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Vasilios N. Makrides

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Essay review

In a different vein? Scientific development in the Greek Orthodox East

Efthymios Nicolaidis, *Science and Eastern Orthodoxy: From the Greek Fathers to the Age of Globalization*. Baltimore: Johns Hopkins University Press, 2011. Pp. xviii + 252. ISBN 978-1-4212-0298-7. £28.50 (hardback).

The complex and often conflictual relations between science and religion have long been considered to constitute a cardinal characteristic of Western Europe (and broadly of the West) in modern times. The role of the Roman Catholic Church and, to a lesser degree, of Protestant Churches and denominations in both shaping and opposing scientific endeavour has been amply examined. The question how Eastern Orthodox Christianity has dealt with science, and whether there are any parallels with the state of affairs in Latin Christianity, has received much less attention. Certainly, a greater interest has been shown in this topic of late,¹ yet there still remains much to be done. Efthymios Nicolaidis's *Science and Eastern Orthodoxy* is thus a valuable addition to the literature on the historical relations between science and Eastern Orthodox Christianity.

This book is all the more welcome because it is written by a scholar following neither a polemical anti-religious agenda nor an apologetic pro-religious one, for this has often been a problem in examinations of Orthodox Christianity's sociocultural influence. On the one hand, because of its predominantly non-rational, mystical and otherworldly character, Orthodox Christianity has frequently been considered a hindrance to scientific development in eastern and south-eastern Europe. Although there is some truth in this argument, it has typically been articulated within a biased, anti-Christian, context.² On the other hand, several 'insiders' have considered Orthodox Christianity to be fundamentally dissimilar and even 'superior' to Latin Christianity, because it starts from different theological presuppositions and has historically lacked the strong conflicts between science and religion.³ Most related problems have thus been attributed to

1 Daniel Buxhoeveden and Gayle Woloschak (eds.), *Science and the Eastern Orthodox Church*, Farnham: Ashgate, 2011.

2 For some examples see Vasilios N. Makrides, 'Orthodox Christianity, rationalization, modernization: a reassessment', in Victor Roudometof, Alexander Agadjanian and Jerry Pankhurst (eds.), *Eastern Orthodoxy in a Global Age: Tradition Faces the Twenty-First Century*, Walnut Creek: AltaMira Press, 2005, pp. 179–209.

3 Hierotheos Vlachos, 'Orthodox theology and science', *Greek Orthodox Theological Review* (1999) 44, pp. 131–148; Christos Yannaras, *Postmodern Metaphysics*, Brookline, MA: Holy Cross Orthodox Press, 2004.

external, adulterating influences from the Latin West, which finally led to the loss of the authentic Orthodox identity. Further, it was supposed that Orthodox Christianity could offer solutions to many Western impasses concerning science and religion. There are natural scientists with Orthodox convictions who try to demonstrate the usefulness of Eastern Patristic perspectives for a dialogue with modern science.⁴

Yet such views are mostly value-laden and hardly persuasive. There is no need to negate the East–West differences, to begin with; the point is, how to evaluate them properly? To argue that the conflict between science and religion is a western European problem that was falsely imported to the Orthodox East is to adopt a totally flawed point of departure, for it demonizes the West. This has been the usual approach in the Orthodox anti-Western polemic. In a study of the belated Greek Orthodox critique of the Copernican world view, in the eighteenth and early nineteenth centuries, I tried to demonstrate that, Western influences notwithstanding, the Greek Orthodox world had its own theological reasons for criticizing the new world system, ones that go back to the origins of Christianity and the early Patristic period.⁵ In addition, it is questionable whether models of thought from premodern periods can really help us in addressing contemporary dilemmas posed by science. It is much better to consider the Eastern Church Fathers within the specific parameters of their epoch. Aside from this, to consider Orthodox Christianity as the main cause of the overall (and not only scientific) backwardness of eastern and south-eastern Europe is highly problematic on both historical and methodological grounds. True, it did play a role of that sort in certain specific contexts, but always for anticipated and understandable reasons, which should not be subjected to ideological interpretations. Most importantly, all this took place within a cultural and sociopolitical climate that was traditionalist more generally.

