Making Sense of the World: Theology and Science in St Gregory of Nyssa’s An Apology for the Hexaemeron

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Abstract: The paper discusses the apologetic character of the Nyssenian treatise, pointing out the naturalistic propensities and wide scientific information of its saintly author. Indeed, the Apology displays St Gregory’s great freedom in employing the available sciences in order to complement the theological narrative of creation. This approach offers an interesting alternative to the ‘God of the gaps’ theory, which undertakes the opposite, i.e. to fill in the blank spots within the various scientific narratives by way of theological statements. In its second part, the paper examines a few practical examples of how the Nyssen applied his method to themes like the relationship between God and the cosmos, the structure of matter and the creation as both one event and many events. The paper ends by proposing the Apology as a historically significant contribution to the rapport between science and theology.

Largely considered to be an exegetical treatise that deals with Genesis 1, St Gregory’s An Apology for the Hexaemeron (hereafter Apology)\(^1\) rather appears as a dense apologetic writing in which the saint had undertaken to bridge Scripture and the Hellenistic worldview.\(^2\) Given this particular focus, the treatise unveils a less familiar side of the saint, who is usually perceived as a doctrinal polemicist, a spiritual interpreter of the Scriptures, a speculative thinker and a teacher of the mystical life. Instead, the Apology shows the Nyssen as a man deeply immersed in the scientific theories and controversies of his time, and as a competent contributor to such matters. My findings, presented below, further contribute to the rectification of the current understanding of the Apology as a treatise concerned with scriptural exegesis. The established opinion is illustrated for instance by Behr’s note that whilst St Basil proposed a complete cosmology, in his treatises on the creation the Nyssen was interested in exploring “the inner coherence of the scriptural narratives, the internal sequence (userRepository) that they present,” and that he was concerned with identifying a similar “order and sequence within the progressive development of creation itself.”\(^3\) True, St Gregory displayed a consistent interest

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in finding out the order of things yet his Apology is anything but concerned with making sense of the Scriptures. Since I discussed elsewhere the primarily apologetic nature of the treatise,\(^4\) herein I limit myself to explore further aspects pertaining to the worldview that the Nyssen depicted in the Apology. After the first part, which will study St Gregory’s naturalistic approach to reality, the second part will present some of his contributions to the Christian worldview, such as his concept of matter and the challenging theme of creation as one event and many events. I propose that, whilst peculiar within patristic tradition, these contributions provide a relevant know-how and may very well assist the current efforts to bridge the theological outlook and the scientific description of reality. Indeed, far from infringing upon the competencies of either theology or science, St Gregory proved the rare ability to appreciate their respective perceptions whilst synthesising them into a complex and holistic worldview. This paper is meant to contribute a cosmological counterweight for the current scholarly interests, primarily focused upon Nyssenian (spiritual) anthropology and eschatology. Last but not least, I hope that this exploration will fill a gap in the relevant literature, which generally ignores the Apology as a source for the history of the rapports between theology and science.

**Naturalistic Propensities**

The large extent to which the Cappadocian saints used scientific information within their works has been often pointed out; I shall provide relevant examples in due course; this appraisal is all the more valid in the case of the Nyssen’s Apology, whose naturalism is explicit and prominent. In what follows, I explore aspects of the naturalistic and/or scientific approach pertaining to this ‘technical’ treatise on the creation, according to the classification of Blowers,\(^5\) but not before addressing some specifics of its apologetic character.

*A worldview of the crossroads*

My reappraisal of the treatise’s nature as an apologetic writing appears to be incongruous both with the questions posed in the first chapters, which largely refer to scriptural interpretation,\(^6\) and the epilogue, which reiterates the Nyssen’s interest in “the proper meaning (ἐπὶ τῆς ἴδιας ἐμφάσεως) of the word,” i.e. the Genesis narrative.\(^7\) The issue rests in fact with the very layout of the treatise, consisting in a discrepancy between the aspects discussed by the prologue and the epilogue, on the one hand, and the method operating throughout the Apology, on the other hand. As I have shown elsewhere,\(^8\) the method of the Nyssen does not exhibit the traditional features of an exegesis, be it literal or otherwise, as it does not consist in a line-by-line exploration of the text the way we find e.g. in Origen’s First Homily on Genesis, in St Basil’s Hexaemeron or in St John Chrysostom’s Homilies on Genesis. St Gregory was more interested in bridging the scriptural worldview and the scientific

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\(^6\) Apology 1 (PG 44, 61A; Drobner, 6.4-6); Apology 3 (PG 44, 64C-65A; Drobner, 8.12-9.9); Apology 5 (PG 44, 65C; Drobner, 11.3-8). Cf. Costache, ‘Approaching An Apology for the Hexaemeron,’ 55-56.

\(^7\) Apology 77 (PG 44, 121D; Drobner, 83.14).

\(^8\) Cf. Costache, ‘Approaching An Apology for the Hexaemeron,’ 57, n.29; 64, n.62.
cosmologies of the time, rather than in the interpretation of Genesis.⁹ Given the above and thinking of the complexities pertaining to early Christian hermeneutics,¹⁰ one wonders at what the Nyssen meant by a literal or the “proper meaning” of the words. The answer rests again with the Apology itself and the genre to which it belongs. In undertaking to bridge the two worldviews, the treatise operated in a complex fashion, by casting upon science the theological light of the narrative of creation, and by rendering the message of Genesis in intelligible ways to its Christian Hellenist readers. For example, when including the fire instead of the light in the order of creation,¹¹ St Gregory accomplished a double strike, so to speak. More precisely, he interpreted one of the four classical elements, fire, from the vantage point of Scripture and translated the scriptural light by the physical element of fire. Scripture and the scientific culture were brought here to a full accord. The same happens later in the Apology, in a passage that discusses what should have followed the creation of fire and air.¹² Here, the Nyssen mentioned again the making of fire as part of the process of creation whilst the scriptural narrative does not refer to this natural element of ancient physics – as it

doesn’t include scientific doctrines such as the four elements and the various material qualities.¹³

Motivated by the missionary and pastoral concerns evoked by Gil-Tamayo and Stramara¹⁴ (which for some reason are never affirmed within the treatise), St Gregory, we surmise, interpreted and not explained the text of Genesis. The “proper meaning” he envisaged was therefore not the literal sense of the narrative; it was the recontextualisation and appropriation of its significance for the educated contemporaries of the Nyssen. Kannengiesser’s omission of this aspect in his exposé on translation as interpretation is regrettable.¹⁵ This was a typical feature of the apologetic genre, which from the outset aimed at making the message of faith widely accessible to audiences without a background in the Scriptures; a feature shared by the Basilian Hexaemeron as well.¹⁶ All things considered, the reasons behind the discrepancy between the prologue and the epilogue, and the actual intentions and method of St Gregory, escape us as much as those driving the heavy scientific discourse he adopted in the treatise.

