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INTERNATIONAL CONFERENCE

Science and Religion

BOOK OF ABSTRACTS

Εκδόσεις ΠΡΟΠΟΜΠΟΣ

Ευρωπαϊκή Ένωση
Ευρωπαϊκό Κοινωνικό Ταμείο

ΕΠΙΧΕΙΡΗΣΙΑΚΟ ΠΡΟΓΡΑΜΜΑ
ΕΚΠΑΙΔΕΥΣΗ ΚΑΙ ΔΙΑ ΒΙΟΥ ΜΑΘΗΣΗ
επένδυση στην κοινωνία της γνώσης
ΥΠΟΥΡΓΕΙΟ ΠΑΙΔΕΙΑΣ & ΘΡΗΣΚΕΥΜΑΤΩΝ, ΠΟΛΙΤΙΣΜΟΥ & ΑΘΛΗΤΙΣΜΟΥ
ΕΙΔΙΚΗ ΥΠΗΡΕΣΙΑ ΔΙΑΧΕΙΡΙΣΗΣ

ΕΣΠΑ 2007-2013
πρόγραμμα για την ανάπτυξη
ΕΥΡΩΠΑΪΚΟ ΚΟΙΝΩΝΙΚΟ ΤΑΜΕΙΟ

Με τη συγχρηματοδότηση της Ελλάδας και της Ευρωπαϊκής Ένωσης

Editor: Gianna Katsiampoura, *National Hellenic Research Foundation*

ISBN 978-618-5036-21-8

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INTERNATIONAL CONFERENCE

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The National Hellenic Research Foundation- Institute of Historical Research and the National & Kapodistrian University of Athens – Epistemology & Science Education Lab are organizing the International Conference "Science & Religion" in Athens, 3-5 September 2015.

The Conference is associated with the NARSES Research Project aiming to map the relationship between sciences and religion from the 4th c. AD to the 20th c. in Southeastern Europe and the East Mediterranean. The Project focuses on social formations where Eastern Christianity was the dominant religious tradition with the purpose to fill an important gap in the historiography of science: while a huge literature exists on the relation between science and religion in the context of Western Christianity there is almost a void for the areas of Byzantium, the Ottoman Empire and the Balkan states, marked by Eastern Christianity.

This International Conference will highlight interdisciplinary research to reveal unknown dimensions of the science-religion relation with major implications for the historiography of science developed with reference to both Western and Eastern European societies.

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Is the Current Western Dialogue Between Science and Theology Relevant to Orthodox Christianity?

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There has been a tendency for Orthodox Christians to ask questions about how the sciences affect their faith in a different way to that which has been characteristic of Western Christians. The result has been that not only have Orthodox discussions sometimes ignored important aspects of the Western dialogue between science and theology. In addition, Orthodox perspectives have had much less impact on that dialogue than might have been expected. In this paper I suggest that some of the main questions that have characterised that Western dialogue - especially about the use of language and about divine action - are in fact relevant to Orthodox discussions in a way that has only rarely been fully recognised. Not only, I argue, do aspects of the Western dialogue provide helpful themes for discussion among Orthodox. In addition, because Orthodox perspectives can provide vital insights for participants in the Western dialogue, a new interaction between East and West is possible.

Orthodox Theology and Science: from a Neo-Patristic Legacy to Radical Theological Commitment

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We discuss the issue of the mediation between Orthodox Theology and some modern scientific issues in the framework of a strong philosophical conviction that such a dialogue can only be an existential enterprise, related to particular historical encounter of humanity with God. Unlike many forms of the dialogue taking place in the West, Orthodoxy claims that its very possibility originates through the events of communion making scientific work a kind of para-eucharistic activity. The paper argues that the most important issue of such a dialogue would be human person as the dative of manifestation and nominative of disclosure of reality and truth in both theology and science. Correspondingly the historically changing forms of such a dialogue represent the ongoing constitution of the human enquiry into the sense of its own condition. Since Greek Patristic theology claimed its existential nature we trace the evolution of enquiry into the sense of existence and the universe from the era of the Fathers towards contemporary post-modernity, which demands for its apprehension even more radical theological commitment. As an example, we analyze St. Maximus the Confessor's theological approach to the cosmos by applying the logic of a modern phenomenological trend in philosophy in order explicate the sense of creation as a saturated phenomenon that contributes to the constitution of humanity in the Divine image. Such an analysis demonstrates that the questions of anthropology and cosmology are intertwined and require indeed a dialogical treatment through the theological introspection.

Le logos dans l'oeuvre de Philon d'Alexandrie : entre judaïsme et philosophie grecque

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"The Harmony of the Sirens from Homer to Early Christianity: a Myth Between Science and Religion"

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Focusing on a famous passage of Plato's *Republic* X, in which the cosmic music, the so-called "harmony of the spheres", is described in terms of the harmony of the Sirens, in this talk, I shall investigate three main questions: first, what is the provenance of the Platonic image of the harmony of the Sirens? Second, does this image do any philosophical work within the context of the *Republic*? Third, did the Platonic interpretation of the theme of the harmony of the Sirens have any legacy in Early Christianity?

Cosmography, Asceticism and Female Patronage in Late Byzantine and Slavic Miscellanies

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In Late Byzantine and Slavic ascetic miscellanies, appropriate knowledge about the natural world was commonly borrowed from John Damascene's *Sermon on the Orthodox Faith*. Indeed, his chapters on the heavens, the stars and the earth are regularly found next to other works of patristic and spiritual nature in such compilations. A few spiritual manuscripts also reproduce another, more curious, anonymous cosmographical treatise, which describes the succession of the elements and the structure of the world as an egg, as well as the stability of the earth in the centre of the universe, neither supported by waters or pillars, but maintained in place by the fast movement of the heavens. Some versions of this text also include simplistic notions of geography and meteorology that owe little to the Byzantine scholarship of the time.

This cosmographical text was relatively popular in the late medieval Orthodox world, and not only in ascetic milieus. More than twenty Byzantine manuscripts dating from the 14th to 16th centuries have been identified, as well as two south Slavic manuscripts and eighteen Russian ones from the same period. While in Byzantium the treatise appears in various manuscript contexts

– geoponic, astrological, medical, magical and ascetic, for all but one exception, the Serbian and Russian adaptations are found in ascetic miscellanies. Although the Slavic versions of this work are not based on the same protograph, it is possible to link several of them to an unidentified Byzantine protograph most closely related to two manuscripts, one ascetic, the Scorialensis Φ III-11 (14th century), and one medical, the Parisinus gr. 2219 (15th century).

The codex Scorialensis originally belonged to the Palaiologan princess Irene-Eulogia Choumnaina (d. c. 1355), abbess of the convent of Philanthropos Soter in Constantinople, or to her direct entourage. The cosmography is included within a medical compendium found at the beginning of the codex, just as in the Parisinus, knowledge likely considered useful and suitable to conventual life. Unlike the exclusively medical Parisinus, however, the Scorialensis prominently includes patristic, homiletic and ascetic works, as well as the correspondence of Irene-Eulogia with her spiritual confessors. Comparably, the Gorički Zbornik (1442), a Serbian ascetic miscellany based on the correspondence of the Nemanjid princess Jelena Balšić (d. c. 1442) with her confessor Nikon of Jerusalem, also includes a version of this cosmographical treatise, in the midst of other issues of history, geography and monastic life clearly aimed at educating the princess. While the Scorialensis codex is not the protograph to any of the Slavic adaptations of the text, it remains an important testimony to the transmission of Byzantine scientific works to the Slavic world within ascetic milieus and, incidentally, to that knowledge of the natural world which may have been considered suitable and Orthodox for aristocratic women.

The Finitude of the World According to Augustine

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The Almagest and Apocalypticism in the conflict between Bessarion and George of Trebizond

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In the mid-15th c., the conflict between Cardinal Bessarion and George of Trebizond is best known for its philosophical dimensions. Crucially, however,

it also involved tensions associated with the Almagest and potent mixtures of geopolitics with religion. After drawing attention to George of Trebizond's use of his commentary on and translation of the Almagest to hasten the arrival of the World Emperor and the end of time, this paper shows how Bessarion's reaction to these developments in turn shaped the history of astronomy through the career of Regiomontanus.

