

## Theology and Natural Sciences in St Gregory Palamas

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As a Church father, mystical theologian, spiritual guide and incisive polemicist against the non-ecclesial epistemology of many among the fourteenth century Byzantine intellectuals, St Gregory Palamas (ca. 1296-1359) exhibits in one of his later writings (Sinkewicz, 1988: 49-54; Chrestou, 1994: 8, 28, 30; Papademetriou, 2004: 18) an impressive command of the ‘profane arts’. The work in question, *One Hundred and Fifty Chapters: Natural and Theological, Ethical and Practical, and on Purification from the Barlaamite Defilement*, shows at least in its first section (chapters 1-29) the author’s balanced understanding of – and critical appreciation for – the natural sciences, together with his genuine aptitude for logic and scientific reasoning. It also demonstrates Palamas’ impressive discernment, a discernment which skilfully traces the specific capabilities and possible points of interaction between theology and science without, however, confounding the domains. The English version of the *Chapters* referred to throughout my article is the one published in *The Philokalia*, vol. 4, where the title reads *Topics of Natural and Theological Science and on the Moral and Ascetic Life: One Hundred and Fifty Texts*. For all references to the text, I have compared this English version against the original edited by Chrestou (1994: 74-261); when necessary, I made the appropriate changes. I have also consulted the original text and translation offered by Sinkewicz (1988: 82-113).

This article argues that whilst Palamas is similar to many other medieval scholars in his true interest and expertise in scientific matters, he nevertheless distinguishes himself by abandoning the classical scheme that considered theology as the queen of all sciences, on the one hand, and science and philosophy as handmaidens of theology, on the other. At the origin of this shift lies more than likely St Gregory’s authentic Christian mindset, which marks the inherent differences between worldly knowledge (as represented by science and philosophy) and the wisdom from above (as revealed to the saints and witnessed by the Scriptures). On the whole, the *Chapters* add new dimensions to the already complex portrait of their author.

Exploring mainly the first section of the *Chapters*, this article outlines the scriptural background of Palamas’ thinking together with his views on the various competencies of theology and the natural sciences. Finally, it will emphasise the relevance of St Gregory’s approach for contemporary conversations on science and theology.

### **Summary of the first section (chapters 1-29)**

The book begins abruptly, without a general introduction or any indication of its motive and purposes. The first two chapters appear to constitute a prologue for the first section only, setting the cosmological and epistemological parameters of the ensuing discussion. Chapter 1, for instance, points out the existence of

similarities between theological and profane mindsets concerning the origin of the world in the work of an ultimate uncaused Cause; in turn, chapter 2 voices the Christian belief in the eschatological renewal of creation by the ‘power of the Holy Spirit’. The message conveyed is transparent: on the one hand, there are areas of confluence between theological and natural epistemologies; on the other hand, there are domains that cannot be dealt with outside the confines of divine revelation.

The group of chapters from 3 to 14 explore the Aristotelian universe, whose cosmological paradigm has been acknowledged by the Byzantines and whose major division refers to the celestial and terrestrial realms. Within this group, two main subgroups are discernible, (a) from chapter 3 to chapter 7, and (b) from chapter 8 to chapter 14.

(a) The first subgroup explores the astronomical domain, endeavouring to dismiss the mythological and pseudoscientific idea of a ‘world soul’ (κοσμική ψυχή; chapter 3) or ‘universal soul’ (παγκόσμιος ψυχή; chapter 4) that ostensibly moves everything that exists. Palamas displays a good command of natural (namely, Aristotelian) science, which he employs in order to demythologise the astronomical theories of a Platonic, Stoic and Neoplatonic background. Characteristically, he ascribes all celestial movements and phenomena, which he describes in great detail, with exclusively natural explanations.

(b) The second subgroup ventures into geography, together with the physics of the terrestrial and water spheres, elaborated within a cosmographical model inspired by the same Aristotelian-Ptolemaic concentric system of the world. One of the most interesting features of this subgroup is Palamas’

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struggle to show more proficiency than the ancient cosmologists in using scientific tools (cf. end of chapter 9).