We note that the Nyssen’s intentions were not just concealed but also complex, resulting in a cross-cultural pollination of two different worldviews. Within this cultural exchange St Gregory accommodated the naturalistic inclinations common to many ancient cosmologists¹⁷ – a fashion

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¹⁰ For these complexities, see Charles Kannengiesser, Handbook of Patristic Exegesis: The Bible in Ancient Christianity (Leiden and Boston: Brill, 2006), 165-271.
¹¹ Apology 9 (PG 44, 72B; Drobner, 18.11).
¹² Cf. Apology 25 (PG 44, 85D-88A; Drobner, 37.11-38.15).
¹³ Cf. Apology 7 (PG 44, 69C; Drobner, 16.4-11). See also Costache, ‘Approaching An Apology for the Hexaemeron,’ 66.
already illustrated by the Basilian *Hexaemeron*,\(^{18}\) the broader Cappadocian context\(^{19}\) and later by an eclectic compendium, the *Physiologos*.\(^{20}\) That said, we should note that in St Gregory and his Cappadocian peers notions like nature and the natural were far more complex than their modern counterparts. This is not the place to address this difference in detail. Suffice it to say that Cappadocian naturalism was not opposed to the pervading presence of God in creation, and that our saints represented nature as a dynamic and interactive event within which both divine and cosmic energies converged, synergising;\(^{21}\) the Nyssen’s theory of matter, discussed below, exemplifies this understanding. Beyond this commonality, and to limit the discussion to examples that are connected on a number of levels, there is an important difference between St Basil’s and St Gregory’s respective approaches. St Basil’s approach was that of a Church shepherd, i.e. shaped by ethical considerations and doxological goals, making use of the available sciences only in moderation. The Nyssen, on the other hand, argued like a genuine scientist and cultivated a preponderant naturalism, to the extent that little space was ascribed in the *Apology* for theological reflection and no space at all for formative aspects.\(^{22}\) Laplace was right when observing that given his frequent naturalist digressions, if he would have lived today St Gregory would have rather joined the body of scientists than that of the philosophers.\(^{23}\) In this context, the characterisation of the Nyssen’s works on the creation as poorer than the Basilian *Hexaemeron*, in relation to “the apologetic study of the material world,”\(^{24}\) surprises.

In the great apologetic tradition, St Gregory’s accomplishments inaugurate important avenues for the current quest to achieve a theological appropriation of contemporary cosmology. The *Apology* indeed transcends its immediate context by typifying a way in which the theological message of Genesis can be communicated through the channels of any scientific paradigm; I shall briefly return to this topic in the conclusion. For now, I must turn to the Nyssen’s preferences for naturalistic explanations.

* A scientific approach to reality

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\(^{21}\) For an illustration of this interactive or synergetic principle, see *Apology* 65 (PG 44, 113CD; Drobner, 72.18-20 etc.). On the use of this principle by St Basil, see Costache, ‘Christian Worldview,’ 36-42.


Whilst analysing a passage from the *Catechetical Oration* 11, Bouteneff pointed out St Gregory’s claim of lacking interest in a thorough study of the cosmos, and believed this to be the case with the *Apology* as well – given the Nyssen’s refusal to “fathom those matters which appear contradictory.” I do not dismiss that in his *Catechetical Oration* St Gregory manifested reticence toward examining natural phenomena, maybe in order to show his status as an inspector of orthodoxy. This is not, however, the case in the *Apology*, which stands alone among his writings by its prominently scientific and naturalistic penchants. True, the prologue declares precaution yet the ensuing and lengthy scientific discourses within the treatise contradict it. It is not the first of this writing’s inconsistencies, if we remember the tension between the questions contained in the first chapters and the method operating throughout the *Apology*. What matters is that St Gregory displayed an ability to integrate large amounts of scientific data and naturalistic explanations within his theological narrative.

Meredith noted how in an effort to understand the ordered principles behind the “progressive development of the universe,” the Nyssen favoured the natural appraisal of reality over any miraculous explanation. It does not matter how accurate St Gregory’s explanations are when compared with the modern sciences; what is relevant is that he was aware of the knowledge of the sages (σοφοί) who searched nature (φυσιολογούσαν) before and in his own time. Scientific descriptions of physical phenomena indeed abound in the treatise, like his elaborations on the properties of still and running water, the formation of clouds, mist and rain, or the overall circuit of water. Below, I illustrate the naturalistic criterion at work throughout the *Apology* by examining a large group of chapters in which St Gregory summarised the argument of the treatise.

Focused on discussing the third heaven, the text in question precedes the final conclusion of the *Apology* by just a few paragraphs. To begin with, the relevant chapters take as a pretext an issue raised in the prologue regarding the Genesis account, namely, its missing a logical connection between the first created light and the celestial bodies of the fourth day. If his approach was that of a literalist interpreter, St Gregory could have easily dismissed any impasse by glorifying the mighty God who so wished for things to be done, and by praising the infallibility of Scripture.

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27 Cf. *Apology* 1 (PG 44, 61A; Drobner, 5.1-6.9).


29 *Apology* 37 (PG 44, 96D; Drobner, 50.9-10).

30 *Apology* 33-38 (PG 44, 93B-97A; Drobner, 46.12-51.7).

31 *Apology* 75-76 (PG 44, 120D-121D; Drobner, 81.1-83.9).

32 *Apology* 64-74 (PG 44, 113A-120D; Drobner, 71.19-80.22).

