

THEOLOGY AND TECHNOLOGY

STRANGE BEDFELLOWS? ORTHODOX PERSPECTIVES ON THEOLOGY, SPIRITUALITY, SCIENCE, AND TECHNOLOGY

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ABSTRACT. This paper considers whether Orthodox theology and spirituality can interact with science and technology peacefully and creatively. The issue lies with the popular assumption that the Orthodox follow the early Christians who, supposedly, opposed science and technology. However, traditionally, the early Christians approached human resourcefulness with discernment and wisely. It goes the same for two modern Orthodox theologians, Pelikan and Stăniloae. I consider the scriptural stories of the Fall and the Tower of Babel, showing what they mean for the way theology, spirituality, science, and technology intersect. Then I introduce the anonymous *Letter to Diognetus* and Maximus the Confessor's *Book of Difficulties*, especially the parts about the creative coexistence of the four areas; I demonstrate that these sources do not consider them strange bedfellows. These sources show how to read the two scriptural stories and suggest ways out of current impasses. The paper contends that the lessons drawn from these texts lead to a mature Orthodox understanding of current challenges related to scientific and technological advance.

Keywords: discernment, patristic tradition, science, spirituality, technology, theology

In this essay I challenge the assumption, popular among Orthodox Christians today, that spirituality, theology, science, and technology cannot be reconciled. I do not intend to examine this assumption in detail; it is fairly well known; the sources mentioned in what follows provide a nuanced understanding of the situation and the wider spectrum of traditionalist views. My aim is to

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show that important elements from within the Orthodox tradition do not support this assumption and, in fact, contradict it. I contend that there is compelling evidence within this tradition that theology, spirituality, science, and technology make for a very good company.

There is a widespread view that Orthodox Christianity is by default conservative and, as such, that it must oppose rational thinking, science, and technology wholesale, while it seeks refuge in the known and in pseudosciences such as creationism. So understood, it would be as fundamentalist as its western counterparts.² Truth be told, since the failure of several Orthodox Churches to adopt the revised calendar in the early twentieth century,³ some circles began to display increasing uneasiness about the scientific culture of our age and its technological incarnations. The numerous references to technological progress in the documents of the Holy and Great Council of the Orthodox Church (Crete, 2016) show that, indeed, there is a problem with the Orthodox perception

² The literature studying this phenomenon is abundant and ever-growing. For pertinent analyses, see for example Alexei Bodrov, "Problems and Perspectives of the Science-and-Religion Dialogue in Russia," *Transdisciplinarity in Science and Religion* 6 (2009): 211–16; John Hedley Brooke, "Modern Christianity," in *Science and Religion around the World*, ed. John Hedley Brooke and Ronald L. Numbers (Oxford University Press, 2011), 92–119; Dimitry Kiryanov, "Evolution and Orthodox Theology in Russia: An Uneasy Way to the Dialogue," in *Orthodox Christianity and Modern Science: Tensions, Ambiguities, Potential*, ed. Vasilios N. Makrides and Gayle Woloschak, *Science and Orthodox Christianity* 1 (Turnhout: Brepols Publishers, 2019), 226–28; Christopher C. Knight, "Natural Theology and the Eastern Orthodox Tradition," in *The Oxford Handbook of Natural Theology*, ed. Russell Re Manning (Oxford University Press, 2013), 213–226; Mark A. Noll, "Evangelicalism and Fundamentalism," in *Science and Religion: A Historical Introduction*, ed. Gary Ferngren (Baltimore and London: The Johns Hopkins University Press, 2002), 271–75; Ronald L. Numbers, "Scientific creationism and intelligent design," in *The Cambridge Companion to Science and Religion*, ed. Peter Harrison (Cambridge, UK: Cambridge University Press, 2010), 127–36, 139–44; idem, *Creationists: From Scientific Creationism to Intelligent Design*, expanded edn (Cambridge, MA and London: Harvard University Press, 2006); idem, "Creationism since 1859," in *Science and Religion: A Historical Introduction*, ed. Gary Ferngren (Baltimore and London: The Johns Hopkins University Press, 2002), 279–87; Kostas Tampakis, "Orthodoxy and Science in the Greek State, 1830–1939," *Almagest* 8:2 (2017): 143–47; George Theokritoff, "Evolution and Eastern (Orthodox) Christianity," *Transdisciplinary Studies* 1 (2011): 185–90.

³ See Doru Costache, "Orthodoxy and Science: Insights from the Holy and Great Council," *The Ecumenical Review* 72:3 (2020): 398; idem, "The Orthodox Doctrine of Creation in the Age of Science," *Journal of Orthodox Christian Studies* 2:1 (2019): 45–46; idem, "One Description, Multiple Interpretations Suggesting a Way Out of the Current Impasse," forthcoming in *Eastern Orthodoxy and the Sciences: Theological, Philosophical, Scientific and Historical Aspects of the Dialogue*, ed. Christopher Knight and Alexei Nesteruk, *Science and Orthodox Christianity* 2 (Turnhout: Brepols Publishers, 2021); Ioan Macri, "Considerații despre calcularea datei Paștelui," *Transdisciplinarity in Science and Religion* 1 (2007): 157–58; Efthymios Nicolaidis, Eudoxie Delli, Nikolaos Livanos, Kostas Tampakis, and George Vlahakis, "Science and Orthodox Christianity: An Overview," *Isis* 107:3 (2016): 562–63, 565; Tampakis, "Orthodoxy and Science," 148.