«Le statut ontologique de la matière dans les théologies de la création à Prague (1390-1410): l'héritage d'Augustin et de John Wyclif»

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Revisiting the Religious Origins of Modern Science

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This paper considers a number of theories about the influence of religion on the development of science in the early modern West. It will survey the ideas of Robert Merton, Michael Foster, Reijer Hooykaas, Charles Webster, Amos Funkenstein (and some of my own work). The paper will focus on what it is that these theories attempt to explain, how evidence is marshaled to support these theories, and the extent to which they might be said to offer successful explanations.

The Galileo Affair Compared

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Most often, the Galileo affair has been considered by its historians in its own right and on its own merits. But there occurred in 17th century Europe at least two more, likewise religiously laden conflicts which (albeit not nearly

so spectacular or with so resounding an impact) are structurally comparable with what happened between Galileo and the Vatican. These two cases, both well-documented in the literature, are Descartes vs. the city council of Utrecht and (a few decades later) Cartesians vs. Louis XIV and the archbishop of Paris. Making a comparison between the three cases prepares the ground for some broader conclusions about a crisis of legitimacy for innovative science that descended upon significant parts of Europe in the 1640s/1650s. I compare that crisis in its turn with an in certain respects similar one that occurred in the Islamic world after the demise, six centuries earlier, of Ibn Sina, al-Biruni, and Ibn al-Haytham.

Evolution of Judaic Attitudes to Modern Science

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Traditionally, Judaic thinkers considered science as an indispensable tool for understanding Torah and the world, which, in their view, it embodied. Apparent controversies between GodÅs word and physical observations were routinely attributed to inadequate understanding of the former. It is only in the 20th century and only in certain Jewish communities in Europe and North America that Judaic thinkers began to take a more cautious attitude to scientific activity. Jews have been disproportionately active in science. In certain countries Jews chose science as a refuge from discrimination, where meritocracy was expected to reign supreme. The question of Jews in science has a long history of conflicting claims. Anti-Semites have blamed the Jews for contaminating the otherwise Ñpure scienceÇ with Jewish ideas. In some countries, this claim has led to discrimination, dismissal, and emigration. This paper analyses the evolution of religious and social attitudes to science since mid-19th century, i.e. since science became a professional activity in most advanced countries.

Commenting on the void and the clepsydra argument: Cosmological background, pneumatic devices, and untrodden crossroads of Christian and Muslim theology

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One of the characteristics in the controversies among the Muslim speculative theologians (mutakallimūn) since the 2nd century H./8th century CE is the recourse to cosmological issues and scientific theories. A typical argumentation setting is the atomistic theory (atom: jawhar) and involves special speculations on the void (khalā). Typical reports are found e.g. in the Maqālāt (4th/10th century) of the influential Muslim theologian al-Aš'arī with (polemical) references to philosophers and mutakallimūn of the rationalist Muʿtazila schools such as the Basrian al-Ǧubbā'ī and the Baghdadī Abū al-Qāsim al-Balkhī. Among the examples used in the elaborate argumentative constructions, we find technological devices like sarrāqatu 'l- mā' ("device for stealing the water") and medical devices like the cupping glass (miḥjama). How did such profane topics find their way into the theological discourses of Basra and Baghdad? The present study traces the itineraries of classical Greek and Hellenistic philosophical and scientific-cosmological doctrines, as well as of technological devices like the clepsydra (the Greek etymology precisely means "stealing the water") through the East Mediterranean towards the places of early Muslim theological debates in Iraq. One line of presumable transmitters involves early translations and compilations of neoplatonic commentators of Aristotle, notably of Simplicius (Sinbilīqiyūs/Samlis, 6th century CE), as well as of the Alexandrian commentator John Philoponus (Yaḥyā al-Naḥwī, 6th century CE), into Arabic. The Aristotelian clepsydra argument is a well-documented issue in the commentaries on the void elaborated in the above Greek traditions. The interest of Muslim theologians for such traditions was related to Philoponus' argumentation against the Aristotelian concept of the eternity of the world – a commitment that positioned Philoponus in the same orientation with Christian and Muslim theologians – as well as to the implications of atomistic argumentations for Muslim debates on the substance and the attributes of God. Inevitably, the interweaving of (alleged) Aristotelian and neoplatonic argumentations with Islamic doctrines

in Arabic discourses during the 2nd-6th/8th-12th centuries involved not only internal Muslim theological controversies, but also several paths of Muslim perception of early Christian theology. Another plausible perception line follows the transmission of treatises on automatic devices with references to or modification of the Aristotelian pneumatics. Heron of Alexandria (1st century CE) and Philon of Byzantium (3rd century BCE) are authors of such treatises, which circulated in the East Mediterranean and the Middle East during the Late Antiquity and were then translated from Greek into Arabic – possibly with intermediate Syriac translations. Clepsydra and similar components are mentioned several times in the descriptions and the illustrations of such devices. Whether Syrian hydraulic clock technology might have provided the "material" basis for the diffusion of the mentioned theoretical concepts, is still a quest for further research.

Platonic Solids and the Five-Ringed Tower

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In his dialogue *Timaeus* Plato describes five kinds of regular solids, which associated each of the four elements and the *ether*. This highly metaphysical concept is materialized by a type of Buddhist architecture, namely Five-Ringed Tower, which is extremely popular in Japan and its original source could be traced back to Esoteric Buddhism in medieval China and ancient India.

Religious factors of the Chinese calendars in Qing Dynasty (1644-1911)

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Calculation of moveable religious feasts in Arithmetic of Glyzonios

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Since the establishment of Science and for many years the predominant views supported the notion that Religion and Science are either in conflict with each other or they are independent. However, despite the wide recognition of these differences correlations were noted.

The interaction between Mathematics and religion has taken different forms through the centuries. In particular religious considerations have caused mathematical creations and practices. Various scholars looked for the origin of numeration and geometry in ancient ceremonies. Calendar's development is an example of this bidirectional relationship between Mathematics and Religion, since it was assisted and influenced by the need to determine the dates of periodical ceremonial events.

The calculation of moveable religious feasts includes mainly the celebrations of Paschale cycle and the smaller ones such as the "Triodion" and the "Pentecost". Calculating their dates is of particular importance, both from a religious and a practical point of view because it affects the activities of daily life.

Emmanuel Glyzonius's *Arithmitiki* is a Practical Arithmetic work which enjoyed great success, and many reissues, for about 250 years. It included knowledge which was useful in solving problems of everyday life and commerce. It was used as the most important textbook in Mathematics in the schools of Greek-speaking areas.

For the determination of Easter's date, Glyzonios claims that there had to be a book that contains the necessary knowledge and useful not only to priests but also to everybody. In order to be able to determine the date of Easter, what should be known is the following: *«πόσας ἡμέρας ἔχει ὁ κάθε μῆνας, καί πόσας Ἐπακτάς, καί τί ἔτος περιπατοῦμεν, πόσους κύκλους ἔχει ὁ Ἥλιος, καί πόσους ἡ Σελήνη, καί πόσον θεμέλιον, πότε γίνεται Βίσεκτος (δίσεκτος), καί πότε εἶναι τό Νομικόν Φάσκα (Πάσχα)»*. (how many days and how many are in every month, the current year, how many cycles of the Sun and the Moon, how much its foundation, when the year is a leap year and when is the Jewish Passover). Apart from determining the date of Easter, Glyzonios suggests different ways to determine the old and the new year, the cycle of the Sun, the cycle of the Moon and its foundations, the Indiction and its

cycle and the leap year, the Jewish Passover, the day that begins the month of Holy Easter and Carnival, the beginning of the Triodion (Pre – Lenten Season), Sound and eothina, the celebration of All Saints and the perfect Paschale.

Point of reference for all these determinations is the theory that the world was created in 5508 BC. The year 1 of the creation of the world is a common astronomical principle for both the Circle of the Sun and the Circle of the Moon.

This paper attempts to study the way the moveable religious feasts were determined in the Practical Arithmetic of Emmanuel Glyzonios, which is of big not only religious but also mathematical and astronomical interest.