33 Cf. *Apology* 3 (PG 44, 64C; Drobner, 8.12-9.1).
And in fact, alongside revering the Scriptures, within this context he affirmed the whole evolution of the universe as unfolding in the parameters of God’s creative wisdom and power, an often repeated statement which mirrors the *Apology’s* only other significant theological affirmation concerning God as the creator of everything that is. Nevertheless, the Nyssen chose to address the issue at hand in a naturalist fashion, within the framework of his favourite theme of creation as one event and a series of events; a topic to which I shall return. He presented the original light as a metaphor for the universe in its entirety, or one event, and the sidereal bodies of the fourth day as signifying the sequential development of the cosmos, or a series of events. He proposed, more precisely, that the original light and/or fire represent “the fiery and luminous potential of the creation” (ἤ πυρόδης καὶ φωτιστικὴ δύναμις τῆς κτισμοῦ), which can be glanced as both diverse, from the perspective of the astronomical bodies populating the seven celestial spheres, and as one, from the viewpoint of the whole of creation. Note the inclusion of the seven Ptolemaic spheres, which do not feature in Genesis 1. What matters is that according to this explanation, epistemological in nature, the paradox of the one light of the origins and the many starry lights stems from our incapacity to reach a view of the universe which is at once comprehensive and detailed. The three days separating the first occurrence of light and the astronomical bodies would then represent the necessary time for all things to be enlightened and become visible (ἐν τῷ φωτὶ θεωρουμένων), presumably to our eyes.

The Nyssen alternated the above epistemological perspective with a cosmological explanation of the universe that progresses in “the stretch of time” (γρόνον διάστημα) represented by the creation days, a process within which the original light becomes naturally specified by a sevenfold division (ἐπιτοχὴ μερισθήματι), in as many kinds of light. The sevenfold division corresponds to the seven celestial spheres, mentioned above, which confirms St Gregory’s purposeful interpretation of Genesis within the framework of the available sciences. This process of natural and evolutionary differentiation results in the successive emergence of the sidereal bodies, of which some are the sources and others the receptors of the various kinds of light. The same idea reappears a few paragraphs below in a passage that tells how the “general and shared light” (τοῦ καθολικοῦ τῆς και γενικοῦ φωτός) of the beginnings, which preceded all else, circumscribed the firmament by establishing an order for the cycles of fire. This initial light came to be divided within the many dynamic processes unfolding on the level of the created beings, whose nature is defined by movement (ἡ φύσις ἐστὶ πρὸς τὴν κίνησιν) or permanent mobility (ἡ [...] φύσις τὸ ἄνεκινητον). This is how the diversified light pertaining to the celestial bodies of the seven spheres came about.

35 Cf. *Apology* 64 (PG 44, 113BC; Drobner, 71.21-72.15); 65 (PG 44, 113CD; Drobner, 72.18-73.1); 69 (PG 44, 116D-117A; Drobner, 75.19-76.12).
36 *Apology* 7 (PG 44, 68D-69A; Drobner, 14.13-15.8); 9 (PG 44, 72C; Drobner, 19.6-15).
37 Cf. *Apology* 64 (PG 44, 113C; Drobner, 72.10-15).
38 *Apology* 65 (PG 44, 113D; Drobner, 72.20).
39 Cf. ibidem (PG 44, 113C-116A; Drobner, 72.16-73.19).
40 *Apology* 68 (PG 44, 116C; Drobner, 73.5-5).
41 Cf. *Apology* 69 (PG 44, 116CD; Drobner, 75.8-10).
43 Cf. *Apology* 72 (PG 44, 117C-120A; Drobner, 78.1-22).
Specifically chapters 72 to 74 contain a summary of the cosmic process of diversification. The original uniformity of creation, signified by light, carried out a process of decantation caused by the natural movement of its components, and the speed (τάχος) on which these moved. Drawing on Aristotelian physics, movement as construed by the Nyssen originated in the internal tensions and tendencies pertaining to created nature, which brought the elements to the point of “distancing themselves from one another” (διαστάλλονται ἄλλαλόντων); this looks like an attempt to depict a universe in expansion. Given the natural qualities (ποιότητες) specific to all things that move in time (ἐν χρόνῳ κινεῖται πᾶν τὸ κινούμενον), the lighter elements tended to move upwards, constituting the higher spheres, whereas the heavier ones moved downwards, constituting the lower spheres. The first example of division the Nyssen offered, in which we discern echoes from Genesis, is that between earth and water, which serves as a pattern for the process that led from the first created light to the celestial bodies of the fourth day. To illustrate how this process of specification unfolded, St Gregory applied the physical analogy of a mixture of liquid mercury, water and oil, once again, we witness here his naturalistic inclinations. The components of the mixture – the chaos, as it were – naturally tend to separate from one another, with the mercury plunging to the bottom of the vessel, the oil moving towards the surface and the water remaining in between the other two elements. The original light came to be similarly diversified into the various celestial bodies, according to their respective weight and speed; an original energy that came to be embodied in the vast array of cosmic objects. It is noteworthy that contemporary scientists like Nicolescu refer to a complex universe made out of one energy that is prodigiously diversified, an appraisal of reality which seems to confirm, albeit indirectly, the great Nyssenian intuition.

In contemplating this process of cosmic specification, St Gregory perceived a ground of unity, an intrinsic order (τάξις) pertaining to “the sequence of creation of [all] beings” (τῆς τῶν ἀνθρώπων κατακόρυφης), an order that he considered as inherently natural (τάξις τινων φυσική). This underlying order became manifest through the very process of specification, which in itself is a paradoxical and challenging statement. Indeed, we discern here the complex vision of a cosmos considered from two distinct angles, namely, the immovable