of science and its applications.⁴ The phenomenon is evident across the post-totalitarian societies of Eastern Europe,⁵ but is neither exclusive to the Orthodox milieus nor unique to that region. Concretely, the Orthodox circles in question believe that the monastic tradition and the ecclesiastical tradition more broadly are against science and technology.⁶ Acting upon this perception, Orthodox apologists operating in the wasteland of the internet oppose the 5G network, vaccines, identity biochips, biotechnologies, and the artificial intelligence, while displaying an obvious taste for “apocalyptic” conspiracy theories. The fact that uncontested monastic authorities such as Maximus the Confessor in the seventh century, John Damascene in the eighth, and Gregory Palamas in the fourteenth acknowledged the autonomy and the importance of research and innovation⁷ bears no significance for them. A slightly more educated variant of the above trend is lending support to creationism, which Seraphim Rose and his followers mistake for a traditional stance. In the name of this supposed tradition, they reject contemporary science.⁸ But these forms of opposition represent only the tip of the iceberg. These reservations about science and technology must not be taken separately from the broader phenomenon. Specifically, these circles are inherently against all things western and modern, science and technology being the hallmarks of western civilisation. The situation has not escaped the attention of scholars.⁹ And this is not all there is to it. Behind their hostile attitude

⁴ See Costache, “Orthodoxy and Science,” 401–402, 403–404.

⁵ See Marijan Sunjic, “Social Aspects of the Science–Religion Dialogue in Post-Totalitarian Societies,” *Transdisciplinarity in Science and Religion* 2 (2007): 278–80, 284–85, 289–90.

⁶ See on this Nicolaidis et al., “Science and Orthodox Christianity,” 552–53, 554, 556–57.

⁷ See Doru Costache, “Maximus the Confessor and John Damascene’s cosmology,” in *The T&T Clark Handbook of Christian Theology and the Modern Sciences*, ed. John Slattery (Bloomsbury/T&T Clark, 2020), 86–87, 90–91; idem, “Queen of the Sciences? Theology and Natural Knowledge in St Gregory Palamas’ *One Hundred and Fifty Chapters*,” *Transdisciplinarity in Science and Religion* 3 (2008): 31–35, 36–40; Nicolaidis et al., “Science and Orthodox Christianity,” 545, 552–53.

⁸ The classical illustration of this trend is the book of Seraphim Rose, *Genesis, Creation and Early Man: The Orthodox Christian Vision* (Platina, CA: Saint Herman of Alaska Brotherhood, 2000). For brief treatments of Rose’s position and his supporters, see Knight, “Natural Theology,” 223–24 and Theokritoff, “Evolution and Eastern (Orthodox) Christianity,” 185–86, 188, 197.

⁹ Increasing attention is given to Orthodox anti-modernism and anti-westernism. See John Chrysavgis, *Toward the Holy and Great Council: Retrieving a Culture of Conciliarity and Communion*, Faith Matters (New York: Greek Orthodox Archdiocese of America, 2016), 23–25; Costache, “Doctrine of Creation,” 43–45, 47, 50; George E. Demacopoulos and Aristotle Papanikolaou, eds., *Orthodox Constructions of the West*, Orthodox Christianity and Contemporary Thought (New York: Fordham University Press, 2013); Pantelis Kalatzidis, “Concluding Remarks,” *St Vladimir’s Theological Quarterly* 60:1-2 (2016): 283–84, 295–97; Knight, “Natural Theology,” 213, 223–24; Andrew Louth, *Introducing Eastern Orthodox Theology* (London: SPCK, 2013), 74–78; Vasilios N. Makrides, “Orthodox Anti-Westernism Today: A Hindrance to European Integration?”

hides the suspicion that all things modern and western either corrupt the purity of the faith or promote atheistic agendas.¹⁰

The superficiality of this assessment of western civilisation is obvious, but the emotions associated with it run high and cannot be overlooked. It is this emotional charge that prompted the Council to clarify that neither scientific research nor technological advancement are detrimental to the Orthodox faith and devotion.¹¹ The sciences, we read in one of the Council's documents, are "a gift from God to humanity" and "beneficial for humankind," as well as fully autonomous in their undertakings.¹² Accordingly, we read in another conciliar document, the church must not be taken as harbouring "conservatism [and as being] incompatible with the advancement of civilisation."¹³ Being consistent with the available research into ancient, medieval, and contemporary positions,¹⁴

International Journal for the Study of the Christian Church 9:3 (2009): 209–24; Teresa Obolevitch, "Faith and Science in the Thought of Khomiakov," in *Alexei Khomiakov: The Mystery of Sobornost'*, ed. Artur Mrówczyński-Van Allen, Teresa Obolevitch, and Paweł Rojek (Eugene, OR: Pickwick Publications, 2019), 26–28.

¹⁰ See Costache, "One Description"; Kiryanov, "Evolution and Orthodox Theology," 230–31; Tampakis, "Orthodoxy and Science," 146–50.

¹¹ See Costache, "Orthodoxy and Science," 401–402, 406–407.

¹² "The Mission of the Orthodox Church in Today's World," F11–12

(<https://www.holycouncil.org/-/mission-orthodox-church-todays-world>, accessed 10 July 2020).

¹³ "Encyclical," 5.10 (<https://www.holycouncil.org/-/encyclical-holy-council>, accessed 10 July 2020). See also *ibid.*, 6.17, where the document openly rejects fundamentalism.