The final group of chapters comprising this section, from 15 to 29, analyses the different ways natural philosophy and science, on the one hand, and theology on the other, depict reality, together with their respective mechanisms of perception. Within this group of chapters there may be discerned three subgroups, (c) from chapter 15 to chapter 20, (d) from chapter 21 to chapter 24, and (e) from chapter 25 to chapter 29.

(c) The first subgroup considers the way natural knowledge is achieved through complex interactions between external objects, human senses, our capacity to represent objects and the mind. St Gregory’s approach is neutral and expositive, suggesting no reluctance towards sense perception or the competence of cognitive processes in matters pertaining to natural knowledge. His insight in the subjective conditions of cognition is significant, mostly his awareness that our grasp of reality is shaped – and this is typically an ascetical approach – by the personal state of attachment or detachment (chapter 17), respectively. He also remarks that our natural faculties cannot handle what pertains to the Holy Spirit (chapter 20).

(d) The second subgroup reiterates the biblical narrative of Genesis 1-2, pointing out the character of the theological approach towards reality as inspired by the 'teaching of the Holy Spirit' (chapter 21). The chain of being indeed unfolds according to the order of the scriptural text (cf. chapter 22), yet Palamas brings a series of cultural elements into this picture, such as the concentric Aristotelian-Ptolemaic universe (chapter 23). In the background there operates a coherent theological perspective, the author emphasising the dependence of the universe on the Trinitarian God, the possibility of discerning God's imprint in the harmonious adornment of the cosmos, and the irreducibility of the human person to the cosmic environs.

(e) The third subgroup addresses the main difference between natural epistemology and the God-inspired theology. If secular knowledge adds to the understanding of the natural function of beings, theological knowledge is essentially salvific (chapter 29). Furthermore, theological knowledge plays the role of an interpretive and discerning tool contributing to the disentanglement of scientific data from any deceptive interpretations that can affect our spiritual wellbeing. Ultimately, only theological knowledge reveals humankind's majesty as irreducible to any aspect of physical world (chapter 26).

All things considered, it is obvious that St Gregory's thinking is fundamentally Christian and traditional, both balanced and nuanced. Natural sciences have their well-grounded competence yet this does not extend to matters pertaining to the domain of the spiritual life. Before considering Palamas' acquaintance with secular science, a brief overview of his scriptural background is in order.

### **A biblical framework**

Although elaborating within an Aristotelian-Ptolemaic paradigm St Gregory's thinking remains nevertheless thoroughly biblical, as endorsed by chapter 2 when he evokes as an authority 'the prophecy of those inspired by God and of Christ himself, the God of all'. Papademetriou (2004: 61-2) is therefore right when he notes that, for Palamas, the source of theology is the divine revelation as witnessed by Scripture and the Church fathers. Given the very scriptural spirit of the Philokalic tradition – to which he incontestably belongs – and the impressive exegetical and/or homiletic output of his years as archbishop of Thessaloniki, this should come as no surprise.

From the outset, Palamas makes clear that he is aware of the intrinsic limitations pertaining to scientific epistemology and the indisputable competence of scriptural revelation for all theological and spiritual matters. He thus points out the general agreement between nature, culture and Scripture, or between empirical knowledge and divine revelation, by admitting that the world has a beginning. However, he also emphasises the superiority of the biblical worldview over all those 'who sophistically teach the contrary'. In chapter 1, he states:

That the world has an origin nature teaches and history confirms, whilst the discoveries of the arts, the institution of the laws and the constitution of states also clearly affirm it. [...] Yet we see that none of these surpasses the account of the making of the world and of time, as narrated by Moses.

The indirect proofs inferred from all human activities by the logic of causality represent mere confirmations of the truth revealed from above and proclaimed by the Scriptures, that God is the originator of the whole of creation. Together with indicating Palamas' unequivocal biblical mindset, this approach also manifests his propensity towards translating the ecclesial message via digestible cultural categories.