45 Cf. Apology 72-74 (PG 44, 117C-120D; Drobner, 78.1-80.22).
46 Cf. Apology 74 (PG 44, 120C; Drobner, 80.11-16).
47 See e.g. Aristotle, Physics II.1, where nature is defined as an internal source of motion and change. I am grateful to David Bradshaw for this insight and reference.
48 Apology 72 (PG 44, 117D; Drobner, 78.6).
49 Ibidem.
50 Cf. Apology 73 (PG 44, 120A; Drobner, 79.7). Lit. “all moving things move in time.”
51 Cf. Apology 72 (PG 44, 117D; Drobner, 78.4-7).
52 Cf. ibidem (Drobner, 78.11); 73 (PG 44, 120A; Drobner, 79.4-5).
53 Cf. Apology 74 (PG 44, 120BCD; Drobner, 79.18-80.22).
54 Cf. ibidem (PG 44, 120C; Drobner, 80.11-16).
56 Cf. Apology 71 (PG 44, 117C; Drobner, 77.16-17).
57 Cf. Apology 73 (PG 44, 120B; Drobner, 79.14). St Gregory likewise speaks of the ‘place’ of each star or constellation as conditioned by their respective natures, natures which in turn reflect the Creator’s wisdom; cf. J. C. M. van Winden, ‘A Textual Problem in Gregory of Nyssa, Apologia in Hexaemeron, ch. 69,’ Vigiliae Christianae 33:2 (1979): 179.
order of created beings (ἡ μὲν τάξις ἐν τούτως τὸ ἀκίνητον ἔχει) and the mobility of their nature (ἡ δὲ φύσις τὸ ἀκίνητον); 58 in short, the perception of order as stable and nature as moving. By bridging stability and movement, unity and multiplicity – aspects considered antagonistic in many systems of the world – this approach reveals the independence of the Nyssen’s representation of nature from its scientific sources. Remaining unaffected by the tensions embedded in most ancient cosmologies, this representation genuinely drew on Christian theology, which already proved an aptitude for paradoxes in formulating the Trinitarian dogma; in fact, St Gregory was not insensitive to the marks of the Trinity within the cosmos. 59 The idea of an underlying order, which doubles the relentless movement of nature, is very important, antedating by many centuries the current quest for integrative models of

complexity that are able to account for both coherence and change within an expanding universe. The fact that St Gregory could not employ the tools of current mathematics, physics and cosmology, does not make his insight less genial and his approach less scientific. It is unfortunate, therefore, that the historians of science do not appreciate his contributions. 60

I shall end this section by pointing out another interesting aspect stemming from St Gregory’s naturalistic approach to reality. With the advent of the new sciences and the consequent defeat of a theology that was anachronistically attached to ancient knowledge, early modernity witnessed the raise of what is known as natural theology. Within that trend, and as a last stand on the barricades of ancient knowledge, certain theologians endeavoured to take advantage of the embryonic state of the sciences by proposing the ‘God of the gaps’ theory. Briefly, it was about colouring the blank spots in the scientific narratives with statements about God’s action; God’s place was precisely where the sciences had not yet a say. Recent history proved this project a failure, since the expanding body of knowledge leaves no room for supernaturalist explanations of natural phenomena. This is where the Apology emerges as a significant contribution. Whilst being convinced that the cosmos points to its creator and provident God, 61 the Nyssen found no problem in explaining the various phenomena from a scientific, naturalist viewpoint. From his wisdom we surmise that it is not theology that fills the gaps of the developing scientific narrative; it is the sciences that fill the gaps in the theological narrative of the Christian worldview. Nevertheless, this is not to say that God’s action has no place in the universe; in fact St Gregory subscribed to the synergetic principle, 62

mentioned above, as made obvious for instance in his understanding of matter. I turn now to a few examples of the way naturalism functioned within the Nyssenian theological worldview.

58 Apology 72 (PG 44, 117D; Drobner, 78.15-16). Lit. “whilst the order in these [bodies] is immovable, [their] nature is ever-moving.”
62 See e.g. Apology 16 (PG 44, 77D; Drobner, 27.8), where the initial chaos proved unable to cooperate (συνεργεῖν) with God. For a related term, which however does not appear in the Apology, namely, συνεργεῖν (conspiration, breathing together), see Blowers, Drama of the Divine Economy, 220.
Contributions to the Christian Worldview

So far we have seen aspects pertaining to the primary method at work in the *Apology*, namely, the scientific approach to natural phenomena. Furthermore, we have become aware of the fact that St Gregory framed this approach within a theological perspective. Albeit very thin, this theological outlook drew on the Genesis narrative of creation, whilst pointing out how all that was made was orderly structured by God’s will, wisdom and power. Alongside these parameters the Nyssen sketched the contours of an interesting theology of creation, which combines theological, scriptural and scientific elements. In what follows, I shall highlight a few aspects of this depiction, beginning with some difficulties posed by the Nyssenian worldview to end by outlining a couple of its most significant features, namely, the theory of matter and the creation as one event and many events.

Theological difficulties within the Nyssenian worldview

The task of articulating St Gregory’s contributions to the Christian worldview into one coherent whole meets a number of obstacles, of which

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a major one is the unsystematic character of the *Apology*. That said, in the opening chapters of the treatise we find a few passages that discuss themes pertaining to what can be considered a doctrine of creation, or rather a reflective approach to the mystery of creation. As we shall see immediately, instead of laying out the contours of a clear and simple teaching, these passages propose a series of conundrums and open questions.

For instance, in spelling out his younger brother’s (i.e. St Peter, later bishop of Sebasteia) interest in understanding the way in which the sky and the earth came to be, St Gregory stated enigmatically that “whereas the light was in wait of the divine command (τὸ μὴν φῶς ἀναμένα τὸ θεῖον πρόσταγμα), darkness was there without a command (τὸ δὲ σκότος καὶ ἄνω προστάγματος ἴν)” from God. The assertion is perplexing, allowing for an interpretation of darkness as signifying the uncreated pre-existent chaos. Nevertheless, there is another way in which the riddle can be decoded. It can be taken to mean, for example, the order of the universe that comes from God, if light is a metaphor for the cosmic order and/or the divine action of ordering things, whilst the reference to darkness would signify the derelict state of the universe when left on its own, i.e. as a nature which, whilst created, is deprived of the divine configuring energies. If this interpretation is valid, then the sentence under consideration speaks of the ‘later’ work of structuring the cosmos and not the initial creation of the universe. St Gregory denied however any significant difference between the

63 Cf. *Apology* 7 (PG 44, 68D-69A; Drobner, 14.13-15.8); *Apology* 25 (PG 44, 85D; Drobner, 37.11-14); 64 (PG 44, 113BC; Drobner, 71.21-72.15); 65 (PG 44, 113CD; Drobner, 72.18-73.1); 69 (PG 44, 116D-117A; Drobner, 75.19-76.12). For St Gregory’s use of the divine will, wisdom and power, see Torstein Tollefsen, ‘Cosmology,’ in *The Brill Dictionary of Gregory of Nyssa* (cited above, n.14): 175-79, esp. 176-77. For notes on the divine will as a source of the creation, see Jean Daniélou, ‘Grégoire de Nyssse et la philosophie,’ in Heinrich Dörrie, Margarete Altenburger, Uta Schramm (eds.), *Gregor von Nyssa und die Philosophie: Zweites Internationales Kolloquium über Gregor von Nyssa*, Freckenhorst bei Münster 18-23 Sept 1972 (Leiden: Brill, 1976): 3-17, esp. 15.