Calendars and Easter dates in Greece, Russia and the Ottoman Empire

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Calendars are at the crossroads of mathematics and science at the one hand and religion, politics, and the social life on the other hand. The astronomical environment of the earth including the sun and the moon defines the conditions which possible calendars have to deal with. Mathematical constructions of calendars offer possibilities for calendars. Religious traditions are closely related to calendar questions, also because the different feast days and months imbedded in the calendar which importantly influence the daily social life of the people. Last but not least, political power constellations decide on which calendar is used or forbidden or reformed.

Whereas in the Jewish religion and in Islam all the important feasts and periods of religious importance are included in the calendar itself, in Christianity the question of the date of Easter has to be solved in addition to the question which calendar is used.

This talk will discuss calendar and Easter questions in Christian Orthodox countries and in the Ottoman Empire during the last two millennia focusing on the period of the last 500 years. Mainly involved are the countries in South Eastern and Eastern Europe and partially in the Near East, under Christian rule as well as under Muslim rule.

Two events in the sixteenth century, the reformation after 1517 and the calendar reform of 1582 also touched the Christian Orthodox world, moreover after big parts of Hungary were integrated into the Ottoman Empire. Altogether the expansion of the Ottoman Empire brought new questions of

calendar correlation. Related questions had to be discussed in the Russian Empire which included more and more regions of Catholic and of Protestant Christianity as well as areas of Muslim population.

In the nineteenth century, the movements for independence within the Ottoman Empire, but also within the Habsburg and the Russian Empires again asked for questions concerning calendars and the question for the correct Easter date. In the twentieth century, the period after World War I in the Soviet Union where the Western calendar was introduced finally raised the question for the future of the Julian calendar.

Now in the twenty-first century the Gregorian calendar does only dominate the Eastern Europe world but is nearly globally valid, there are still ideas for calendar reforms and plans how to establish a common Easter date in East and West.

The topic of calendars and Easter dates will be dealt with from different points of view. There is the normative theological point of view where religious authorities try to regulate the important issues.

Furthermore, there is the historical point of view which tries to work out what happened during the last centuries, from a regional as well as from a local perspective. Last but not least, there is the systematic point of view which discusses the question of calendars and Easter in a more general perspective concerning world history.

Global religion, international science and local science: Calendar Reformation in 20th century Greece

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Transcending the conflict between science and theology: Lemaître and ibn-Rushd compared

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After an introduction to ibn-Rushd (1), followed by a presentation of Lemaître (2), I proceed to a comparison (3) of both scholars in their approach to the

problem of the (in)compatibility between scientific and religious truth. I will argue that they both use a 'difference model' (instead of, for example, a harmony or conflict approach).

(1) Ahmad ibn-Rushd, better known as Averroes, was a muslim philosopher of the 13th century, travelling between Cordoba and Marrakesh back and forth, working as a judge and physician, being an educational reformer and commentator of Aristotle as well as a critic of his fellow Islamic philosophers. With his most important and original *Tahafut al-Tahafut* (The incoherence of the incoherence) ibn-Rushd replied fiercely to the anti-philosophical treatise of al- Ghazali (*Tahafut al-Falasifa*, The incoherence of the philosophers) in which he claimed that Aristotelian philosophy was an insult to Islam since it was inconsistent. Ibn-Rushd looked for a way to reconcile Aristotelian philosophy with the Quranic verses and argued that there were three ways to reach knowledge: rhetorical, dialectical and empirical. Religion was there to convince the masses, deduction was the method to serve theologians and induction was to be used by philosophers. Accordingly, theology and philosophy both and equivalently reach the same truth. In his *Kitab Fasl al-Maqal* (Definitive treatise) he proves that the Quran clearly calls to engage in natural philosophy. Some of his works became known to scholastic scholars working at the university of Paris. Their ideas were difficult to combine with the Scriptures, hence they developed the double-truth doctrine as a 'protection against prosecution', based on the writings of ibn-Rushd. These 'Averroists' did claim that 'philosophy and religion are two ways to reach the same truth', but to them philosophy surpassed theology, contrary to the view and intention of ibn-Rushd.

(2) Georges Lemaître was a 20th century Belgian cosmologist and catholic priest who taught physics at the *Katholieke Universiteit Leuven* (Catholic University of Louvain, Belgium). In a rather discrete and brief letter to *Nature* in 1931 he proposed the idea that "we could conceive the beginning of the universe in the form of a unique atom, the atomic weight of which is the total mass of the universe." This publication led to the modern view, since 1948 named (tongue-in cheek) 'big bang theory'. During a speech in 1951 pope Pius XII said that 'big bang theory' was a confirmation of Christian cosmogony, but Lemaître opposed. According to him, a cosmological theory could never be used as evidence (or counter-evidence) for a theological truth, since science and theology use a different discourse model.

3) Both Lemaitre and ibn-Rushd were deeply religious. Both claimed that there is no inappropriateness between religion and philosophy, if properly understood. Like ibn-Rushd – and contrary to the Averroists – Lemaître maintained that there are (at least) two equivalent ways to the truth. According to both scholars, science and religion are not conflictual, nor complementary; they merely use different methods and a distinct discourse.

R. J. Bošković as European Scientist and Theologian at Work on the Bridges of "Science & Religion"

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A notion and epistemological interpretation of God has received a top role in Bošković's work and thinking of the natural philosophy (Roger Joseph Boscovich, Dubrovnik, 18 May 1711 – Milano, 13 February 1787). On the spiritual bridges of contemporary science and religion, this is astonishingly still a fundamental as well as ultimate question. Bošković had perceived the question to be the most difficult challenge, and he added theology in the form of an Appendix relating to metaphysics under the title The Mind and God (Anima, & Deo) to his life work A Theory of Natural Philosophy (Boscovich Vienna 1758, and Venice 1763; Boscovich 1922; Bošković 1974). He considered the notion of God and proofs to the existence of God from the contingency of the world. That means existence which does not have a genuine cause and its own necessity according to medieval lat. contingentia (germ. Kontingenz) as both of the concept of chance (Zufall) and possibility (Möglichkeit). In theology that provides a cosmological foundation of God's existence that emerges out just from the world. In Christian metaphysics the non–contingent Being is the God himself. Bošković was acting to such thought horizon also. He asked about the order of infinity: to what a number of combinations which are related to the constitution and aim of the Universe? He answered mathematically: to the highest order, with respect to infinity of the kind to which belongs the infinity of any straight line which can be extended to infinity in both directions. Bošković has considered existence of the human determining will against those of a Supreme Founder. Man determines within the limits of human knowledge (to the laws of Nature), whereas the God (Infinite Founder of Nature) overcomes all the rest which is undetermined – uncertain. Bošković, here, had declined of he Leibniz's line of thinking because the idea of the best (pre-established harmony) of all possible worlds suffers a mathematical objection: for amongst possible there is no last term. A totality of all possible worlds can be comprehended and wisely overwhelmed merely by the Naturae Auctor, by his unique creation of the real world. Therefore, it cannot be argument against him whether he could or not make the world better. Or, perhaps, that he, already, did it! The ideas that Universe was produced by

fortuitous chance or some necessity of fate was asserted in Bošković's opinion just empty phrases. In the arrangement of Nature, Divinus Naturae Opifex has shown such great foresight and beneficence, but why he didn't present himself to us through a revelation? However, if this being done – Bošković concluded, such thing may not be a part of natural philosophy exceeding the grounds of his capital Theory of Natural Philosophy.

On the bridges between of science and religion, Bošković had rejected feign hypothesis, like Newton before him, particularly the view on the *two-fold* truth: something may be true in philosophy of nature, but false in theology or vice versa. *Boscovichianism*, in that aspect, has fortunately remained *super partes* at work.

Religion and Variolation
Fiction and Fact: religion versus Ottoman immunisation

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The reception in 18th century England of the Ottoman practice of immunisation for smallpox aroused acrimonious religious opposition. This was based on idiosyncratic citations of the Bible by clerics and the prevalent belief that illnesses were sent by God, often as a punishment, so that a method of preventing smallpox was seen as usurping the Divine prerogative. Additionally, the fact that reports of the practice originated from a country with a different faith was regarded as an insult to the Christian religion. Anti-variolation preachers in churches had vitriolic sermons printed and distributed to public places, such as coffee houses and ale houses. Citations demonstrate the clergy's continued opposition intermittently throughout the century despite positive addresses by bishops, one of whom had himself variolated to set an example.