Nicolaidis's book avoids these pitfalls and offers a panoramic view of specific developments in Orthodox Christianity with regard to science over a span of almost 1,700 years, although he places more emphasis on cosmology and natural philosophy than on medicine and natural history. He concentrates mainly on the Greek-speaking Orthodox world, hence leaving Orthodox Russia and the wider Orthodox Slavic Balkans out of consideration. His attempt to present related developments across a remarkable span of time is impressive. The book comprises fourteen chapters dealing with the homilies on the *Hexaemeron* by Basil of Caesarea (329/30–379) and Gregory of Nyssa (c.335–after 394), and their respective uses of profane scientific and philosophical ideas; the theological schools of Alexandria and Antioch and their cosmologies;

4 Alexei V. Nesteruk, *Light from the East: Theology, Science, and the Eastern Orthodox Tradition*, Minneapolis, MN: Fortress Press, 2003; Nesteruk, *The Universe as Communion: Towards a Neo-Patristic Synthesis of Theology and Science*, London: T&T Clark, 2008; Sergei S. Horuzhii, *Očerki sinergijnoi antropologii*, Moscow: Institut filosofii, teologii i istorii Sv. Fomy, 2005. Cf. also Kristina Stöckl, 'A new anthropology: Sergej S. Khoružij's search for an alternative to the Cartesian subject', in *Očerki sinergijnoj antropologii/Studies in East European Thought* (2007) 59, pp. 237–245.

5 Vasilios N. Makrides, *Die religiöse Kritik am kopernikanischen Weltbild in Griechenland zwischen 1794 und 1821: Aspekte griechisch-orthodoxer Apologetik angesichts naturwissenschaftlicher Fortschritte*, Frankfurt am Main: Peter Lang, 1995.

the decline of scientific interest in Byzantium in the seventh and eighth centuries; the scientific renewal during the 'First Byzantine Humanism' of the ninth to the eleventh centuries, as well as later at the court of Nicaea (in the thirteenth century) and during the 'Palaeologan Renaissance'; the connection between scientific debates, political conflicts and theological discord; the borrowings of the Byzantines from the Latin, Islamic, Persian and Judaic scientific traditions; the consequences of the Fall of Constantinople to the Ottoman Turks (1453) and the exodus of numerous Byzantine scholars to the Latin West (primarily to Italy); the scientific conditions under Ottoman rule and the development of an 'Orthodox Christian Humanism' in the seventeenth century; the formative Greek Orthodox influences on intellectual and scientific developments in Orthodox Russia; the scientific revival during the Greek (Neohellenic) Enlightenment and the debate on the appropriation of ancient Greek heritage; scientific developments in Greece from 1830 to the present; and the debates over materialism, Darwin and evolution in modern Greece. It is thus a valuable compendium offering a wealth of information on numerous persons, schools of thought and epochs, as well as political, intellectual and religious developments and changes. Nicolaidis attempts a close reading of related sources, uses amply pertinent secondary bibliography, formulates succinctly his own views, structures his material chronologically in a meaningful way, and offers useful additional information such as a chronology of the main historical events, numerous figures and a note on secondary sources. He also shows the great variety of Orthodox Christian attitudes towards science, depending on both persons and circumstances. It is therefore a book that fills a gap in the literature in manifold ways.

The book has a clear overview-oriented character, even if it often deals in more detail with specific persons, strands of thought and time frames. Such books are usually valuable in offering great syntheses, yet they also present some problems. An obvious one relates to what should be included or left out in such an ambitious compendium and how one can adequately analyse specific patterns of orientation and action over the *longue durée*. I will not concentrate here on specific details; for example, on why there is no mention at all of Veniamin of Lesvos (1759/62–1824) and his troubles with the Orthodox Church because of his acceptance of the Copernican world view; or on various problems between Orthodoxy and science in modern Greece that also go unmentioned. Instead I will address some broader issues connected with this book's objective of offering a panoramic view of the relations between science and Orthodox Christianity across time. It is here that I can discern some important points which could have been better elaborated by the author, and which could have nicely complemented the specific analyses he offers.