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Summarising the ecclesial worldview, in chapters 21-24 Palamas closely follows the biblical account of the cosmogenesis by depicting – instead of a static and geocentric cosmology, as suggested by Sinkewicz (1988: 14) – a universe shaped dynamically to sustain life and people. The presentation begins with the Creator and the general image of the universe termed as 'heaven and earth' (chapter 21), introducing sequentially the organisation of creation in six days through divine commandments (chapter 22), as an ecosystemic and anthropic process culminating in the arrival of humankind (chapter 24). Motivated by both pastoral and missionary concerns, this approach refers to a readership which – conditioned by both the Christian faith and a certain cultural paradigm – may find comfort, meaning and purpose in a world that could be at times terrifying in its silent majesty.

This kind of approach avoids any syncretism and ideological speculation (Ware, 2004: 163). Adopting the traditional 'apologetic' method of early fathers, St Gregory systematically endeavours to assimilate Hellenistic cosmography by grounding it in the Scriptures (see, for example, the comparison between the natural sciences and the Bible in the description of circular movements in chapter 8). To him, the world and its summation, the human being, are primarily God's creation and cannot be fully comprehended outside the theological worldview. As creation, furthermore, and in a panentheistic sense (Ware, 2004: 166), the cosmos is neither divine nor spiritually meaningless, since it is never deprived of God's presence and embrace. The biblical dimension of Palamite mindset is even better represented in the second section of the book, which explores the intricacies of ecclesial anthropology, but which will remain outside the scope of this essay. Meyendorff (1998: 118-20) notes that this background is precisely the source of St Gregory's positive attitude toward the world as God's creation and the sciences as a means to explore the nature of the cosmos. My paper will now turn to an analysis of the scientific component of the first section of the *Chapters*.

### **St Gregory's use of science**

In a very characteristic way, Palamas proceeds to demonstrate the Christian faith's superiority in matters pertaining to the spiritual experience only after presenting in detail the scientific and philosophical thinking-patterns espoused by the humanists. However, his way of handling information is not always amicably treated by modern scholars.

It is true that, providing non-theological information Palamas sometimes mentions in a very general way the Greek 'sages' (σοφοί; chapters 3 and 9), 'naturalists' and 'stargazers' (φυσιολόγοι, ἀστροθεάμονες; chapter 28), leaving the impression that he is not 'closely familiar' with the relevant sources (Sherard & Ware, 1995: 291, n. 1). Echoing allegations, both old and new, that St Gregory did

not enjoy an advanced education (Meyendorff, 1974: 75; Meyendorff, 1998: 28-31; Papademetriou, 2004: 62-3), such a perception is utterly superficial. The relative absence of explicit references is understandable in a book that was never designed to endorse the authority of pagan authors. Nevertheless, the scientific data employed in the first section and throughout the book are mainly yet not exclusively drawn from Aristotle's treatises, both verbatim and in the form of paraphrases. A brief example of this includes the fact that the Stagirite's concentric cosmology is explicitly referred to in chapter 10 and the famous 'categories' later in the book, in chapter 134. Furthermore, in chapter 25 St Gregory enumerates three ancient scientists (Euclid, Marinos and Ptolemy) together with four schools of logic and mathematics (Empedoclean, Socratic, Platonic and Aristotelian). Considering the above, we may surmise that even if he had not consulted primary sources, Palamas could have become acquainted with those authors and schools through the lectures, handbooks and anthologies to which he was exposed in the Imperial University. However, this neither affects the veracity of the information provided nor does it diminish the significance of his copious use of scientific data.