Variolation, the earliest form of smallpox inoculation, gave life-long immunity. This term refers only to the transfer of drops of lymph from the pustules or dried, powdered scabs of a person afflicted with smallpox to a small incision on the arm or leg of a healthy individual; this method differentiates it from vaccination, Dr Edward Jenner's use of cowpox fluid at the end of the 18th century. Although how immunity was achieved was not known to science until the late 19th century, the effectiveness of the practice was recognised by physicians, which assuaged their initial misgivings and was a valid reason for great interest in it, so was the estimated annual mortality in Europe from smallpox in the 18th century as 400.000 annually. Many doctors ob-

jected to religio-racist biases, finding Biblical quotations to contradict those of the clergy in the ensuing 'pamphlet wars'.

Variolation was an established practice in the Ottoman capital Constantinople among several ethnic groups with different religions as well as in the international foreign community of resident merchants and diplomats. Despite the Royal Society in London publishing accounts by resident Greek practitioners, Dr Emanual Timoni and Dr Jacob Pylarini, no clinical experiments were initiated. Lady Mary Wortley Montagu, wife of the British Ambassador to Constantinople, had her six year-old son variolated by the Embassy surgeon, Charles Maitland, in 1718 and, confident of its success, introduced the method by practical example when having her young daughter variolated in 1721, after her return. This event precipitated immediate religious opposition.

Historians, from Dr William Woodville in 1796 to the 21st century repeated that 'Turks' in 'Turkey' used variolation in the 18th century. However, there is cogent evidence that the Ottoman Muslims did not, as it was against their belief in Fatality, attested to by foreign residents and Ottoman authors. Eurocentric references to 'Turks' with the misconception - which should be revised - that all Turks were Muslims led to the above religious and racial opposition.

Unfortunately, those who suffered from religious rhetoric restricting variolation, the first scientific practice of immunity, were Christian followers with no protection from the frequently recurring epidemics of smallpox.

Θεϊκή και ανθρώπινη ευδαιμονία στη γνωσιοθεωρία του ιατροφιλόσοφου Θωμά Μανδακάση

(Divine and human happiness in the epistemology of the iatrophilosopher Thomas Mandakassis)

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Ο εκπρόσωπος του νεοελληνικού Διαφωτισμού Θωμάς Μανδακάσης (Καστοριά 1709 – Λειψία 28.6.1796) υπήρξε μαθητής του Ευγένιου Βούλγαρη και αξιοσημείωτη περίπτωση Έλληνα πατριώτη της διασποράς με συγγραφικό έργο στην ιατρική, τη φιλοσοφία και τη θεολογία. Οι αγνοημένες από την έρευνα γνωσιοθεωρητικές του απόψεις περιλαμβάνονται στην πραγματεία του με τίτλο

«*Περὶ τῶν ἀοράτων διὰ τῶν ὁρατῶν ἐννοουμένων πραγμάτων, καὶ περὶ τῶν ἄὔλων διὰ τῶν ἐνεργειῶν αὐτῶν εἰς αἴσθησιν πιπτόντων καὶ γινωσκομένων πραγμάτων*» (Λειψία 1760), η οποία μάλλον άδικα θεωρήθηκε από τον Κ.Θ. Δημαρά ότι χαρακτηρίζεται από χαλαρότητα στη σκέψη και την έκφραση. Σύμφωνα με τη γνωσιοθεωρία την οποία δέχεται ο Μανδακάσης, ο άνθρωπος διαθέτει από τον Θεό την έφεση όχι μόνο για τη γνώση των πραγμάτων, αλλά και για την απόλαυσή τους, που μπορεί να επιτευχθεί ήδη στη διάρκεια του περασμένου βίου του. Ειδικότερα, ο «καρδιογνώστης» Θεός έχει χαρίσει στον άνθρωπο αυτήν τη δύναμη, ώστε να προβαίνει συνειδητά σε συνεχή μελέτη, θεωρία και πράξη τόσο σε σχέση με τον φθαρτό υλικό κόσμο, όσο κυρίως σε σχέση με τα αληθινά αγαθά, που έχουν θεϊκή προέλευση. Έτσι, η λογική, άυλη και αθάνατη ψυχή του ανθρώπου μέσω της επιστημονικής γνώσης, δύναται, μεταξύ άλλων, να βιώσει τη μακαριότητα, ευτυχία και ευδαιμονία, η οποία σε απόλυτο βαθμό χαρακτηρίζει τον Θεό. Από αυτήν την άποψη ο Μανδακάσης επαινεί ιδιαίτερα τόσο τους αρχαίους Έλληνες, όσο και τους συγχρόνους του Ευρωπαίους, για την αγάπη τους προς την επιστημονική γνώση και τα οφέλη που προκύπτουν από αυτήν. Ο ίδιος, άλλωστε, ως ιατρός στη διδακτορική του διατριβή (*Ὅμοια τῶν ἐλλειπόντων ὁμοίων ἱάματα*, Λειψία 1757) τόνιζε ότι σκοπός του ήταν να προσφέρει στους συμπατριώτες του «*ὅλα τὰ κέρδη τῶν μαθημάτων καὶ ἐπιστημῶν*», έτσι ώστε αυτοί και την ψυχή τους να ευφραίνουν και το σώμα τους να ωφελούν. Ο Μανδακάσης επισημαίνει, όμως, ότι αν ο άνθρωπος επιλέξει να μη γνωρίσει τα πράγματα, τότε θα στερηθεί της δυνατότητας απόλαυσης των υλικών και μη αγαθών και της συνακόλουθης ευδαιμονίας. Από την άλλη, δεν μπορεί να επιβληθεί σε κανέναν άνθρωπο η ενεργοποίηση των γνωστικών του δυνάμεων και η επίτευξη της ευδαιμονίας, εάν ο ίδιος δεν το θελήσει. Η διαποτισμένη από τον Ευρωπαϊκό Διαφωτισμό αντίληψη περί της έμφυτης στον άνθρωπο τάσης για απόκτηση επιστημονικής γνώσης, με σκοπό την ευδαιμονία επί της γης, αποτέλεσε κοινό τόπο και στα έργα συγχρόνων λογίων, όπως ο Ιώσηπος Μοισιόδαξ (*Ἀπολογία*, Βιέννη 1780), συμμαθητής του Μανδακάση και υπέρμαχος της νεωτερικής επιστήμης, και ο Δημήτριος Δάρβαρης (*Χειραγωγία εἰς τὴν Καλοκαγαθίαν*, Βιέννη 1791), επίσης Δυτικομακεδόνας λόγιος και παιδαγωγός, τον οποίο ο Μανδακάσης είχε συμβουλεύσει σχετικά με τις σπουδές του.

Science and Religion during the period of the Greek Enlightenment: the case of Benjamin Lesvios

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The discussion about the relationship between Science and Religion reminds of the utopian dream of humankind to develop the aeikineton, the ever moving machine. Though we discuss about this relationship for centuries, even from the Antiquity, we fail to establish a general and objective argument which would be acceptable both from the side of Religion and the side of Science. Even more, usually the rhetoric used by religious people or scientists on this issue, a rhetoric which has nothing to do with a dialogue based on rationality, is quite the same, if you replace the words science and religion with religion and science you could have the same text supporting either Science or Religion.

Having in mind all the above we aim to present as neutrally as we can, the relationship between these two, crucial for the development of human race, forms of faith and ideology during the Modern Greek Enlightenment. It is known that a gradual differentiation was realized in Greek society in the 18th century and that new elements and perceptions were introduced in the existing cultural and social state. A result of the new conditions was the Greek Enlightenment movement. In its effort to lead Greek society to new grounds, the movement came into conflict with the Church and questioned, not always directly, the dominant, until then, role of the Church in social, national and educational affairs. As was the case in Europe, perhaps the most spectacular aspect of the movement was its anti-religious polemic. In the political, intellectual and ethical conditions of the Old Order, the battle for Enlightenment had to be fought against the Church, although the battle range was certainly much broader.