65 Cf. *Apology* 5 (PG 44, 65C; Drobner, 11.3-10, esp. 8-10).
notions of creation and arrangement, which complicates the issue further. It is intriguing that our saint did not bother to clarify what he meant by darkness as not originating from the command of God. Since this statement was an answer to Peter’s quest for sense, the reader can be startled; the answer

was not plain, it was a puzzle. It appears that after all the Nyssen was no less a skilled mystagogue than his older sibling, St Basil the Great, if we think of the latter’s employment of the disciplina arcani in order to stir his audiences and readership toward deeper contemplations; it may be that for such purposes the Cappadocians followed the pedagogic method of Origen. Thus, far from providing his younger sibling with straightforward solutions, St Gregory seems to have intended to train the mind of Peter by outlining more problems. If this was indeed the case, then this approach could clarify the issue represented by the scarce theological references throughout the treatise; the Nyssen’s goal might have been that of inciting Peter himself to surmise the relevant conclusions.

We do not know how St Peter reacted to this kind of training; we do know however how easy it is for a modern reader to misunderstand it. Indeed, with or without being aware of such conundrums what we witness sometimes in contemporary scholarship are attempts to ascribe to St Gregory perceptions that would borrow from Philo’s and Origen’s respective worldviews more than usually accepted. For instance, in referring to the Nyssenian phrase ὑπὸ τὸν θεό (the cosmos created “from God” or “out of God”), from On the Making of Man 23, Wolfson proposed that this was an alternate discourse to the classical “out of nothing” and that it denoted emanation; moreover, he suggested that the phrase alludes to an apophasic treatment of the origins which considers creation and emanation as equivalent. Wolfson was mislead by his reading of St Gregory’s statement through the lens of Eriugena’s identification of nothingness with God, an aspect aptly pointed out by Sorabji. It is improbable, indeed, that one who struggled so fiercely to accredit the idea of the διάστημα (space, separation, interval) as signifying the total alterity of the created cosmos in

relation to the uncreated God, would allow for such confusion. Tollefsen was right therefore to identify behind the two phrases two ‘moments’ in the plan of creation, namely, the elaboration of divine thoughts regarding the universe (“out of God”) and the actual making of the universe (“out of nothing”), and so their connection with the Nyssen’s theory of matter. This same logic should have undoubtedly functioned behind the enigmatic statement referring to darkness as not originating from God, preventing its interpretation in terms of an uncreated matter, although St Gregory did not clarify this aspect. On this note, we arrive to the things
that St Gregory held as worth discussing, things pertaining to the source of the creation in God’s will, wisdom and power, i.e. the very principles that are foundational for the whole of the cosmos.\textsuperscript{73} All other queries, such as the questions of how could the immaterial God create matter or how could the visible come out of the invisible, were not pertinent.\textsuperscript{74} Before moving any further, the resistance of the \textit{Apology} to all simplification is once again noteworthy, together with the difficulties it poses to a reader; by all accounts, every time one reads it, one finds more aspects embedded within its complex texture.

\textit{A theory of matter}

We discovered above that after reiterating what could be seen as the theological landmarks of his narrative, St Gregory was quick to discard a series of futile, if not irreverent, questions that supposedly deserved little

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attention – doubts concerning the capacity of a boundless God to create a bounded reality, problems related to the rapports between spirit and matter, and the nature of matter. Nevertheless, very soon the Nyssen forgot about his theological angle and began discussing some of those idle issues, as Corsini called them (in his words, \textit{questions oisives}),\textsuperscript{75} focusing specifically upon the topic of matter. It is true that, since St Gregory disparaged those queries as nonsense, Corsini doubted the possibility for the topic of matter to be central to the \textit{Apology}.\textsuperscript{76} Whether central or peripheral, what is certain is that the Nyssen allocated to it some space, stirring the interest of a number of scholars.

For instance, whilst pondering the general theory of matter elaborated by St Gregory, in his analysis of \textit{On the Soul and Resurrection}, Daniélou observed that for our saint matter results from the combination of certain intelligible or immaterial qualities.\textsuperscript{77} In turn, by widening the scope of their exploration Alexandre and Sorabji independently identified three relevant passages from various works by the Nyssen, situated in \textit{An Apology for the Hexaémeron} (PG 44, 69BC), \textit{On the Soul and Resurrection} (PG 46, 124B-D) and \textit{On the Making of Man} 24 (PG 44, 212-13).\textsuperscript{78} In addressing the three texts, they both noticed the effort of the Nyssen to grapple with how an immaterial factor can cause a material creation. The difficulty consisted in that St Gregory inherited from classical philosophy the concept of ontological solidarity between cause and effect; a material effect would denote a material cause and, similarly, an immaterial effect would point to an immaterial cause. Seemingly in the footsteps of Daniélou, Sorabji proposed that in order to surmount this difficulty the Nyssen developed an “idealistic theory of matter” that took material objects as accretions of divine thoughts or ideal qualities; so, the saint would have moved “from a view about cause to a conclusion about creation which

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\textsuperscript{73} Ως όμω τά πάντα τοῦ Θεοῦ περὶ τήν κτίσιν νοεῖσθαι, τὸ θέλημα, τὴν σοφίαν, τὴν δύναμιν, τὴν οὐσίαν τῶν ἄντων (“everything that belongs to God, i.e. will, wisdom and power, are likewise noticed within the creation, [or in] the essence of beings”). \textit{Apology} 7 (PG 44, 69AB; Drobner, 15.6-8).


\textsuperscript{75} Cf. ibidem, 96.

\textsuperscript{76} Daniélou, ‘Grégoire de Nysse et la philosophie,’ 15-16.

involves idealism.”