The difficulties of perception concerning St Gregory's use of science extend, however, beyond the above. For instance, the editors of the English version of *The Philokalia* (Sherard & Ware, 1995: 291, n. 1) cautiously note that Palamas' worldview is mostly personal and 'must not be taken to represent Christian cosmology as such'. Here, again, both the suggestion of novelty and the assessment behind it remain inaccurate. Nothing about the Palamite narrative of creation is fundamentally unknown or foreign to patristic tradition, if compared with, for example, St John Damascene's *Exact Exposition*, book 2. Furthermore, Palamas shared with the holy fathers a spiritual discernment that opposed any illegitimate wedding of faith and culture – a selective method whose paragon remain undoubtedly St Basil the Great's *Homilies on the Hexaemeron*. The fathers, and St Gregory with them, had employed scientific models as channels to communicate the Christian faith, without ever substituting them for the spirit of the ecclesial worldview (Lossky, 2002: 104). Thus, and considering the biblical roots of his thinking, Palamas' Christian cosmology – whilst reflecting the

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parameters and issues characterising his contemporary culture – remains valid in spirit although the science that constitutes its framework has become obsolete.

Now, speaking of his use of secular science, two distinct approaches immediately elicit our attention. Firstly, Palamas acknowledges science as a tool capable of unlocking the secrets of the natural laws; as such, it contributes to the development of civilisation and to discern the wisdom of the provident God within the world (since the nature of the cosmos is to be God's creation). He asserts that studying the laws of nature and becoming aware of how things really work in the universe may lead – causally – to knowing the God who 'made, ordered and adorned' everything (chapter 23). Secondly, Palamas highlights the limitations of scientific epistemology to prevent any attempt of absolutising its potential – an aspect to which I will return later on.

With the *Chapters*, St Gregory displays a surprisingly proficient command of scientific issues. Throughout the work he continues to praise the usefulness of the sciences and applies them skilfully to various matters, such as the use of geometry in chapter 81. One should be mindful, however, that this impressive display of scientific awareness is not ostentatious; he is indeed a Church father and his approach is motivated by very practical reasons. As such, he relies heavily on the Aristotelian or naturalistic epistemology to fight the theory of a ‘world soul’, which contradicted the ecclesial doctrine of creation. In chapter 3, for instance, he insists that ‘every stone, every piece of metal, all earth, water, air or fire, moves naturally (φύσει κινεῖσθαι) and not by virtue of a soul (ἀλλ’οὐ τῇ ψυχῇ)’. In chapter 21 he gives a similar naturalistic explanation to the world’s emergence out of the ‘pregnant’ (κυόφορον) womb of the pristinely chaotic ‘heaven and earth’ (cf. Genesis 1:2): all things derive from that original matrix endowed with a generative potential.

In other contexts, St Gregory seems to simply enjoy dealing with scientific matters. He takes as granted and presents in detail a variety of scientific theories and data, such as the stratified and concentric cosmos (chapters 5 and 10-14), the movement of the winds (chapter 8), the proportion of land and waters on earth (chapters 9 and 10), and the mechanisms of sense perception and natural intellection (chapters 15-20). The most impressive is perhaps the demonstration in chapters 13 and 14, which endeavours to find the actual position of the centre of the water sphere by rapport with the terrestrial sphere; the exposition is accompanied by a graphic whose meaning is analysed in detail from a purely scientific viewpoint.

At any rate, there is no doubt that Palamas values scientific knowledge. Although the significance of his contribution remains ignored by contemporary researchers, his thinking matches the profile of all medieval scholars who were thoroughly versed in both science and theology (Lindberg, 2002: 58). On another note, this consistently naturalistic approach dismisses the current prejudice that – at least to some critics (Papademetriou, 2004: 318-9; Bradshaw, 2004: 268-71) – Palamas embodies the triumph of Neoplatonism over Christian tradition.

### **A hierarchical epistemology**

Following the traditional apologetic demarche as represented, in the fourth century for example, by the Cappadocians (Stramara, 2002: 151-5), the Palamite work displays a balanced and courageous integration of scientific data within a scripturally based, Christian worldview. Thus, when describing the natural realm St Gregory takes, in modern terms, the interdisciplinary approach even though the purpose of his laborious enterprise, as already mentioned, remains genuinely pastoral. He makes use of scientific data in order to stir in the reader a sense of awe before the meaningful complexity of the world, as designed, brought into being and sustained by its Creator.