One of the leading persons of this movement was the clergyman Benjamin Lesvios, named after the place of his origin, Plomari of the island of Lesvos. He was born in 1759. After attending the schools of Kydonia, Chios and Patmos, he studied physical and mathematical sciences and philosophy at Pisa and Paris. In 1800, at Benjamin's urging, the Academy of Kydonia was founded. Over the course of its 20-year history, the school became one of the best in the decades before the Greek Revolution, with Benjamin himself as the main teacher of science subjects (1800-1812). He introduced a

modernised education based on the sciences, imbued with the vision of the enlightenment spirit.

In this paper, our aim is to investigate the conflict between Lesvios and the representatives of the Orthodox Church, Dorotheos Voulismas and Athanasios Parios. We will attempt to avoid the stereotypes by which the historical research of recent decades has examined the history of the ideological currents and mentalities of the latter half of the 18th century and the first two decades of the 19th, acclaiming one side as "good and progressive" and condemning the other as "conservative", labelling Benjamin of Lesbos a "titan of the Enlightenment" and a "revivalist", and Athanasios Parios an "obscurantist" and a "medieval monk".

Scientist's God in the independent Greek State

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The relationship between science and religion has been already acknowledged as an important field in the wider context of history and philosophy of science. A relatively large literature on the subject exists giving a fair idea of the connection between science and religion in different cultural political and social environments. Still most of these studies focus on the "dialogue" between science and religion having in mind science in the "centre" and religion as the catholic and the protestant dogmas. Very few papers have been published concerning the view of science in Eastern Orthodox world.

In the present study I aim to discuss the way Greek scientists argued in favor or against the existence of God after the establishment of the independent Greek State in mid-1830s to the period just prior the start of World War II. This century marks the development of the Greek State and is connected with radical changes in the society and the role science played within it. So that it would be interesting to see the transformation of the way Greek scientists were thinking about the existence or non-existence of God, especially as most of them had a traditional education as students where Religion was taught as a compulsory lesson and the Greek Church was always a powerful factor in the Greek political and social reality.

Secular science and faith in Byzantine Canon Law

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This paper is a part of a research project in progress about natural philosophy, sciences and alchemy in Byzantine era. Among the others sources (scientific, historical etc.), the Canon Law is very crucial and valuable, as presents the official theoretical and practical Christian attitude to secular sciences in the Byzantine social formation. The paper examines the Canon Law chronologically, focuses in the changes in attitude between the earliest and latest Canons, as an open question for more research.

Are Laws of Nature Legislated by God? Roger Bacon (1120-1292) and Voluntarism

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One of the most salient features in Roger Bacon's mature writings (the Communia naturalia, Opus majus and De multiplicatione specierum), is the image of an ordered and intelligible nature, which always act in one way: "one and the same thing is done by a natural agent on whatsoever it acts, because it has no freedom of choice; and therefore it performs the same act on whatever it meets" (Opus majus 4.2.1). This image finds expression in a set of statements which describe natural regularities as "laws". This paper considers the source of such a view of nature, and its implications regarding the freedom of the will and the idea of God's omnipotence.

The frame of discussion is the thesis proposed by Francis Oakley about the source of the seventeenth century concept of laws of nature. Oakley distinguished between what he called the 'Greek' outlook, which identified divinity with the rational order of the universe and the Biblical notion of God as an almighty power and absolute will. According to Oakley, the Greek conception assumed that natural order is immanent, and that therefore one can penetrate the essences and 'natures' of things and whence deduce why

and how things act. The Biblical conception, Oakley argues, expressed in the nominalist-voluntarist line of thought founded by Ockham, considered natural order not as intrinsic to the essences of things, but as an extrinsic pattern of laws imposed by a legislating God, hence its empiricist leaning. The early modern conception of a nature governed by laws, Oakley claimes, could only have come about as a consequence of the Biblical notion of God.

In this paper I examine Bacon's notion of a lawful nature, and place his views in relation to the dichotomy suggested by Oakley, of immanent versus extrinsic order. I argue that on the one hand, Bacon gave up the search for essences and replaced them with a description of a thing's activity ("'nature' means an aptitude for acting, apart from any further inclination," *De multiplicatione* 1.1). Yet on the other hand, the laws of nature he prescribed seem to be linked with a Neoplatonic necessary universal emanation, which according to Oakley should be classified as typically Greek.

Things get more complicated when it turns out that Bacon was also careful to draw a clear distinction between the natural domain and free deliberation of the human will. Bacon had laid stress upon the freedom and autonomy of the human will in both ethics and linguistics; however, he did not have much to say about God's absolute will and freedom in creation. In other words, he was an ethical voluntarist, not a theological one.

Bacon's case can serve as a good example for a philosophical outlook which holds to an intrinsic order of nature, which does not relay on essences; and as promoting an image of a nature governed by laws without the premise of theological voluntarism. It therefore breaks the scheme proposed by Oakley, and weakens the link between theology and laws of nature in the history of science.

Nicholas of Cusa and his conceptions regarding the nature of number and the constitution of the universe

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Nicholas of Cusa (1401-1464), was a humanistic scholar, a philosopher and theologian, as well as a mathematician. His work greatly influenced many scientists, including Kepler, who considered him divine (" divinus mihi Cusanus"). In his dedicatory letter to cardinal Julian Cesarini (1398-1444),who was one of his professors at the University of Padua, Cusa revealed that while he was at sea (November 1437-February 1438) " en route back From Greece, I was led (by

as I believe, a heavenly gift from the Father of lights, from Whom comes every excellent gift) to embrace in learned ignorance and through a transceding of the incorruptible truths which are humanly knowable-incomprensibly thing incomprehensibly". Thus was born his magnus opus, De Docta Ignorantia (1440), in which Cusa explained that mathematics constitued a powerful instrument which "assists us very greatly in apprehending various divine truths".

Cusa studied Boethius' treatise De Institutione arithmetica (a paraphrase of Nicomachus' Introductio arithmetica) and probably the first six books of Euclid's Elements, from the first translation, from the Arabic, by Adelard of Bath. Cardinal Cusa was deeply influenced by the Pythagorian theory regarding the concept of integer number and did not hesitate to declare that Pythagoras is the first philosopher both in name and in fact who considered " all investigation of truth to be by means of numbers ". Thus the humanistic scholar adopted the Pythagorian concept regarding the number and formulated that " number ...is present not only in quantity but also in all things which in any manner whatsoever can agree or differ either substantially or accidentally".

In his second book of De Docta Ignorantia, expressed that" the universe sprang into existence from God's design", criticized the Ptolemaic universe stressing that " the earth is moved ", "the earth cannot be the center"and declared that " the universe has no fixed centre".

Copernicus and the Bible

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Scholars studying the relation between science and religion in the context of Western Christianity usually focus on Galileo and the theological dimension of his efforts to accept the Copernican world system in his "first Copernican battle" in the years 1613–1616. But Galileo was by no means the first Copernican to address the problem. Copernicus himself was very well aware that his thesis that the earth moves while the sun stands still in the center of the universe is in a contradiction with the Bible.

According to Copernicus, the thesis of the earth's motion contradicts the "consensus of many centuries". The earth's motion is refuted by *sensus communis*, Aristotelian philosophy of nature, and theology. Copernicus expressed his concerns to his friend Bishop Tiedemann Giese (1480–1550), in his corre-

spondence with Andreas Osiander (1498–1552), and developed a very ingenious general argument against theological objections in his preface to *De revolutionibus*, "Ad Sanctissimum Dominum Paulum III".

In his discussion with Giese, as reported by Rheticus in *Narratio prima*, Copernicus concentrated on philosophical and astronomical matters, but Osiander's correspondence with Copernicus and Rheticus (20 April 1541) reveals that he was troubled also by the possible theological attacks on his notion of the motion of the earth. As a matter of fact, already sometime before 1536 Copernicus's fears of theological objections were answered by his friend Giese, who wrote a now lost treatise entitled *Hyperaspisticon* in which he claimed that Holy Scripture was compatible with the new astronomy. And as is well known, in response to Copernicus's fear, Osiander proposed to him that he declare his thesis that "the earth moves whereas the sun is at rest in the center of the universe" to be one of many possible astronomical hypotheses, and thus "placate peripatetics and theologians".

Rheticus, obviously very much concerned about this matter himself, wrote sometime shortly after 1540 and before September 1541 a short treatise on the compatibility of Holy Scripture with the movement of the earth, first published only in 1651 as *Epistola cujusdam Anonymi de terrae motu*, in which he showed "very clearly […] that the motion of the earth does not contradict the Holy Scriptures".