¹⁴ See Doru Costache, "A Theology of the World: Dumitru Stăniloae, the Traditional Worldview, and Contemporary Cosmology," in *Orthodox Christianity and Modern Science: Tensions, Ambiguities, Potential*, ed. Vasilios N. Makrides and Gayle Woloschak, *Science and Orthodox Christianity* 1 (Turnhout: Brepols Publishers, 2019), 205–22; Pantelis Kalaitzidis, "New Wine into Old Wineskins?: Orthodox Theology of Mission Facing the Challenges of a Global World," in *Theological Education and Theology of Life: Transforming Christian Leadership in the Twenty-First Century*, ed. Atola Longkumer, Po Ho Huang, and Uta Andréa, *Regnum Studies in Mission* (Oxford: Regnum, 2016), 119–47; Christopher C. Knight, "Science and Theology: What Does It Mean to Speak of a 'Dialogue'?" *Transdisciplinary Studies* 1 (2011): 25–38; *idem*, *The God of Nature: Incarnation and Contemporary Science*, *Theology and the Sciences* (Minneapolis, MN: Augsburg Fortress Publishers, 2007); Vladimir Lossky, *The Mystical Theology of the Eastern Church* (Crestwood, NY: St. Vladimir's Seminary Press, 2002), 183–84, 241; Andrew Louth, "The Six Days of Creation According to the Greek Fathers," in *Reading Genesis after Darwin*, ed. Stephen C. Barton and David Wilkinson (Oxford University Press, 2009), 39–55; John Meyendorff, *Byzantine Theology: Historical Trends and Doctrinal Themes* (New York: Fordham University Press, 1979), 132–34; Panayiotis Nellas, *Deification in Christ: Orthodox Perspectives on the Nature of the Human Person*, trans. Norman Russell, *Contemporary Greek Theologians* 5 (Crestwood, NY: St Vladimir's Seminary Press, 1987), 93–104; Alexei V. Nesteruk, *The Sense of the Universe: Philosophical Explication of Theological Commitment in Modern Cosmology* (Minneapolis, MN: Fortress Press, 2015); Basarab Nicolescu and Magda Stavinschi, eds., *Science and Orthodoxy: A Necessary Dialogue* (Bucharest: Curtea Veche, 2006); Obolevitch, "Faith and Science," 29–31; Elizabeth Theokritoff, "Creator and Creation," in *The Cambridge Companion to Orthodox Christian Theology*,

these statements offer important clarifications about the mainstream Orthodox view. Nevertheless, until the Council's decisions reach far and wide, it would be too optimistic to expect an impact of the relevant research beyond its cogent readers. Against this backdrop, the sense that the Orthodox cannot reconcile theology, spirituality, science, and technology is difficult to ignore. My interest, here, is in presenting aspects of the Orthodox tradition which illustrate the deep historical roots of the position the Council advocates.

Scriptural Grounds: the Fall and the Tower of Babel

One might suppose that from a certain viewpoint the opposition to bridging theology and science, and spirituality and technology draws on the *prima facie* meaning of two scriptural stories: the Fall and the Tower. As we read in Genesis 3, Adam and Eve preferred free thinking to being obedient to divine wisdom. In turn, Genesis 11 introduces the ambitions of people who, having grown overconfident in their scientific and technological skill, wished to build the Tower of Babel. Both endeavours utterly displeased God and were duly punished. As the believers who subscribe to the views outlined above take these stories at face value, they infer from them that rational thinking, science, and technology are irreconcilable with faith, theology, and spirituality. In short, these areas are strange bedfellows for them.

But the two scriptural passages are not so much about what people did as they are about *how* they did whatever they did. In other words, these wisdom stories draw attention to the spirit which motivates people's actions, not to their actual deeds. The protagonists of both stories failed neither because they reasoned nor because they built something. It is because they introduced a rift between faith and rational thinking, between theology and science, and between spirituality and technology. They reasoned without faith, enquired without heeding the divine wisdom, and built arrogantly, to make a name for themselves. As Maximus had it, they did everything "without God, before God, and not in God's way."¹⁵ In turn, overall the early Christians—who are my main witnesses

ed. Mary B. Cunningham and Elizabeth Theokritoff (Cambridge University Press, 2008), 63–77; Christos Yannaras, *Elements of Faith: An Introduction to Orthodox Theology*, trans. Keith Schram (Edinburgh: T&T Clark, 1991), 38–88. For a comprehensive catalogue of contributions to the Orthodox dialogue with the sciences, see the website of Project Science and Orthodoxy around the World (<http://k2.altsol.gr/archive/search>, accessed 10 July 2020).

¹⁵ δὶχα Θεοῦ καὶ πρὸ Θεοῦ καὶ οὐ κατὰ Θεόν. *Difficulty* 10.28.60.7–8, in *Maximos the Confessor: On Difficulties in the Church Fathers: The Ambigua*, 2 vols., ed. Nicholas Constas, Dumbarton Oaks Medieval Library (Cambridge, MA and London: Harvard University Press, 2014), 1:246. My translation.

in what follows—thought and acted very differently. They were convinced that faith and reason, theology and science, as well as spirituality and technology must cooperate for the sake of humankind’s flourishing and in view of a hopeful future.¹⁶ That this is how they understood the two scriptural narratives will become clear soon. Either way, we should not confuse mainstream Orthodox tradition with fundamentalism. And while the Holy and Great Council corroborates this conclusion,¹⁷ there are more reasons for endorsing it, both ancient and modern. To these I must now turn.

Modern Orthodox Perspectives: J. Pelikan and D. Stăniloae

First, I draw on the views of two major twentieth century Orthodox theologians, Jaroslav Pelikan (d. 2006) and Dumitru Stăniloae (d. 1993). I subscribe to Pelikan’s clarification that tradition and traditionalism are not the same. He described the tradition as “the living faith of the dead” and traditionalism as “the dead faith of the living.”¹⁸ Let’s understand this distinction. One, the tradition, amounts to contemporary believers being faithful to the achievements of past generations, whose wisdom—not literal answers—they replicate in their own historical and cultural circumstances. The other, traditionalism, amounts to the systemic rejection of all novelty, development, and progress, in the name of past achievements. This distinction is based on Pelikan’s profound familiarity with the early Christian experience, especially the patristic manner of engaging the available sciences, the philosophical ideas, and the cultural trends of late antiquity.¹⁹ But his voice is not singular. Equally aware of the early Christian wisdom, Dumitru Stăniloae anticipated Pelikan’s understanding when he prefaced his synthesis of Orthodox theology with the following words:

¹⁶ See Henry Chadwick, *The Early Church* (London: Hodder and Stoughton, 1968), 74–77, 97–98, 104–105; Bruce V. Foltz, *Byzantine Incursions on the Borders of Philosophy: Contesting the Boundaries of Nature, Art, and Religion* (Cham: Springer, 2019), 31–38; David C. Lindberg, “The fate of science in patristic and medieval Christendom,” in *The Cambridge Companion to Science and Religion*, ed. Peter Harrison (Cambridge, UK: Cambridge University Press, 2010), 23–26; David Sutherland Wallace-Hadrill, *The Greek Patristic View of Nature* (Manchester and New York: Manchester University Press and Barnes & Noble, 1968), 9–10, 37, 97–100, 122, 130.