The first of these concerns the comparison of Orthodox and Latin Christianity and their principal differences. In fact, the better to capture the religious and cultural specificities of the Orthodox East, one should constantly look at what has happened in the Latin West. It would have been useful for the author to offer such a comparison in a concise, yet systematic, manner. We should keep in mind that the relations of Latin Christianity with science did not only involve conflict. It has been widely argued that medieval Roman Catholicism and early modern Protestantism did contribute, in their own distinct ways, within an array of several interrelated non-religious factors,

to the rise of modern science.⁶ The crux of the matter relates, then, to what exactly was missing in Orthodox Christianity to render equivalent developments not possible at all.

Let us consider the element of conflict between science and Latin Christianity, which was more dominant in the West and needs broader contextualization. It is hardly an element confined to science alone, but one that concerns Latin Christianity as a whole. The most prominent form was the conflict between religious and political power, dominant throughout the Middle Ages, as well as in modern times. In general terms, this relates to the constant tension between the religious and the secular sphere, a clear characteristic of the Latin West, also explaining the particularities of the secularization process there. It is out of this pervasive feature of disquiet and uneasiness with established norms and patterns that new developments and breakthroughs were made possible through conflicts there, in the religious, the social, the political and the scientific domains. By contrast, this particular environment was for the most part absent in the Orthodox East. It is not the case that there were no conflicts here of various kinds and intensities. But the general trend was towards integration, reconciliation, compromise and holism, as postulated for church–state relations, at least in theory, by the Byzantine principle of *symphonia*. This tendency towards finding a reasonable balance can also be observed in science, as Nicolaidis notes once (p. x). It was considered the ideal model, although reality was usually much different from the postulated prototypes. Nicolaidis mentions that the Greek Church Fathers systematically tried to reconcile and harmonize scientific knowledge with the Bible and their Christian convictions. Such attempts were not absent in the West either (cf. the attempts of the Scholastics to reconcile faith with reason in a more elaborate way), yet it is the general intellectual climate and frame of action within which such attempts were placed that mostly matters. The entire situation in the Orthodox East was not particularly conducive to revolutionary developments in any domain, including that of science.

Another issue is the worldliness of the Church, which was again far more pronounced in the Latin West. This is because, there, the Roman Catholic Church advanced strong claims for controlling the secular sphere, while it also endorsed many secular dimensions itself through its politicization. The Church wanted to leave its indelible imprint on the secular sphere, which also explains the virulent reactions of various actors later on, demanding the emancipation and independence of the secular sphere from any religious control. By contrast, the Orthodox Church primarily remained limited to the religious domain, while it basically left the secular sphere to the state to care for and to regulate; this was the situation in Byzantium and in modern Greece, with the exception of the period of Ottoman rule. The worldliness of the Orthodox Church was generally very limited, or at least rather different to the Western one. This accounts for the absence of strong conflicts between the religious and the secular spheres. These cursory remarks can better explain Nicolaidis's judgement about the problems in the Orthodox East being

⁶ See, for example, Robert K. Merton, *Science, Technology & Society in Seventeenth-Century England*, Atlantic Highlands, NJ: Humanities Press, 1978; Reijer Hooykaas, *Religion and the Rise of Modern Science*, Edinburgh: Scottish Academic Press, 1972; Amos Funkenstein, *Theology and the Scientific Imagination: From the Middle Ages to the Seventeenth Century*, Princeton, NJ: Princeton University Press, 1986.

part of broader ecclesiastical debates, and not reflecting specific conflicts between science and religion (p. x). The same holds true for his observation that the Orthodox Church did not try to control or finance education as much as the Roman Catholic Church did. Further, in the Orthodox East, and up until the nineteenth century, the scientist was mostly a person belonging to or connected with the Church, not a secular actor. Such differentiation had, however, taken place in the West much earlier. No doubt, there were numerous excellent Jesuit scientists active within the Church, yet they had to coexist and interact with a broad range of secular scientists and institutions. It is thus correct, then, to speak, as Nicolaidis also argues, of a clearer conflict between science and religion in Orthodoxy after the foundation of the modern Greek state and the imposed structural and functional differentiation of society.