That Copernicus's fears were justified is evident from the reaction of his first critic, Dominican Giovanni Maria Tolosani (ca. 1471–1549), who in 1547 or 1548 authored (but never published) *Opusculum quartum: De coelo supremo immobili et terra infima stabili,ceterisque coelis et elementis intermeddis mobilibus*. According to Tolosani, Copernicus "seems to be unfamiliar with Holy Scripture since he contradicts some of its principles, not without the risk to himself and to the readers of his book of straying from the faith".

In my paper I briefly present Rheticus's solution to the problem and Tolosani's objections, and dedicate the rest of the paper to Copernicus's own argument, developed in the preface to *De revolutionibus*, by which he attempted to neutralize *in advance* all kinds of possible objections, including theological ones, against the motion of the earth.

Το εκκρεμές του Φιλόπονου: Η Φυσική μεταξύ θρησκείας και επιστήμης τον 6ο αι. μ.Χ.

(The pendulum of Philoponus: Physics between Religion and Science during the 6th c.)

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Ο Ιωάννης Φιλόπονος έζησε στην Αλεξάνδρεια τον 6ο αι. μ.Χ., μια εποχή όπου ο χριστιανισμός είχε, μεν, εδραιωθεί ως επίσημο δόγμα της Ανατολικής Ρωμαϊκής Αυτοκρατορίας και νομοθετούσε - μέσω των πατερικών κειμένων - την ουσία της Γνώσης αλλά από την άλλη πλευρά, σε δύο περιοχές της Αυτοκρατορίας, στην Αθήνα και την Αλεξάνδρεια συνεχίστηκε η λειτουργία δύο νεοπλατωνικών σχολών οι οποίες απετέλεσαν το λυκόφως του φιλοσοφικού στοχασμού της αρχαίας Ελλάδας. Ο ρόλος της Φιλοσοφίας και της μελέτης της Φύσης επηρεάζονταν και προσδιοριζόταν από τις ενστάσεις των εκκλησιαστικών κύκλων για τις ηθικού χαρακτήρα παρεκκλίσεις από τις θεολογικές αρχές της νέας θρησκείας. Στις περιπτώσεις ενασχόλησης με τη Φύση, η προσπάθεια εστιαζόταν στην προβολή των φυσικών φαινομένων σε σύμβολα ηθικών αληθειών.

Ο Φιλόπονος συνέγραψε εκτεταμένα Σχόλια για τα αριστοτελικά έργα και συνεισέφερε στην καινοτομική προσέγγιση του αριστοτελικού corpus καθώς αντιμετώπισε την αριστοτελική Φυσική με πολύ κριτική διάθεση. Οι αντιρρήσεις του εστιάζονται τόσο στις βάσεις της αριστοτελικής Κοσμολογίας (όπως η διχοτόμηση του ουρανού από τη Γη, η ύπαρξη του πέμπτου στοιχείου, η αιώνια ύπαρξη του Κόσμου) όσο και σε κεντρικά σημεία της αριστοτελικής Δυναμικής (όπως η μη ύπαρξη κενού χώρου, η άρνηση του της ορθότητας του αριστοτελικού συχετισμού της κινούσας δύναμη με την ταχύτητα και την αντίσταση του υλικού μέσου, η κριτική του στη θεωρία της βίαιης κίνησης).

Οι επιρροές του προέρχονται τόσο από το μονοφυσικό χριστιανισμό όσο και από τις νεοπλατωνικές αρχές της Σχολής της Αλεξάνδρειας και συνεπώς μπορεί να θεωρηθεί ότι οι αναφορές του για τις φυσικές έννοιες είναι επηρεασμένες τόσο από θρησκευτικές πεποιθήσεις όσο και από επιστημονικές αιτιάσεις και κινούνται ανάμεσα σε αυτά τα δυο ακραία σημεία μεθοδολογικής προσέγγισης.

Ο μοναχός διδάσκαλος και ο Αριστοτέλης: Νικηφόρος Βλεμμύδης, *Επιτομή Φυσικής*

(The scholar monk and Aristotle:|Nicephorus Vlemmydes, *Epitome of Physics*)

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Ο Νικηφόρος Βλεμμύδης, Βυζαντινός λόγιος και ιδρυτής σχολής του 13ου αι., με επιρροή στην αυτοκρατορική αυλή αλλά και στους μετέπειτα λόγιους της Παλαιολόγειας περιόδου, συνέγραψε εγχειρίδια για τους βασικούς τομείς της κοσμικής γνώσης (λογική, φυσική, αστρονομία, γεωγραφία), αλλά και έργα που αναφέρονταν στην παιδαγωγική, όπως και θεολογικά κείμενα.

Ιδιαίτερο ενδιαφέρον παρουσιάζει η επιτομή *Περί φυσικής,* που, ακολουθώντας την αριστοτελική φυσική τόσο ως προς το περιεχόμενο όσο και ως προς τη διάρθρωση, αφιερώνει ιδιαίτερο βάρος στο πρόβλημα της αιωνιότητας του κόσμου, όπου με επιχειρήματα ο Βλεμμύδης προσπαθεί να αποδείξει την λανθασμένη αντίληψη του Αριστοτέλη και να την αντικαταστήσει με τη δική του χριστιανική εκδοχή.

Η παρούσα εργασία θα παρουσιάσει αυτή τη συγκεκριμένη προσπάθεια εναρμόνισης αριστοτελικών και χριστιανικών αρχών, η οποία έτυχε μεγάλης αποδοχής αν κρίνει κανείς από τον αριθμό των χειρογράφων και των εκδόσεων του έργου μέχρι τον 18ο αι.

Θρησκεία και επιστήμη στον επίσκοπο Νίκαιας και Καρδινάλιο Βησσαρίωνα (Science and Religion of the Bishop of Nicea and Cardinal Bessarion)

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Ο δέκατος πέμπτος αιώνας είναι ο αιώνας έναρξης της Αναγέννησης στη χριστιανική Δύση και της πτώσης της κρατικής οντότητας στην βυζαντινή Ανατολή. Ολόκληρο το προηγούμενο διάστημα, η εποχή του Μεσαίωνα, χαρακτηρίζεται, σε γενικές γραμμές, στη Δύση από τη διδασκαλία του ιερού Αυγουστίνου ως αυθεντική έκθεση των δογμάτων της Εκκλησίας και στην Ανατολή από την αντίστοιχη διδασκαλία των Πατέρων της Εκκλησίας. Και στις δύο περιοχές η μεγάλη αυτή περίοδος ολοκληρώνεται στο πεδίο της φιλοσοφίας και της επιστήμης με την αποδοχή του Αριστοτελισμού γύρω στο 1200. Μπορούμε να ισχυρισθούμε ότι Δύση και Ανατολή διασυνδέονται και με τις συγγραφές του Διονυσίου του Αρεοπαγίτη που οδήγησαν αργότερα στη μακραίωνη συζήτηση για το περιεχόμενο των εννοιών γένους. Ο σχολαστικισμός και εν μέρει ο μυστικισμός είναι τα δύο ισχυρά ρεύματα θρησκευτικής σκέψης που η εσωτερικότητά τους λήγει με τον Μεσαίωνα, ενώ παράλληλα αρχίζει η εποχή της Αναγέννησης και του Ανθρωπισμού στην οποία συμβάλλει σημαντικά η μετακίνηση των βυζαντινών λογίων στη Δύση. Η θεολογία υποχωρεί και εμφανίζεται η φιλοσοφική ανθρωπολογία που μελετά τη θέση του ανθρώπου στον κόσμο, μέσω της στήριξής της στην ελληνική φιλοσοφία και επιστήμη και διερευνά τη φύση υπό το πρίσμα της φυσικής επιστήμης. Μένουμε στο πρώτο πεδίο, εκείνο του ανθρωπισμού, στο οποίο εντάσσεται και το θέμα της εισήγησής μας, οι θέσεις δηλαδή του Βησσαρίωνα.