However, to avoid any epistemological clatter, Palamas raises with clarity – perhaps for the first time in a consistent manner within the Byzantine context – the issue of distinct competencies pertaining to various fields of expertise. More precisely, he delineates the boundaries between theological insight and scientific knowledge (Meyendorff, 1998: 120), a distinction behind which two main factors

may be outlined: St Gregory's commitment to the Christian teaching of the ontological gap between the uncreated creator and his creation (chapter 78), and his experience as a hesychast (cf. e.g. chapters 79-80). This demarcation represents a revolutionary contribution in a time when, for both East and West, the frontiers between science and theology were not drawn. In fact, it was this confusion that allowed his opponents to use the flamboyant yet inaccurate expression that theology is 'the queen of the sciences'.

St Gregory's epistemological scheme, however, encompasses more than the sharp delineation of domains, to which I shall return. Whilst acknowledging their respective features and the fact that they operate on different levels of reality, Palamas does not consider science and theology as contradictory and mutually exclusive. On the contrary, they both contribute to holistic education the same way that

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human psychosomatic faculties cooperate in gathering and processing information (chapters 16 and 19). Notwithstanding this fairly balanced approach, one may find in the background the 'imbalance' produced by a hierarchical perception. Motivated exclusively by soteriological and pastoral concerns, this perception acts as a criterion discerning the extent to which the two domains, of science and theology, contribute to personal formation. More precisely, it endeavours to establish existential – not ideological – priorities. In light of this criterion, not all knowledge brings us closer to God and mystical enlightenment; not all knowledge makes us participate in the divine life; therefore, not all knowledge should be cultivated at the same rate by those interested in spiritual becoming. Whilst science has its own right to explore the laws of nature, ultimately it cannot be prioritised on the path of spiritual becoming.

These nuances should be carefully considered when addressing Palamas' reluctance toward sense perception, natural intellection and scientific epistemology. In fact, his prioritisation of theological knowledge in spiritual matters, like in chapters 25-26, does not presuppose an abandonment of science altogether, as demonstrated by his skilful use of it in matters pertaining to nature. For instance, in chapters 20 and 26, St Gregory points out the limitations of the 'philosophy based on sense-objects', which is intuitive in essence and utterly confined to the empirical horizon by its use of the thinking-patterns as pertaining to an enstatic, non-mystical, intellect. This is not to imply, however, a general mistrust in regard to sense perception (Konstantinovsky, 2006: 317; Sinkewicz, 1988: 13), an opinion contradicted at least by chapter 63. Palamas merely insists that the natural way of knowing has no competence on matters lying beyond its reach, such as the deifying experience of the hesychast saints. In chapter 20, he notes:

Such [empirical] knowledge we gather from the senses and the imagination (ἐξ αἰσθήσεως καὶ φαντασίας) by means of the intellect (διὰ τοῦ νοῦ). Yet no such knowledge can ever be called spiritual (πνευματική) for it is natural (φυσική), the things pertaining to the Spirit remaining beyond its scope.

Knowledge of God, spiritual experience or the deifying participation can be reached only through the ecstatic, mystical, attitude of those who – acknowledging

their ‘own infirmity’ – seek healing within the Church, not without ascetic efforts (chapter 24). Concerned primarily with ‘finding salvation’, they receive the ‘light of knowledge’ (τῷ φωτὶ τῆς γνώσεως) and the ‘true wisdom’ (σοφίαν ἀληθῆ) that cursory factors cannot obfuscate (chapter 29). Attaining ‘the wisdom of the Spirit’ (ἡ κατὰ πνεῦμα σοφία) they come to the realisation that nothing matches this experience: sense perception and the natural sciences are simply unable to lead to ‘saving knowledge’ (ἡ σωτήριος γνῶσις) and therefore cannot ‘procure for us the joy from above’ (chapter 25). Thus, proving incapable of scrutinising the other, uncreated, side of reality and ‘to know God truly’ (chapter 26), scientific epistemology has to admit humbly its limitations and acknowledge the competence of theology in matters transcending physical, common, experience.