A final observation concerns the articulation of cultural specificities of the Orthodox East, which are often obvious in the relevant analyses of Nicolaidis, yet are not placed on a broader canvas so that one can discern their potential long-term repercussions. To be more specific: the intense traditionalism of the East and dislike of innovations (pp. 72–73); the limitations of human reasoning (pp. 11–12); the neglect of pure scientific interest for various reasons (pp. 40–41, 44–46, 54, 88); the instrumentalization of science to serve Christian goals, the belief in the superiority of knowledge derived from the Bible, and the concomitant distrust towards profane science (pp. 26, 27, 31–33); the pervasive otherworldly orientations leading to contempt for earthly occupations and interests (pp. 44, 104–105); the lack of renewal and development (p. 68); and the subjugation of all secular knowledge to Christian authority (p. 44). In short, an array of additional related attitudes (e.g. a spirit of self-sufficiency and self-complacency) contributed to the formation of an overwhelming spirit of tradition-boundedness and immutability. Yet Nicolaidis emphasizes some exceptions here. For example, Gregory of Nyssa reported pagan natural philosophy more accurately than did Basil of Caesarea (pp. 22–23). Furthermore, the main proponent of Hesychasm, Archbishop of Thessalonica Gregory Palamas (1296–1359), was not *a priori* an adversary of profane knowledge, but merely objected to its inappropriate use leading to the secularization of the high clergy (pp. x, 98–104). But the point here is not what Palamas thought or did, but what the overall impact was of the entire Hesychast movement, which has influenced numerous Orthodox generations until today. The contempt of Athanasios of Paros (1721/2–1813) for science is basically due to this long Hesychast tradition. The movement supported the spiritualization of human life and displayed an outspoken contempt for mundane, profane knowledge. Although Hesychasm did not manage to put a brake on Byzantine humanism, it did curtail the eventual impulses towards more radical developments in science, as Nicolaidis also admits (pp. 104–105). No doubt, there were also humanist debates in Byzantium (pp. 81–92), and there was even readiness, albeit at times disputed, to profit from other cultures and develop science further (pp. 106–117), yet all this did not lead to a major breakthrough in science. Hence the crux of the problem is to what extent the aforementioned major and minor exceptions and individual cases mattered in the end.

All this may explain why a ‘Scientific Revolution’ never occurred (and could never have occurred) in the Orthodox East, whereas in the Latin West it was, at the end of the

day, possible. This is not to say that religion has played the most important role in this development, yet its significance should not be underestimated. Furthermore, this particular situation should not be judged from a value-laden perspective as a way of criticizing and discrediting the Orthodox East; it is merely about specific sociohistorical developments which have differentiated the Orthodox East from the Latin West and had divergent repercussions. For the sake of argument, consider a case in point: the numerous contributions of émigré Byzantine scholars in Italy are regarded as seminal for the Renaissance and for later path-breaking developments there (pp. 119–129). Were such contributions, however, possible in late Byzantium in the first place, where these scholars had been initially active? The answer is, in all probability, negative, for we are talking about a traditionalist and moribund society that was mostly living on the glories of former times and did not foster innovation and renewal. It was exactly the new and prosperous climate, social, intellectual and otherwise, that these scholars encountered in Italy that enabled them to flourish and make significant innovative contributions. No doubt, the pride in the ancient Greek scientific and broader cultural patrimony (including the Greek language) was diachronically present in the Orthodox East, and this clearly differentiated it from the Latin West (pp. 193–195). But the question is again why this has never led to a major breakthrough in science, as was the case in the Latin West, which also claimed from early modern times onwards to be the legitimate heir to the ancient Greek heritage and, more importantly, to have continued and even bettered it. This was acknowledged by the learned Patriarch of Jerusalem Chrysanthos Notaras (c.1663–1731) (p. 153). Where is, then, the *differentia specifica* between East and West to be found? This is quite an important point which could have been more amply treated in such a book. Seen in this light, Nicolaidis's statement that 'the interface between science and Orthodoxy is as complex and varied as the analogous interface with Roman Catholicism in the West' (p. x) does not accurately depict the whole situation, or the crucial differences between the two worlds.

The above remarks do not, however, diminish the value of present book, which undoubtedly constitutes a much-needed contribution to the whole topic. Hence it should be read by all specialists, especially by those interested in the historical development and differentiation of the Eastern and Western Christian worlds and the multiple consequences thereof, including those in the domain of science. If this book were to be read against the background of related developments in the Latin West, the profit would undoubtedly be much greater.

VASILIOS N. MAKRIDES
University of Erfurt