¹⁷ See also my conclusions in “Orthodoxy and Science,” 407–408.

¹⁸ Jaroslav Pelikan, *The Vindication of Tradition: The 1983 Jefferson Lecture in the Humanities* (New Haven and London: Yale University Press, 1984), 65.

¹⁹ See Jaroslav Pelikan, *What Has Athens to Do with Jerusalem? Timaeus and Genesis in Counterpoint*, Jerome Lectures 31 (Ann Arbor: The University of Michigan Press, 1997); idem, *Christianity and Classical Culture: The Metamorphosis of Natural Theology in the Christian Encounter with Hellenism* (New Haven and London: Yale University Press, 1993).

We endeavoured to understand the teaching of the Church in the spirit of the fathers, but also to understand it the way we believe that they would have understood it today. For they would have not ignored our time, the way they did not ignore their own.²⁰

Stăniloae did not propose as clear a distinction as Pelikan's, at least not in a straightforward manner, but their perceptions are identical. What his words convey is that an authentically Orthodox discourse replicates the spirit of the tradition, not parrot old answers. And as he "endeavoured to understand the teaching of the Church in the spirit of the fathers" the way "they would have understood it today," it results that he did not favour outmoded cultures and idealisations of the past over contemporary issues. The fact of the matter is that his description of the cosmos appropriates the cosmology and the physics of our time, not the cosmography of late antiquity.²¹ In this light, and if Pelikan and Stăniloae's perceptions express a majority view—and the references provided above show that they do—then Orthodox Christianity is neither traditionalist nor fundamentalist nor anachronistic. Instead, it welcomes new articulations of its traditional wisdom in regard to different historical and cultural circumstances. There is nothing new in this approach. The contemporary Orthodox thinkers who endeavour to reframe the message of the early and Byzantine Christians in the idioms of our age—including scientific—faithfully replicate the great achievements of the revered past. Indeed, they walk in the footsteps of the early Christian theologians who translated the Gospel from Aramaic into spoken languages and who redrafted the scriptural doctrine of creation—free of its mythological attire—in categories borrowed from Hellenistic cosmography and physics.²²

²⁰ "Ne-am silit să înțelegem învățătura Bisericii în spiritul părinților, dar în același timp să o înțelegem așa cum credem că ar fi înțeles-o ei astăzi. Căci ei n-ar fi făcut abstracție de timpul nostru, așa cum n-au făcut de al lor." Dumitru Stăniloae, *Teologia dogmatică ortodoxă*, three vols, third edition (București: Editura Institutului Biblic și de Misiune al Bisericii Ortodoxe Române, 2003; first edition 1978), 1:6. My translation.

²¹ See e.g. Stăniloae, *Teologia*, 1:374–90. See also Costache, "A Theology of the World," 206–207, 209–10, 214–15. Earlier, Lossky (*Mystical Theology*, 183–84) expressed the same view.

²² See Andrew Louth, "Basil and the Greek Fathers on Creation in the *Hexaemeron*," in *The T&T Clark Handbook of Christian Theology and the Modern Sciences*, ed. John P. Slattery (London: Bloomsbury T&T Clark, 2020), 67; Eftymios Nicolaidis, *Science and Eastern Orthodoxy: From the Greek Fathers to the Age of Globalization*, trans. Susan Emanuel (Baltimore: The Johns Hopkins University Press, 2011), 9–11.

Patristic Wisdom

Second, and related, while it is true that the early Christians manifested prudence towards the scientific culture of their time, their overall approach was positive.²³ What prompted their prudent attitude was, by and large, the hijacking of science for nonscientific purposes, such as astrology and divination.²⁴ Another important reason for their reluctance was the misuse of scientific theories for advancing atheistic agendas. Accordingly, the early Christian authors refuted science's ideological sidetracking, not the scientific endeavour as such. Basil of Caesarea (fourth century), for example, who was committed to establishing the theological representation of reality, did not debate the validity of the ancient scientific views of the universe. While he was aware of various competing theories, he abstained from contributing to the debates. In his words, "since . . . they overthrow one another, we do not have to do anything to discredit their (theories)."²⁵ Nevertheless, he refuted the atheistic iteration of scientific ideas regarding cosmogony and the atomic theory.²⁶ He unequivocally affirmed that "the creation of the sky and the earth must be conveyed not as having happened spontaneously, as some imagined, but as having their cause from God."²⁷ In the same vein, he ascribed the confusions of ancient physicists about the nature of reality to their theological ignorance.²⁸ It follows that he

²³ See Peter Harrison, *The Territories of Science and Religion* (Chicago and London: The University of Chicago Press, 2015), 39–42; David C. Lindberg, "Early Christian Attitudes toward Nature" and "Medieval Science and Religion," in *Science and Religion: A Historical Introduction*, ed. Gary B. Ferngren (Baltimore and London: Johns Hopkins University Press, 2002), 49–50, 60; Alexei V. Nesteruk, *Light from the East: Theology, Science, and the Eastern Orthodox Tradition* (Minneapolis: Fortress Press, 2003), 13–40; Nicolaidis, *Science and Orthodoxy*, 1–39.