For Sorabji, this approach was not unlike Berkeley’s at the dawn of modernity, an opinion shared by Kokkinakis who even ventured to present St Gregory’s approach as an antecedent of Berkeley’s idealism. Alexandre and Tollefsen voiced explicit reservations toward this possibility. Irrespective of the supposed idealistic connection, the issue remains far from being simple. Looking at the relevant texts in the Apology, one realises that alongside adopting a theological stand, namely, the presupposition of the divine will, wisdom and power as significant agents in the making of the universe, St Gregory considered the structure of material objects by way of a Platonic-like lens, i.e. by discerning matter and form, substance and quality. That said, Alexandre was right when observing that divine thoughts, which give matter its form, do not constitute in St Gregory a separate world from the material one, as was the case with Philo and other Platonists. We shall discover shortly that in St Gregory divine thoughts, together with the ‘ideal’ qualities and the material objects, constitute an inextricable whole. But let us turn to two passages of interest in the Apology, of which scholars usually ignore the second one.

Being wholly mighty, by his wise and powerful will (τῷ σοφῷ τε καὶ δυνατῷ θελήματι) he [God] forcefully brought together at once (ὅμως [...] κατεβάλετο) all that matter consists of (tà πάντα δὲ ὁ ἄλλα ὑλή συνίσταται) for the completion of beings (πρὸς τὴν ἀπεργασίαν τῶν ὄντων), [namely,] lightness [and] heaviness, density [and] perviousness, softness [and] hardness, humidity [and] dryness, coolness [and] hotness, colour, shape, contour and extension. Taken one by one (καθ’ ἐαυτῷ) all these are mere thoughts and concepts (ἔννοιαι ἐστὶν καὶ νοηματα); none of these constitutes matter (οὐ [...] ὑλή ἐστιν) of its own (ἐφ’ ἐαυτοῦ) but when they reciprocally converge (συνδραμόντα πρὸς ἀλλήλα) they become matter (ὑλή γίνεται).

The text insists on the work of God, which is sine qua non to the existence of an organised creation, a cosmos; consequently, it points out that the cosmos, as an ordered reality, exists due to the divine wisdom and power that brought together all the contrary qualities of matter. It is obvious that St Gregory prefaced his theory of matter with a strong theological statement that in fact renders redundant any search for a literal idealism within his worldview; like all other early Christian theologians, he surmised this worldview from the presupposition of God’s powerful and wise activity in the universe. I recurrently included within square brackets the conjunction ‘and’ in the above text precisely to highlight the contradistinctions listed by the Nyssen; in his enumeration, only the last four qualities (colour, shape, contour and extension) are not mutually opposite. This inventory of antinomic yet convergent qualities seems to convey the implicit message that the material creation is a dynamic reality, to take on Daley’s note on the “dynamic qualities” of matter. As such, the material creation is full of problematic combinations and naturally characterised by a fragile balance – a flimsy order that would collapse without the divine ecosystemic activity.

It emerges that for St Gregory the ordered state of the cosmos does not originate in its very material fabric; in itself, matter is full of inconsistencies and contradictions, if to think of the

83 Apology 7 (PG 44, 69C; Drobner, 16.4-11). See the comments of Kokkinakis (‘Γενική Εἰσαγωγή,’ 54-56) on this text and others.
antagonistic qualities that the saint recorded. More so, in its natural state matter is chaotic – unseen, unstructured, inactive and void, i.e. deprived of qualities – as observed by the Nyssen in the interesting comparison between four Hellenistic translations of Genesis 1.2. What makes a cosmos out of chaos is the divinely arranged convergence of those opposite qualities. Even more relevant to St Gregory’s theory of matter is that, as a result of the forceful yet wise merging of the various qualities, the structure of matter is fundamentally conceptual or immaterial. Matter is composed of qualities that taken on their own are “intelligible concepts,” to say together

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with Sorabji, in contrast with the ‘sensible’ concreteness pertaining to material objects. When joined together these concepts result in the concrete reality of all material objects; information, like the infrastructural order discussed above, construed as either intelligible qualities (in the language of classical philosophy) or numbers (in the language of contemporary physics), is therefore intrinsic to matter. The theme is further nuanced in the next passage, which glosses upon the statement that the word or commandment of God is a divine working (τὸ ἐργὸν λόγος ἐστὶ) that brings the creation, and more specifically the light/fire, into being.

For everything that came to be, within reason is engendered (λόγῳ γίνεται), and no things at all can be conceived as existing in God without reason, at random and automatically (ἀλογόν τι και συντυχικόν και ἀυτόματον). We have to believe, therefore, that a certain wise and organising principle/reason (λόγον πινὰ σοφόν τε καὶ τεχνικὸν) lies within (ἐγκείσθαι) each of the [created] beings.

St Gregory’s physics, and more precisely his theory of matter, cannot be reduced to the ‘idealistic’ perception that material objects are concatenations of some intelligible concepts. The thought has merit of course and could be included in the current conversations between theologians and physicists, since the latter acknowledge information (in the form of numerical values) as constitutive to matter. That said, the physics of our Cappadocian father is not deprived of theological connotations. In light of the above passage, the various qualities that make possible the emergence of material objects are epiphenomena of a deeper reality, namely, the divine reason. The Nyssen returned to this theme in speaking of “the logos/reason which is naturally inherent to the creation” (τὸν ἐγκείμενον τῇ φύσι τῆς κτίσεως λόγον) – “a certain divine word which authoritatively precedes” (λόγος

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tις θείος καθηγεῖται προστατικικός) the existence of “each of the wonderful beings that are made” (ἐκάστου τῶν γινομένων θαυμάτων). Thus, material qualities are manifestations of the thoughts and/or intentions of the Logos. The qualities of matter seem to be represented here as bridges between the material objects and the reason or the thoughts of God, and

86 Sorabji, ‘Gregory of Nyssa,’ 245. The fundamental immateriality of matter in St Gregory was briefly discussed by Callahan, ‘Greek Philosophy and the Cappadocian Cosmology,’ 42.
87 Apology 10 (PG 44, 73A; Drobner, 21.2).
88 Ibidem (PG 44, 73A; Drobner, 21.2-6). Whilst Sorabji ignored this text, Alexandre (‘L’Exégèse,’ 169) referred to the relevant column only in regards to the topic of fire/light.
89 Apology 26 (PG 44, 88D; Drobner, 40.7).
90 Apology 64 (PG 44, 113B; Drobner, 71.21-2).
Creation as one event and a series of events