Σε γενικές γραμμές αυτό είναι το πεδίο στο τέλος του Μεσαίωνα και στην αρχή της Αναγέννησης με τη συμπλήρωση ότι πέραν των γνωστών διαφορών μεταξύ Καθολικισμού και Ορθοδοξίας συνεχίστηκαν στο διάστημα που έτρεξε οι θρησκευτικές και γνωστικές διαμάχες. Για τη θεολογία της Ανατολικής Εκκλησίας, μέσα στην οποία διαμορφώνεται και ο Βησσαρίων, η σκέψη και η συζήτηση επικεντρώνεται στον αποφατικό και καταφατικό χαρακτήρα προσέγγισης του Θεού και του κόσμου. Το υπερβατικό εκείθεν δεν υπόκειται σε καμιά μέθοδο πραγμάτευσης, γιατί ως θεία ουσία δεν είναι προσιτό στην ανθρώπινη εμπειρία και ως μυστήριο είναι θέμα πίστης και όχι γνώσης. Εκείνο που υπόκειται στη συστηματική προσέγγιση είναι το αισθητό εντεύθεν, ο κόσμος της

εμπειρίας, που ελέγχεται επιστημονικά και αποκαλύπτει τις θείες ενέργειες και εκδηλώσεις μέσω της επικουρίας των φυσικομαθηματικών επιστημών. Η πειραματική μέθοδος αποκαλύπτει το μυστήριο της δημιουργίας και άρα η γνωσιολογία δεν προηγείται αλλά έπεται και προϋποθέτει την οντολογία. Για τον λόγο αυτό και η φιλοσοφία πρέπει να περιορίζεται σ' αυτό που είναι αντικείμενο πίστης και γνώσης και να μην υπεισέρχεται σ' αυτό που είναι θέμα μόνο πίστης. Πρώτιστο είναι η αποκάλυψη του Θεού μέσω της προσπάθειας του ανθρώπου να υπερβεί την ατομικότητά του και έπεται η γνώση, η οποία, εξάλλου, δεν ταυτίζεται απολύτως με την επιστήμη, ενώ προηγείται πάντων η αγάπη.

Ο Βησσαρίων αποδέχεται σιωπηρά την αποφατική θεολογία, η οποία αποχωρεί την περίοδο αυτή από το προσκήνιο, και μένει στην καταφατική προσέγγιση των πραγμάτων. Οι θέσεις που αναπτύσσει εντάσσονται στο πλαίσιο μιας σύνοψης της αρχαίας γνώσης, η οποία εκφράζεται ως κορύφωση στο πλατωνικό και αριστοτελικό έργο. Στόχος του είναι να αποδείξει εάν η επιστημονική γνώση - που είναι ακόμη ενταγμένη στο φιλοσοφικό πεδίο – είναι λυσιτελής ή όχι και αν συνάδει και συμφωνεί με τα δόγματα της θρησκείας. Στο πεδίο αυτό δεν επιλέγει τον Αριστοτέλη ως συμφωνούντα με τα ευαγγελικά και αληθή χριστιανικά δόγματα, αλλά τον Πλάτωνα, του οποίου οι θέσεις μαρτυρούνται από τους ιερούς πατέρες και διδασκάλους ως σύμφωνες με τα δόγματα της πίστης. Παράλληλα οι φυσικές επιστήμες που αχνοφέγγουν στο λυκαυγές που έρχεται γίνονται σημείο προβολής από τον Βησσαρίωνα. Η φιλοσοφική και επιστημονική γνώση για τις φυσικές αρχές και τα εξ αυτών απορρέοντα παριστώνται λαμπρώς στον *Τίμαιο*, αλλά και ο Αριστοτέλης άφησε συγγράμματα για τις τέχνες και τις φυσικές επιστήμες και γι' αυτό του οφείλουμε χάριτας και επειδή ευεργέτησε το ανθρώπινο γένος κληροδοτώντας σε εμάς τις επιστήμες.

Ο Βησσαρίων εν τέλει, μένοντας στο πεδίο της καταφατικής θεολογίας, διαχωρίζει την επιστήμη από την πίστη. Προτείνει να ακολουθούμε τους επιστήμονες στα ζητήματα της επιστήμης, αλλά στο θέμα της πίστης να αναζητούμε το θείο πνεύμα που την υπαγορεύει στον άνθρωπο και από τους φιλοσόφους να ακολουθούμε εκείνον που είπε εκείνα που συμφωνούν με τη θρησκεία. Αυτόν που και οι διδάσκαλοι και πατέρες της πίστης επικαλούνται ως απόδειξη. Και αυτός είναι ο Πλάτων. Έτσι, η επιστήμη και η φιλοσοφία έχουν μεν μια αυτονομία, αλλά προκειμένου για τη θρησκεία είναι εύχρηστες στο βαθμό που συνηγορούν, συνάδουν και ενισχύουν τα δόγματά της. Επικουρικά και μεθοδολογικά υπερασπίζεται το επιστημονικό ήθος, τις λογικές αποδείξεις, τη μελέτη και τη σπουδή σε βάθος των προβαλλόμενων θεωριών και γνώσεων ως πρώτιστο καθήκον για κάθε ερευνώντα.

Η Διακήρυξη της Χριστιανικής Ένωσης Επιστημόνων του 1946 μέσα από τα ΕΑΜογενή έντυπα. Η αντιπαράθεση για τον ρόλο της επιστήμης και η σχέση της με την θρησκεία στις συνθήκες του Εμφυλίου Πολέμου στην Ελλάδα

(The Declaration of the Christian Association of Scientists in 1946 and the Press of the National Front for Independence. The controversy for the role of science and its relations with religion in the context of civil war)

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Τα Χριστούγεννα του 1946 στο περιοδικό «Ακτίνες» που εξέδιδε η Χριστιανική Ένωση Επιστημόνων (Χ.Ε.Ε.) δημοσιεύθηκε η «Διακήρυξις της Χριστιανικής Ενώσεως Επιστημόνων». Στη συνέχεια η Διακήρυξη κυκλοφόρησε ως ξεχωριστή έκδοση σε χιλιάδες αντίτυπα με πρωτοβουλία της Χ.Ε.Ε. και της οργάνωσης «Αδελφότης Θεολόγων Η Ζωή». Μέσω αυτής η Χ.Ε.Ε. επιτιθόταν στον υλισμό θέτοντας στο στόχαστρο τη Θεωρία της Εξέλιξης του Δαρβίνου και της θεωρίας της ψυχανάλυσης του Φρόιντ. Η Διακήρυξη συνοδευόταν από μια Δήλωση υπογεγραμμένη από επιστήμονες, καλλιτέχνες και λογοτέχνες, στην οποία εκφραζόταν η θέση ότι το μέλλον της ανθρωπότητας αλλά και της Ελλάδας εξαρτάται από την πνευματική θεμελίωση της ζωής του ανθρώπου πάνω στη βάση του Χριστιανισμού. Η στήριξη αυτής της θέσης επιχειρήθηκε να θεμελιωθεί πάνω στα επιτεύγματα της σύγχρονης επιστήμης, μέσω μιας συγκεκριμένης φιλοσοφικής και τελικά αξιακά φορτισμένης θεώρησης. Μια Δήλωση η οποία στο ιστορικό πλαίσιο της εποχής απέκτησε άλλη βαρύτητα.

Τη στιγμή που εκδόθηκε η Διακήρυξη της Χ.Ε.Ε. ο εμφύλιος πόλεμος στην Ελλάδα είχε ήδη αρχίσει. Η Κατοχή και η συμμετοχή εκατοντάδων χιλιάδων ανθρώπων, ανάμεσα στους οποίους και επιστημόνων, στην Αντίσταση μέσα

από το ΕΑΜ είχε συντελέσει σε μια αλλαγή στο συσχετισμό δυνάμεων μεταξύ των διανοούμενων της χώρας. Η κήρυξη του «πνευματικού πολέμου» αποτελούσε αδήριτη ανάγκη για την αστική τάξη. Αυτό το καθήκον επωμίστηκε η Διακήρυξη της Χ.Ε.Ε. σε συνδυασμό με το άρθρο του Πέτρου Χάρη που δημοσιεύθηκε σχεδόν ταυτόχρονα με αυτή στο περιοδικό «Νέα Εστία» με τίτλο «Ελεύθεροι Πνευματικοί Άνθρωποι» την πρωτοχρονιά του 1947.