²⁴ See John F. Callahan, "Greek Philosophy and the Cappadocian Cosmology," *Dumbarton Oaks Papers* 12 (1958): 52–53; Tim Hegedus, *Early Christianity and Ancient Astrology*, *Patristic Studies* 6 (New York: Peter Lang, 2007), 30–31, 35–36, 44, 113, 127, 159, 356, 360; Nicolaidis, *Science and Orthodoxy*, 5, 37.

²⁵ ὥστε ἡμῖν μηδὲν ἔργον εἶναι τὰ ἐκείνων ἐλέγχειν· ἀρκοῦσι γὰρ ἀλλήλοις πρὸς τὴν οἰκείαν ἀνατροπὴν. *Hexaemeron* 1.2.8–9, in *Basile de Césarée: Homélie sur l'hexaéméron*, ed. Stanislas Giet, *Sources chrétiennes* 26 (Paris: Cerf, 1949). My translation.

²⁶ Doru Costache, "Christian Worldview: Understandings from St Basil the Great," in *Cappadocian Legacy: A Critical Appraisal*, ed. Doru Costache and Philip Kariatlis (Sydney: St Andrew's Orthodox Press, 2013), 103–106. Nicolaidis, *Science and Orthodoxy*, 11–12.

²⁷ Οὐρανοῦ γὰρ καὶ γῆς ποιήσεις παραδίδοσθαι μέλλει, οὐκ αὐτομάτως συνεχθεῖσα, ὥς τινες ἐφαντάσθησαν, παρὰ δὲ τοῦ Θεοῦ τὴν αἰτίαν λαβοῦσα. *Hexaemeron* 1.1.3–5. My translation. His older contemporary, Athanasius, had taken the same position. See Athanasius, *On the Incarnation* 2, in *Athanasius: Contra Gentes and De Incarnatione*, ed. Robert W. Thomson, *Oxford Early Christian Texts* (Oxford: Clarendon Press, 1971).

²⁸ See *Hexaemeron* 1.2.11–12.

discerned between scientific undertakings, which he respected, and the misalliance between the sciences and ideologies such as atheism, which he rejected. Illustrations of this discernment abound in the patristic literature.²⁹

Discernment, indeed, is what determined the early Christians to rely on the scientific culture of their age both for describing the world and for practical purposes. For example, they decided to celebrate Easter in relation to the March equinox and Christmas in relation to the December solstice, as the astronomers calculated these dates of the calendar.³⁰ Contemporary research informs us that a great many patristic writings as well as works from the Byzantine middle ages display the same open attitude to science and technology.³¹ It should not come as a surprise, therefore, that when the Byzantines introduced the use of cutlery at meals in the eighth century—especially the spoons—fairly quickly the church adapted these objects for the distribution of holy communion.³² We might be tempted to disregard this example as not meaning much, but we must know that, while at the time many voices opposed this innovation, the mainstream church went on with it. This is a clear proof of Christian openness to novelty, invention, and innovation. It goes the same for many other innovations which Orthodox Christians adopted, such as the gradual replacement of scriptural material by medieval poetry in the services, the implementation of new architectural and ornamental solutions for the temples, and the evolution of

²⁹ See Costache, “Maximus and John,” 88, 90–91; idem, “Doctrine of Creation,” 50, 52; idem, “Christian Gnosis: From Clement the Alexandrian to John Damascene,” in *The Gnostic World*, ed. Garry W. Trompf, Gunner B. Mikkelsen, and Jay Johnston, Routledge Worlds (London and New York: Routledge, 2019), 261, 262–63, 268–69; idem, “Christian Worldview,” 103–106; idem, “One Description”; Valerie Karras, “Science and the Cappadocians: Orthodoxy and Science in the Fourth Century,” in *Science and the Eastern Orthodox Church*, ed. Daniel Buxhoeveden and Gayle Woloschack (Abingdon: Routledge, 2016), 31–39.

³⁰ Hegedus, *Early Christianity*, 62; Macri, “Considerații,” 156–57.

³¹ See Callahan, “Greek Philosophy,” 51–52; Costache, “Doctrine of Creation,” 49–62; idem, “Christian Worldview,” 98–103; idem, “Making Sense of the World: Theology and Science in St Gregory of Nyssa’s *An Apology for the Hexaemeron*,” *Phronema* 28:1 (2013): 3–14; idem, “The Other Path in Science, Theology and Spirituality: Pondering a Fourteenth Century Byzantine Model,” *Transdisciplinary Studies* 1 (2011): 43–51; Charlotte Köckert, *Christliche Kosmologie und kaiserzeitliche Philosophie: Die Auslegung des Schöpfungsberichtes bei Origenes, Basilius und Gregor von Nyssa vor dem Hintergrund kaiserzeitlicher Timaeus-Interpretationen*, Studien und Texte zu Antike und Christentum 56 (Tübingen: Mohr Siebeck, 2009), 223–526; Nicolaidis, *Science and Orthodoxy*, 5, 37, 55–105; Apostolos Spanos, “Was innovation unwanted in Byzantium?” in *Wanted: Byzantium; The Desire for a Lost Empire*, ed. Ingela Nilsson and Paul Stephenson, Acta Universitatis Upsaliensis: Studia Byzantina Upsaliensia 15 (Uppsala: Uppsala Universitet, 2014), 50–53.

³² See Robert F. Taft, “Byzantine Communion Spoons: A Review of the Evidence,” *Dumbarton Oaks Papers* 50 (1996): 209–38.

liturgical vestments. Not all of these might refer to science and technology, but they paint the complex picture of a church tradition which for centuries remained immune to traditionalism.

To return to my scriptural examples, in the light of the above, the stories of the Fall and the Tower could have ended much better than they did—well, if their protagonists adopted the early Christian discernment and flexible outlook. In short, it is these and other reasons that encourage me to affirm that conservatism, fundamentalism, and related attitudes have no traditional roots.