St Gregory’s notes on the Genesis account presents the reader with another dilemma, which, as we shall see, to some extent bears on the above. Thus, in his effort to comprehend the rapport between the first verse and the rest of the narrative (discussed only up to and including the fourth day) the Nyssen discerned that whereas Genesis 1:1 signifies creation as one event, the body of the text denotes successive events. Alexandre noticed this tension yet chose to discuss it only with reference to the Nyssenian approach to the first two verses of the narrative. What matters is that the Nyssen found no contradiction between the two perspectives. His was a complex approach that, we have seen earlier, affirmed the cosmos both as

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already made and in the making, or as static and dynamic at the same time. This paradoxical approach, which is not always easy to grasp, represents a solution that is superior at least to the modern ado about creation, seen as one event, and evolution, perceived as many events. But let us have a closer look at the relevant details.

Earlier on we discovered that a group of chapters from the end of the Apology present this approach in a summarised form, both cosmologically and epistemologically. Within an epistemological appraisal, the paradox of one event and a series of events would originate in the limitations of the human mind, unable to understand the complex making of reality. Within the cosmological appraisal, however, St Gregory proposed the Genesis narrative as outlining the fundamental unity of the cosmos that by a natural process of diversification – or many events – results in a range of ‘spheres’ and bodies. This double approach wraps up together the three examples discussed above, namely, the depiction of water as an element that takes many forms due to various natural processes; the similar process of diversification of the original light of creation into a multitude of celestial bodies; and the ‘ideal’ engendering of created objects that reach their concrete state through the countless combinations of material qualities. In proposing at various scales the perspective of a diversified unity, these examples show concretely how creation as a whole can be one event and a series of events – a theme which St Gregory outlined soon after the lengthy prologue of the Apology, in chapters eight and nine.

92 See e.g. St Athanasius, Against the Pagans, 38.1 (PG 25, 76BC); 38.4 (PG 25, 76D-77B); 42.3 (PG 25, 84D-85A) etc.
94 The dialectic of creation as one event and a series of events escaped Giet who tried to demonstrate that St Basil preferred the perspective of successive events whereas St Gregory the idea of one event. Cf. Stanislas Giet, ‘Introduction’ to Basile de Césarée, Homélies sur l’Hexaéméron, Greek text, intro. and trad. by S. Giet, Sources Chrétiennes (Paris: Cerf, 1949): 5-84, esp. 28-32.
95 See e.g. Apology 64 (PG 44, 113C; Drobner, 72.10-15); 65 (PG 44, 113D; Drobner, 72.20); 66 (PG 44, 116AB; Drobner, 73.20-74.13); 72 (PG 44, 117C-120A; Drobner, 78.1-22).
After some considerations regarding the wisdom and power of God, and the constitution of matter, which I examined above, in the eighth chapter St Gregory discussed the significance of the opening

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word of Genesis. Interestingly, in order to introduce the “lofty word of Moses,” first of all the Nyssen referred to the translation of Aquila that reads ἐν κυριαλαίῳ (“in general” or “in summary”), and only after it to the Septuagint, which gives ἐν ἅρχῃ (“in the beginning”). It seems that St Gregory prioritised Aquila’s rendition for its ability to proclaim, even clearer than the Septuagint, the almighty Creator – a God able to bring the universe into existence out of nothing and all at once, together (ἀθρόως), or within an “indivisible” (ἄκαρπῶς) moment, as pointed out by von Balthasar and Alexandre. That said, St Gregory considered the two versions, of Aquila and the Septuagint, as synonymous and as serving the same purpose. More precisely, when addressing the two words, ‘summary’ and ‘beginning,’ he stated that Genesis was a book which Moses meant as an “initiation to the knowledge of God” (εἰσαγωγικὸν θεογνωσίαν) for those blinded by the senses, the two terms signify that everything was made by God. As suggested by both these words, creation as one event would therefore represent a certain angle upon the mystery of the cosmos, namely, God’s relationship with it. This is a theological perspective properly speaking, which presents “all things [as] perceived through the

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divine eye” (τὸ μὲν θεῖον ὄφθαλμό γίνεται καθωρισμάτω). It corresponds to a contemplative outlook. Deriving from St Gregory’s earlier discussion on the power and wisdom of God, this theological perspective found confirmation within a passage situated in the ninth chapter, which evokes both divine attributes.

Nevertheless, when contemplating the cosmos according to the concrete modes in which things have been brought into being – and as the rest of the Genesis narrative accounts for reality – creation is a series of many events. This perspective seems to correspond to a scientific, analytical outlook. In chapter nine, the Nyssen insisted upon the sequence in which created beings emerged. A first rendition of this sequence included specifically the sky, the ether, the stars, the fire, the air, the sea, the earth, living beings and plants, whereas the second rendition mentioned in general the first element, the second, the third, the fourth, the

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97 Apology 8 (PG 44, 69D; Drobn, 16.13-14).
98 Ibidem (PG 44, 69D; Drobn, 16.14-17.1).
99 Ibidem (PG 44, 72A; Drobn, 17.11). See also Apology 16 (PG 44, 77C; Drobn, 26.16-8).
101 Apology 8 (PG 44, 72A; Drobn, 17.13-14). Lit. “One is the meaning of the two words, namely, beginning and summary.”
102 Apology 8 (PG 44, 69D; Drobn, 17.2-6). For more on this passage, see Costache, ‘Approaching An Apology for the Hexaemeron,’ 67-68.
103 Apology 8 (PG 44, 69D-72A; Drobn, 17.6-13).
104 Apology 9 (PG 44, 72B; Drobn, 18.12).
105 Ibidem (PG 44, 72C; Drobn, 18.14-15).
106 Ibidem (PG 44, 72C; Drobn, 18.8-9).
107 Ibidem (PG 44, 72B; Drobn, 18.11).
fifth etc., \textsuperscript{108} which were brought into being by God at the appropriate time, according to a wise order. These serials illustrate the naturalist appraisal of reality characteristic of the Apology, discussed above. It is relevant that the idea of a succession of events does not feature here singularly, being later on confirmed and developed by the statement, “the nature of things advances in order, necessarily perfecting the previous ones by the steps that follow” (ὥς φύσις τῶν άντων δι´ ἀκολούθου βαδίζοντα, τὸ ἀναγκαίως τοῖς προγεγονοσιν ἐπόμενον ἐξεργάζεται). \textsuperscript{109} The Nyssen contemplated a cosmos in motion, indeed, but also one that was growing in complexity; we can only assume that he understood this phenomenon to be possible due to the fundamental unity and order of the universe, or the creation as one event.

