [time] (Κρόνος [Saturn]) keeps on eating his own children. Whatever is born, dies!

Graphics showing the Big Bang according to Hesiod (image 3)

Figure 3. The road map to Big Bang according to Hesiod



Source of knowledge of the shepherd Hesiod

The aforementioned are described by a shepherd. Indeed, it is an oxymoron: on the one hand, the social class (shepherd), and on the other hand, the accomplishments and the geographical knowledge of Hesiod in an era when even the trip from one village to the next was considered living abroad!

The shepherd has profound knowledge, while avoids paradoxes and preposterous descriptions in his verses concerning the creation of the universe. He does not violate the “cause-and-effect” principle and describes the genesis of the necessary and sufficient conditions for the Big Bang.

To the reasonable question: whence this knowledge? Hesiod himself gives the reply. Inspired by the Muses of Helicon! *Theog.* v. 32

The Dilemma

Having said that, we are in front of the following dilemma: Should we believe and consider Hesiod as divinely inspired or should we reject him as being an uneducated, fanciful and untruthful shepherd? To this dilemma responds the position of the father of Christianity, Chrysostom, which is presented below in a philotes modified version. We copy from the prologue of the Old Testament, pg 7, Panagiotis Tzelatis, publ. Paraskevas Leonis, 1892:

*If one of the simplest human beings that is non-initiated into the **Theogony** (**orthodox-theology**), does not understand the meaning of a topic while reading, he should blame himself for not being able to understand the truth that the **Muses** (**God**) spoke. The reason for the reader's misunderstanding is his own imperfection, and not the fact that **Muses** (**God**) spoke unclearly or incompletely; **be initiated** (**lead-away**)! The complete **Theogony** (**holy-bible**), given its divine origin, speaks the truth.*

Etymology of Uranus

The mission of Uranus (Οὐρανός) “to cover everything” allows considering that etymologically Οὐρανός is formed by the prefix “ουρ- [our-]” (far away) and the verb “ἄνω-[ano]” (going through, move towards the end). In all its interpretations, the Liddell-Scott dictionary attributes to Uranos the meaning “vaulted roof or ceiling”.

Indeed, Uranus is very far away, passing through everything as it moves towards the infinite universe's ceiling. Uranus extends beyond the limits of human vision and technology, and probably even beyond human imagination. Uranus expands; who can definitely confirm the space and time limits for the expansion to cover everything?

Conclusion – Hesiod the mystic

Hesiod enjoys the glory of being the second poet of antiquity, but at the same time is considered an unworthy, fanciful one.

From the paper's point of view, Hesiod is an important, knowledgeable, and adept figure of his era. He modified his knowledge with philotes to present it to his contemporaries as well as to future generations.

Hesiod's description cannot be simple coincidences or products of the ever-unrestrained and creative imagination of Hellenes. Hesiod does not derive the topics from his imagination. Initiated and with divine order, he describes in Theogony the creation of the Universe as viewed through the modern Big Bang Theory.

Unfortunately for humanity, the knowledge of the Hellenic sages did not benefit from scientific continuity and remained unknown for centuries. It has been abused unmercifully, even by those who have suckled on Hellenic literature.

Knowledge has been torn into pieces. The student of Livanios and later father of Christianity, Basileios, writes.¹⁴

Hellenic philosophers have said too much about nature, and none of their words has stayed steady and stable since a second philosopher has always turned against the opinion of the first one. Therefore, there is no need for us to judge their work. It is enough that one rejects the opinion of the other.

The different, and often the opposite, opinion is seen as a crime and not as a means of further consideration and progress.

The few preserved documents of our ancestors are full of knowledge. The giants of human intellect continually contribute knowledge that addresses humankind's concerns. The Socratic midwifery (extraction with philotes and not erotically), allows us to filter the literature of our ancestors to unearth and understand the unearthly truths!

Epilogue

The acceptance or rejection of Hesiod's assertion concerning his "divine word" lies upon the judgment and degree of mystic initiation of each one of us.

The presented connection of Theogony's verses to the data of modern astrophysics is not divinely inspired but the result of thoughtful study.

Other opinions are possible and welcome. In conclusion, we cannot imagine:

- Chthoon and Uranus are mixing in hostility.
- Chthoon not desiring the rain, not being "pregnant" by it, not rain-producing.
- Chthoon's uterus produces nourishment in the absence of Uranus' rain.

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