Two Illustrations: *Diognetus* and Maximus' *Difficulties*

In what follows, I focus upon two early Christian examples, seeking to illustrate the way our forebears in the faith were thinking. My first witness is an anonymous work, *Letter to Diognetus*, possibly written in the second half of the second century. My second witness is one of the greatest Byzantine theologians, Maximus the Confessor, who lived in the seventh century. Chapter 41 of his *Book of Difficulties* is relevant here. I deliberately chose these examples, from ages wide apart, to show the tradition's progress in terms of representing the world and the activity of believers in it. As we shall see below, an obvious progression can be observed from the generous worldview of *Diognetus* to Maximus' detailed map of reality, also from the former's idea of benevolent habitation of the world to the latter's clearer sense that the Christian experience accommodates spirituality and technology, theology and science. While progress and change over long historical periods are expected, these two sources also denote continuity within the same tradition. Specifically, although differently, both tell the same story—that Christians are not supposed to dismiss rational thinking, philosophy, science, and technology wholesale, in the name of faith, spirituality, and theology.

Turning to *Diognetus*, first of all it would be useful to remember that this short treatise was written in an era when Christianity was illicit in the Roman Empire. Believers were persecuted, many being killed for their convictions. This surely explains the misgivings of their coreligionists about what they called "the world," by which they meant the empire itself, as well as ancient culture and civilization, including science and technology. One might understand their prudence, or the fear some of them experienced. That said, the anonymous learned Christian who authored *Diognetus* thought otherwise.³³ As we read, while Christians are

³³ In what follows, I draw on my article, "Christianity and the World in the *Letter to Diognetus*: Inferences for Contemporary Christian Experience," *Phronema* 27:1 (2012): 29–50.

“not of the world”—namely, they live by other principles—they are not absent from it either. “Christians live in the world.”³⁴ The sense of their immanence transpires through the following passage:

Christians do not differ from the rest of people in regards to land, or language, or their habits. For nowhere do they dwell in cities of their own, nor do they employ some unusual language, nor do they practice a strange lifestyle.³⁵

In other words, Christians mingle with people of other convictions, sharing in the everyday rhythms of their neighbours. They do not exhibit differences and do not seek conflicts. They neither reject “the world” nor despise its means. In terms of culture and civilisation, the author’s position conveys two things. First, Christians differ from other people by their high moral standards. For example, they cultivate virtue and compassion,³⁶ displaying an ethical behaviour or, as the author has it, exceeding all expectations and norms.³⁷ Second, and immediately relevant to my purposes, Christians do not oppose progress, rational thinking, philosophy, and science. No wonder *Diognetus* makes recourse to the available sciences in order to describe God’s creation. The following passage proves it abundantly by cataloguing the cosmic regions known to the ancients. These are:

The skies and things celestial, the earth and the earthly things, the sea and things aquatic, (as well as) fire, air, the abyss, (in other words,) things on high, things in the depths, things in between.³⁸

In the process of making the inventory of the universe, or mapping the cosmos, the passage refers to the fundamental elements known at the time—earth, water, air, and fire—which correspond to the province of contemporary quantum physics. The macrocosm and the microcosm feature together as the

³⁴ *Diognetus* 6.3, in *The Apostolic Fathers*, vol. 2, ed. Bart D. Ehrman, Loeb Classical Library 25 (Cambridge, MA, and London, England: Harvard University Press, 2003).

³⁵ Χριστιανοὶ γὰρ οὔτε γῆ οὔτε φωνῆ οὔτε ἔθει διακεκριμένοι τῶν λοιπῶν εἰσὶν ἀνθρώπων. Οὔτε γὰρ που πόλεις ἰδίας κατοικοῦσιν οὔτε διαλέκτῳ τινὶ παρηλλαγμένη χρῶνται οὔτε βίον παράσημον ἀσκοῦσιν. *Diognetus* 5.1–2. My translation. See also Henri-Irénée Marrou, “Commentaire,” in *À Diognète*, ed. H.-I. Marrou, Sources chrétiennes 33 (Paris: Cerf, 1951), 119, 133–34; Georges Florovsky, *Christianity and Culture*, Collected Works 2 (Belmont, MA: Nordland Publishing Company, 1974), 69.

³⁶ *Diognetus* 5.11; 10.6.

³⁷ *Diognetus* 5.10.

³⁸ οὐρανοὶ καὶ τὰ ἐν οὐρανοῖς, γῆ καὶ τὰ ἐν τῇ γῆ, θάλασσα καὶ τὰ ἐν τῇ θαλάσῃ, πῦρ, ἀήρ, ἄβυσσος, τὰ ἐν ὕψει, τὰ ἐν βᾶθει, τὰ ἐν τῷ μεταξὺ. *Diognetus* 7.2. My translation.

open field of divine providence, for it is God's very Logos who "organises, defines, and connects all things."³⁹ Leaving aside the theology of the passage, what matters is that even without writing a cosmological treatise the author managed to squeeze in this text the entire ancient worldview. As far as I know, scholars have not examined this side of the letter yet.⁴⁰ Either way, the author shows that the early Christians were not afraid to convey their message in the cultural idiom of their time. My points about the celebration of Easter and Christmas established by way of astronomical criteria prove that the author's position was not singular. So does, too, the approach of the later theologians mentioned before. It follows that the early Christians were open to the scientific culture of their time, to which they turned in order to understand the universe and to organise their lives better. On this note, I jump several centuries ahead, to my second witness of the tradition, Maximus the Confessor.

Maximus' *Book of Difficulties* is a lengthy treatise written in the form of answers to a series of questions he received from two of his friends. These questions refer to enigmatic passages from Gregory the Theologian (fourth century) and Dionysius the Areopagite (early sixth century), whose works were assiduously read and much disputed at the time. Relevant here is *Difficulty* 41, a chapter where Maximus interprets Gregory's saying "the natures undergo renewal and God becomes a human being." He does so by drawing a map of the universe,⁴¹ which I usually call a theory or a narrative of everything.⁴² The chapter outlines five layers of reality, each containing two aspects or poles. Every second aspect of each layer shelters a narrower layer within itself. His map can therefore be represented as a series of five concentric circles, looking like the layers of an onion.⁴³ Here is the relevant passage:

³⁹ ὅ πάντα διατέτακται καὶ διώρισται καὶ ὑποτέτακται. Ibid. My translation.