\textsuperscript{26} This understanding was perfectly articulated by Alexandre, “[th]e creation of the world by God is a global one and simultaneous (ἀθρόω), yet it unfolds within the expanse (διάστημα), following an order, a succession (τάξις, εἶρμος, ἀκολουθία) that is fully foreseen by the divine foreknowledge.”\textsuperscript{110}

The riddle of a creation that is both one event and many events came thus to be solved: whilst fully unified and integrated from the vantage point of God, and the infrastructural logic of the universe, when considered from the viewpoint of the natural phenomena that bring the divine ‘idea’ to concreteness the cosmos unfolds in a succession of stages. St Gregory spelt this understanding out by using the famous Aristotelian schema of potentiality and actuality. Further down he proposed this complex solution under the guise of a botanical metaphor meant to decipher a phrase from the second verse of Genesis (LXX), “the earth was invisible and unstructured.” More precisely, he applied the analogy of a sowed seed but not yet grown into a mature plant.\textsuperscript{111} The plant, or the universe, was wholly in the seed, namely, the chaotic state represented by the unstructured earth, but it was there potentially (δυνάμει), “like a certain seminal power” (οἰονεὶ σπερματικῆς τινος δυνάμεως) or as “a primary intention/desire of God concerning the creation” (ἐν πρώτῃ τοῦ Θεοῦ περί την κτίσιν ὀρμή) and not in reality or actually (ἐνεργείᾳ). The world “was and was not” (ἦν καὶ οὐκ ἦν);\textsuperscript{112} it ‘was’ in potentiality and ‘was not’ in actuality. The primordial chaos contained simultaneously everything, the “principles, causes and potentialities” of all,\textsuperscript{113}

\textsuperscript{27} as stated by Alexandre,\textsuperscript{114} yet like the tree growing from a seed individual things (τὰ καθ’ ἔκαστον)\textsuperscript{115} had to advance from their state of potentiality to one of actuality or being.

\textsuperscript{108} Ibidem (PG 44, 72BC; Drobner, 18.13-19.4). PG contains a reference to fire as the first element in this second list, which contradicts the order of the elements in the first list. By excluding the word πῦρ (fire), Drobner significantly contributed to the clarity of the text.

\textsuperscript{109} Apology 25 (PG 44, 85D; Drobner, 37.11-13). The statement concludes a discussion contained in Apology 24 (PG 44, 85A-C; Drobner, 36.2-37.10).

\textsuperscript{110} Alexandre, ‘L’Exégèse,’ 160 (my translation).


\textsuperscript{113} Cf. Alexandre, ‘L’Exégèse,’ 163.

\textsuperscript{114} Apology 16 (PG 44, 77D; Drobner, 27.14).
Alexandre showed elsewhere that in order to convey this dynamic significance the Nyssen appealed to four renditions of the Genesis phrase, and that all these versions converged in presenting the initial chaos as a state of potentiality. This potential state had to be sequentially actualised and ordered, through the many events of creation.

Although a modern reader would be interested precisely in this challenging discussion about unity and diversity, being and becoming, stability and movement, St Gregory’s main concern was to point out how everything occurred within the parameters of divine wisdom, orderly (τῆς κατὰ τὸ ἐφεξῆς ἀκολουθίας) and not randomly (οὐκ οὐτομάτῳ τινὶ συντυχίᾳ, κατὰ τινὰ ἄτακτον καὶ τυχαίαν φοράν). This is another sign of the theological presuppositions pervading the treatise and a new confirmation of its apologetic character.

Conclusion

This paper considered aspects of the Christian worldview as articulated within St Gregory of Nyssa’s An Apology for the Hexameron. Alongside reiterating the recent appraisal of the treatise as an apologetic writing, against the established opinion which takes it as an exegetical tract, the paper pointed out the preference of the Nyssen for naturalistic or scientific explanations of physical phenomena; the case in point was represented by chapters 64 to 74, mainly dealing with the primordial light diversified in the form of the various celestial bodies. Surprisingly, we discovered that St Gregory consistently utilised scientific data in order to fill the gaps in the theological narrative concerning God’s creation. This finding challenges the ‘God of the gaps’ theory, according to which it is the theological statements that are supposed to fill the blank spots within the various scientific narratives. Since the ‘God of the gaps’ theory undermines the integrity of theology, as a different approach to reality to the scientific one (an aspect that was not discussed herein), and likewise since it denies the sciences their methodological autonomy, the lesson of St Gregory is still relevant and instructive. It has been the contention of this paper that the wisdom of our saint represents a worthwhile guide for theologians interested in a conversation with contemporary scientists, and even more so those involved in the theological appropriation of the new scientific worldview. Indeed, contemporary theologians could approach the current paradigm the way the Nyssen tackled the scientific framework of his own time. Furthermore, they could learn from our saint how to convey the theological message of Genesis through the available scientific channels – not despite or against them. The second part of the paper offered in fact a few samples of the practical ways in which St Gregory addressed certain challenging topics, like the relationship between God and the cosmos, the structure of matter and the creation as a complex phenomenon, both given and in the making or as one event and many events. It is my hope that the above analysis brought the Apology, so far ignored by the research in the field, to the fore as an important contribution to the history of the rapport between theology and science.

116 Cf. Alexandre, Le Commencement du Livre, 79 (with reference to PG 44, 77D). For more on the ‘simultaneous’ creation, which I designate as ‘one event,’ in terms of potentiality, see Blowers, Drama of the Divine Economy, 112-13, 146-53 (the latter chunk dealing more with anthropology than cosmology).
117 Apology 9 (PG 44, 72C; Drobner, 19.4-5). Lit. “after a successive order.”
118 Ibidem (PG 44, 72C; Drobner, 19.5-6). Lit. “not as an autonomous occurrence, like some disordered and random product.”