There is nothing arrogant or simplistic about this exhortation to discernment. At least, nothing to parallel the arrogance exhibited by many modern scientists who, like the ancient naturalists (cf. chapters 26 and 28), idolise and trust absolutely their limited means, denying, to paraphrase St Paul (cf. 1 Corinthians 2:9), what the eyes have not seen and human mind cannot conceive. Instead, St Gregory’s epistemology is anything but simplistic and reductionist. Papademetriou (2004: 62) points out that, given his commitment to the doctrine of the ontological gap, for Palamas ‘there are two ways to knowledge: scientific for created reality and divine wisdom for the knowledge of uncreated being’. Thus, given their incommensurable methods and their respective competences for utterly different levels of reality, science is never – to paraphrase St Augustine’s famous dictum (Nesteruk, 2003: 36-40; Stramara, 2002: 158-60) – a handmaiden of theology and theology never the queen of the sciences.

Without ever implying a confusion of domains, Palamas apparently aims at dismantling the dangerous construct represented by the hypocritical designation of theology as the queen of the sciences. Indeed, there are serious flaws with the rationale behind such a label. Since theology’s aim is to know God, and since God is uncreated, infinitely transcending both created nature and the tools designed to explore the cosmos, maintaining the idea of a *mathesis universalis* – one epistemology applicable to all levels of reality – is inaccurate, simplistic and ultimately utopian. Pointing to this understanding, Palamas anticipates the first postulate of transdisciplinarity (cf. Nicolescu, 2002: 272) seven centuries in advance. Thus, the pompous label of the queen of the sciences indicates in fact an attempt to reduce theology to the scientific approach (the queen cannot but represent the culmination of a method to be

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found at the very base) giving the deceptive impression that there is only one level of reality, that of the created order. Far from representing the culmination of natural knowledge, theology is an ecclesial function designed both to interpret everything in light of divine revelation and to explore the mystical levels of reality (such as the uncreated life and the deifying participation) lying beyond the grasp of science, logic and metaphysics.

St Gregory’s understanding and method constitute bright examples of a sharp discernment and balanced approach that remain so necessary for our contemporary circumstances. Theology and science are not competing within the same level of



reality and consequently develop different, and incommensurable, epistemologies. If Palamas sounds radical with reference to the limitations of natural science, this attitude is motivated primarily by his aim at emphasising the existence of levels of reality unexplored by the scientists. Experienced synergetically through personal participation in the divine life, as divine-human interaction (Bradshaw, 2004: 265) and beyond common perception, these levels are as real as everything else, with the exception that no instrument other than our own being can serve to access them. And perhaps these aspects represent the essence of St Gregory's legacy: to indicate how the adventure of knowing involves us and passes through our being; to show that beyond the ontological gap and the weakness of natural epistemology the experience of God is very much possible; and to point out that the end of the journey is the transformative experience of theosis/deification, and not just the acquisition of gnosis/knowledge.

## Conclusion

The main standpoints Palamas defends throughout the debate with his opponents – such as the natural incapacity of human mind to explore the transcendent realm and to comprehend the parameters of mystical experience – are still very much present in the *Chapters*. Yet, in this later work he openly acknowledges the competence of the natural sciences to scrutinise the created cosmos, together with their contribution in refuting the theory of a 'world soul' and facilitating the contemplation of God's wisdom as manifested in creation. His discourse presents the complex interactions between theology and science in a surprisingly balanced manner and within a holistic perspective that anticipates the contemporary transdisciplinary approach. From the point of view of his consistent hierarchical scheme (configured by soteriological criteria and pastoral purposes) he stresses that scientific epistemology has nothing relevant to say about spiritual experience. This aspect lay at the core of the entire Palamite edifice, which holds as a central axiom the sharp distinction between worldly knowledge and theological wisdom. Precisely this division between theology and natural sciences allowed him to construe their rapports in a preferable manner to the redundant classic scheme, which assumes that science is the foundation of all knowledge and that theology, at its apex, is its queen. This may be considered as one of St Gregory's main contributions in an epoch where the scientific and theological competencies were far from being thoroughly differentiated.

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