⁴⁰ For a detailed analysis of *Diognetus'* cosmological discourse, see chapter one in my forthcoming book, *Humankind and the Cosmos: Early Christian Representations*, Supplements to *Vigiliae Christianae* (Leiden and Boston: Brill, 2021).

⁴¹ Doru Costache, "Mapping Reality within the Experience of Holiness," in *The Oxford Handbook of Maximus the Confessor*, ed. Pauline Allen and Bronwen Neil (Oxford University Press, 2015), 379–85.

⁴² See Costache, "Mapping Reality," 378; idem, "Seeking Out the Antecedents of the Maximian Theory of Everything: St Gregory the Theologian's *Oration* 38", *Cappadocian Legacy: A Critical Appraisal*, ed. Doru Costache and Philip Kariatlis (Sydney: St Andrew's Orthodox Press, 2013), 226–29.

⁴³ Hans Urs von Balthasar, *Cosmic Liturgy: The Universe According to Maximus the Confessor*, trans. Brian E. Daley (San Francisco: Ignatius Press, 2003), 173–76, 199–200; Paul M. Blowers, *Maximus the Confessor: Jesus Christ and the Transfiguration of the World*, Christian Theology in Context (Oxford University Press, 2016), 127–28; Costache, "Maximus and John," 85–86; idem, "Mapping Reality," 379, 390; Joshua Lollar, *To See into the Life of Things: The Contemplation of Nature in Maximus the Confessor*, *Monothéismes et Philosophie* (Turnhout: Brepols, 2013),

The saints say that the reality of all the beings that are subject to becoming bears within itself five divisions. The first . . . separates the entire created nature . . . from the uncreated nature . . . The second is that by which the entire being that has received existence from God through creation is divided into intelligible and sensible. The third is that by which the sensible being is divided into sky and earth. The fourth is that by which the earth is divided into paradise and the inhabited land. And the fifth is that by which the human being, like a comprehensive workshop of everything and which mediates physically between the edges of all polarities . . . is divided into male and female.⁴⁴

The largest circle is the ultimate division of reality, between the created and the uncreated, or between God and the universe. The narrowest layer is the anthropological one—the gender division—comprising maleness and femaleness. The other three circles contain the visible and invisible universe in its entirety, then only the visible universe, divided into sky and the earth, and finally the earthly domain, divided into paradise and the inhabited land. This schematic representation might not be the most detailed description of reality—for example the earthly biosphere is not mentioned—but it still is an impressive way of looking at things. Equally impressive is the cultural dimension of this narrative, as generous as *Diognetus'* compass. To this dimension I must now turn.

Maximus' theory of everything combines a range of cultural and disciplinary perspectives, doctrinal, scriptural, metaphysical, and scientific.⁴⁵ The first and the broadest circle, referring to God and the creation, draws on theological convictions anchored in scriptural wisdom (Genesis 1:1). The second circle, in turn, referring to the visible—or sensible—and the invisible—or intelligible—aspects of the creation, marks the supreme division of reality in Plato

308–16; Lossky, *Mystical Theology*, 106–108; Torstein Theodor Tollefsen, *The Christocentric Cosmology of St Maximus the Confessor*, Oxford Early Christian Studies (Oxford University Press, 2008), 82–3.

⁴⁴ ἅγιοι φασιν πέντε διαιρέσεις διελήφθαι τὴν πάντων τῶν γεγονότων ὑπόστασιν· ὡν πρώτην μὲν . . . εἶναι τὴν διαιρούσαν τῆς ἀκτίστου φύσεως τὴν κτιστὴν καθόλου φύσιν . . . Δευτέραν δέ, καθ' ἣν ἡ διὰ κτίσεως τό εἶναι λαβούσα σύμπασα φύσις ὑπὸ Θεοῦ διαιρεῖται εἰς νοητὰ καὶ αἰσθητὰ. Τρίτην, καθ' ἣν ἡ αἰσθητὴ φύσις διαιρεῖται εἰς οὐρανὸν καὶ γῆν. Τετάρτην δέ, καθ' ἣν ἡ γῆ διαιρεῖται εἰς παράδεισον καὶ οἰκουμένην, καὶ πέμπτην, καθ' ἣν ὁ ἐπὶ πᾶσιν, ὥσπερ τι τῶν ὅλων συνεκτικώτατον ἐργαστήριον, καὶ πᾶσι τοῖς κατὰ πᾶσαν διαίρεσιν ἄκροισ δ' ἑαυτοῦ φυσικῶς μεσιτεῦον . . . διαιρεῖται εἰς ἄρσεν καὶ θῆλυ. *Difficulty* 41.2.5–24. My translation.

⁴⁵ In what follows I draw on Costache, “Maximus and John,” 86–87; idem, “Mapping Reality,” 380–81. See also Gayle Woloschack, “The Broad Science–Religion Dialogue: Maximus, Augustine, and Others,” in *Science and the Eastern Orthodox Church*, ed. Daniel Buxhoeveden and Gayle Woloschack (Abingdon: Routledge, 2016), 136–39.

and his successors. Obviously, Maximus considered the ontological gap between God and the creation more radical than the metaphysical one between the universe's visible and invisible layers. Next, the third circle refers to the visible universe by itself in the physical terms of Aristotelian cosmography: the astronomical sky and the sublunary, earthly domain. The last two circles, located on earth, are again scriptural. They are the polarity between the paradise of Genesis 2 and the inhabited land of Genesis 3, together with the gender division of Genesis 1, respectively. Thus, Maximus' theologically and scripturally anchored worldview nestles within itself the Platonic cosmos, which, in turn, includes the Aristotelian universe, which, finally, shelters the scriptural depiction of earthly realities. It shows that various perspectives—theological, scriptural, philosophical, and scientific—can be brought together without doing violence to their competences and boundaries. Echoes of Basil's discernment resonate here with clarity.

Within Maximus' narrative, the Aristotelian universe does not dissolve into the Platonic one which nestles it; instead, it becomes wider in the framework of an ampler perspective. Likewise, the Platonic cosmos does not dissipate in the background of the scriptural worldview which cradles it; instead, it acquires depth and breadth. As such, Maximus' representation of reality bridges scriptural wisdom, Platonic philosophy, and the Aristotelian science. It does so without replacing one of them by any others, and without dulling their contours. Whether we consider his map of reality sufficiently comprehensive or not, what matters is that it remains a successful example of bridging different views of reality without either reductionism or forcing them into artificial agreements. The mode of thinking discernible behind his narrative is transdisciplinary, layered and inclusive.⁴⁶

Furthermore, if we pay closer attention to the fourth circle—which includes the paradise and the inhabited land—other important nuances come to the fore. While the words paradise and inhabited land are undoubtedly scriptural, their function in Maximus' theory of everything is no less metaphorical. There is a long cultural history behind understanding the paradise as an image of the spiritual life—namely, transformative asceticism and contemplation—which does not include the aid of technological means.⁴⁷ As a monk, Maximus was very much

⁴⁶ See Costache, "Maximus and John," 87; idem, "The Transdisciplinary Carats of Patristic Byzantine Tradition," *Transdisciplinary Journal of Engineering & Science* 4 (2013): 94–95, 98–99; Knight, "Natural Theology," 221; Lollar, *To See into the Life of Things*, 311–12; Tollefsen, *Christocentric Cosmology*, 26, 33, 67, 79, 81–92.

⁴⁷ See Doru Costache, "John Moschus on Asceticism and the Environment," *Colloquium* 48:1 (2016): 22–28; idem "Adam's Holiness in the Alexandrine and Athonite Traditions," in *Alexandrian Legacy: A Critical Appraisal*, ed. Doru Costache, Philip Kariatlis, and Mario Baghos (Newcastle upon Tyne: Cambridge Scholars Publishing, 2015), 324, 327–40.

aware of this traditional interpretation. Actually, and again drawing on Gregory the Theologian, he was of the view that the paradisaical life is free of technology, or arts and crafts.⁴⁸ In turn, the inhabited land stands for culture and civilisation, science and technology. What interests us, here, is that the theory postulates the possibility for the two spheres, spiritual and technological, to become “one earth” by way of humankind adopting an appropriate lifestyle.⁴⁹ Maximus does not explain what this lifestyle is about, but one can assume that it harmonises personal spirituality and the use of tools and devices. Thus, it could be a matter of prioritising spirituality over technology, personal formation over external proficiency. It could also refer to interpreting such human activities as scientific enquiry and technological invention through the lens of the spiritual criteria. People would therefore make use of tools and instruments—in short, of technology—but would not surrender the reins of their freedom to any machines. By gathering together the paradise and the inhabited land, Maximus conveys a powerful message, namely, that science, technology, theology, and spirituality can peacefully and creatively coexist and interact; that they are not strange bedfellows.

Conclusions

Against this backdrop, while the two writings differ in terms of their form and the details they offer, the anonymous *Letter to Diognetus* and Maximus’ *Difficulty 41* converge into depicting Christianity as open to science and technology. For them, to be traditional does not mean to be anachronistic, conservative, and fundamentalist. From the vantage point of this traditional lens, the scriptural stories of the Fall and the Tower do not signify Christianity’s wholesale aversion to rational thinking, philosophy, science, and technology. Instead, they refer to people’s failure to bridge theology and science, spirituality and technology, faith and rational thinking—a failure caused by people giving preference to rational thinking, science, and technology. Scripture points out that this failure, exponentially multiplied in history, is not without consequences for humankind’s flourishing and the world’s wellbeing. But there is another side to this story. In the light of the two illustrations discussed in the foregoing, the Orthodox tradition shows that humankind’s development entails both sides, inner and outer, theological and scientific, spiritual and technological, moral and rational. These patristic examples are not isolated voices. In an influential book,

⁴⁸ Maximus, *Difficulty* 45.5.1–11. See Gregory the Theologian, *Oration on Pascha* 8 (PG 36, 632C).

⁴⁹ *Difficulty* 41.4.1–5.

Panayiotis Nellas wrote a beautiful tribute to the many early Christian theologians—above all John Chrysostom (fourth century), from whom he abundantly quoted—who praised humankind’s scientific progress and technological prowess.⁵⁰

The above analysis substantiates my initial contention, that there is nothing within the Orthodox Christian tradition to prevent it from being open to “the world,” with its progress, its rational thinking, philosophy, science, and technology. And while new challenges are ever emerging—of late regarding the fields of biotechnology, the artificial intelligence, and transhumanism—the positions discussed above lead the contemporary Christians faithful to the patristic tradition towards discerning, balanced, and creative approaches, free of bias and fear. It is against this backdrop that, for a better common future, in short, the Orthodox must harmonise theology, science, technology, and spirituality. It is thus, and looking forward to the paradisaical city of the age to come (Revelation 21–22), that they can safely erect a tower in the middle of the garden, contributing to a better future for themselves and for the world we share with many others.

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⁵⁰ *Deification in Christ*, 98, 100. In the same vein, see Costache, “Transdisciplinary Carats,” 99–102; Knight, “Natural Theology,” 216; Louth, “The Six Days of Creation,” 39–55; Nicolaidis, *Science and Orthodoxy*, 8–12.

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