Η απάντηση από τα έντυπα της άλλης πλευράς ήταν άμεση. Δεν είναι τυχαίο ότι η Διακήρυξη απασχόλησε ομιλία του Νίκου Ζαχαριάδη το 1947, μέρος της οποίας δημοσιεύθηκε στο τεύχος 2 του 1947 του θεωρητικού περιοδικού του ΚΚΕ «Κομμουνιστική Επιθεώρηση». Στην εφημερίδα του ΚΚΕ «Ριζοσπάστης» ανιχνεύονται άρθρα τον Ιανουάριο του 1947 με πολιτική τοποθέτηση απέναντι στους συντάκτες και το περιεχόμενο της Διακήρυξης. Μια σειρά άρθρων – απάντηση στη Διακήρυξη εκδόθηκε επίσης από τον Ιανουάριο μέχρι τον Ιούλιο του 1947 στο περιοδικό «Σοσιαλιστική Επιθεώρηση» του Σοσιαλιστικού Κόμματος – Ένωσης Λαϊκής Δημοκρατίας (ΣΚ- ΕΛΔ), πολιτικών δυνάμεων που είχαν αποχωρήσει από το ΕΑΜ μετά τη Συμφωνία της Βάρκιζας.

Στο τεύχος του Ιανουαρίου – Μαρτίου 1947 του περιοδικού «Ανταίος» που εκδιδόταν από την Επιστημονική Εταιρεία Μελέτης Νεοελληνικών Προβλημάτων «ΕΠΙΣΤΗΜΗ-ΑΝΟΙΚΟΔΟΜΗΣΗ» (ΕΠ-ΑΝ) δημοσιεύεται άρθρο ενάντια στη Διακήρυξη της Χ.Ε.Ε.. Σε αυτό επιχειρείται επιστημονική τοποθέτηση στο ζήτημα της εξέλιξης των οργανισμών με υπεράσπιση του Δαρβινισμού. Στο περιοδικό «Ελεύθερα Γράμματα», το οποίο εκδιδόταν από τον γνωστό λογοτέχνη και ιστορικό Δημήτρη Φωτιάδη δημοσιεύονται δύο άρθρα των Μάρκου Αυγέρη το Δεκέμβριο του 1946 και του Χαράλαμπου Θεοδωρίδη το Φεβρουάριο του 1947. Η αντιπαράθεση ανάμεσα στις δύο πλευρές προϋπάρχει της Διακήρυξης της Χ.Ε.Ε. Πλευρές της διακρίνονται σε άρθρο που δημοσιεύθηκε στο τεύχος 6 του 1945 της «Κομμουνιστικής Επιθεώρησης».

Ιδιαίτερο ενδιαφέρον παρουσιάζει το ζήτημα της σύνδεσης της αντιπαράθεσης στην Ελλάδα με την διεθνή συζήτηση για τον κοινωνικό ρόλο της επιστήμης εκείνης της περιόδου. Αντιπαράθεση στην οποία ενεπλάκησαν γνωστοί επιστήμονες και από τις δύο πλευρές όπως ο J.D. Bernal, ο K. Polanyi. Χαρακτηριστικό είναι ότι το ζήτημα απασχόλησε ακόμα και τον B.Brecht στο θεατρικό έργο του «Η ζωή του Γαλιλαίου».

Greek Students of Today Discussing Pascal's Wager

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In this paper we present and analyze the discussion that took place among Greek students (prospective elementary school teachers), in the context of a seminar of probability and statistics, concerning Pascal's Wager. The students used concepts of probability theory and decision theory for understanding and commenting on Pascal's Wager (such as the concepts of subjective and frequentist probability, of expected value, expected utility and the principle of maximum expected utility). However their comprehension and their comments on the wager are clearly influenced by the fact that as Greek students, they belong to a society with a strong Christian Orthodox tradition. Below we present briefly the main points that emerged from students' discussion and investigation on Pascal's Wager.

(i) Concerning the so-called "many Gods objection" about Pascal's Wager, students agreed that the wager may be meaningless for a person who doubts about the existence of God but considers that, if He exists, conflicting hypotheses about Him are probable (e.g. he considers that God may be the Holly Trinity, or the 12 Olympian Gods, or a God that prefers the unbelievers). However, students considered that if a person doubts about God's existence but still considers that, if He exists, He is an omnipotent, omniscient and omnibenevolent God, then such a person may consider the wager as meaningful.

(ii) Students remarked that among men doubting about God's existence some wish (or even desire) that God exists while others don't wish that God exists. Students considered that the will of those who doubts God's existence is important concerning (a) the way that they interpret evidence about His existence, and (b) their attitude concerning wagering on God's existence.

(iii) In his argumentation concerning wagering on God's existence Pascal used the principle of "*maximum expected utility*". (As Hacking (1972) remarks, this is the first time that this decision making principle is annunciated).

However students thought that Pascal's argument, which is mainly based on the will to avoid the risk of loosing eternal salvation and to suffer eternal damnation, has less convincing power than Pascal thought. This is because men

have an important ability to put aside thoughts that concern (either certain, or probable) future events that are extremely negative, such as their death or their eternal damnation. Students pragmatic consideration means that men's usual utility function concerning eternal damnation differs substantially from the one considered by Pascal. Nevertheless, students consider that there are other elements that concern the present time and may enter into account influencing men's attitude concerning wagering on God's existence (such as the desire to live in a world governed by a loving and caring God, or the desire not to live in a world governed by a very restrictive and punishing God).

(iv) Students gathered personal stories, from friends and relatives that had doubts on God's existence, concerning wagering attitudes on God's existence. They found very few elements of global wagering attitudes like that proposed by Pascal. However they collected stories where doubting persons in difficult moments of their life (such as life threatening illness, or difficult moments in their professional life) adopted wagering attitudes on God's existence; in the sense that they pray to God despite their doubts about His existence, they go to church and even offer oblations, in order to have God's help. It is interesting that the doubting persons in the collected stories pried to God and to Saints of the Orthodox Church and not to some generic God or to the God as taught by some other religion. It is also worth noting that after realizing such a wagering attitude the doubting persons often changed their probabilistic modeling about the existence of God.

The astronomical instruments in Saint Catherine's iconography at the Holy Monastery of Sinai

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The aim of this paper is to highlight the scientific instruments depicted in the icons of St. Catherine at the Holy Monastery of Sinai. St. Catherine, who became a martyr at the beginning of the 4th c., was of aristocratic decent and well educated. In the iconography up to 16th c., she is depicted standing and dressed with imperial garments, holding a cross in her hand. The Cretan school of iconography inaugurated a new model; the earliest known icon is that of the iconostasis of the Katholikon by Jeremiah Palladas (1612), where St. Catherine is depicted sitting, wearing a Venetian dress and surrounded by the wheel of her martyrdom, books in various colours, an inkwell, a pair of compasses, a gnomon and a fine elaborated astronomical instrument. This

instrument is composed of two different elements: a celestial globe and a system of nested spheres according to the Ptolemaic model of the world.

The celestial globe is close to that described by Geminos (~1st c. BC) and Leontius (7th c. AD). The 5 parallel circles, namely the equator, the tropics of Cancer and Capricorn, the arctic and antarctic circles are drawn as parallel segments. The zodiac is drawn between the tropics, and divided into zodiacal signs and degrees, with an additional correspondence between the zodiacal signs and the months; it is a calendar. The beginning of each sign corresponds approximately to the end of the first third of the corresponding month; this is correct, for the 17th century, according to the Julian calendar -followed by the Eastern Christianity. The celestial sphere rests on a stand with a meridian and a horizontal ring. There is another calendar on the horizontal ring, but less accurate than that on the sphere. The celestial axis and the axis zenith - nadir are also depicted. The system of the concentric nested spheres has the Earth in the centre followed by the spheres of Moon, Mercury, Venus, Sun, Mars, Jupiter, Saturn and that of the fixed stars. The name and the symbol of each planet are written on its sphere.

Other detailed celestial globes are drawn in icons by Ioannis Cornaros in 1780. The tradition of drawing astronomical instruments near St. Catherine is found not only in numerous icons, where celestial or armillary globes are drawn, but also in a copper engraving from Venice (1764) and in embroideries from Vienna, such as a "pyle-cloth" (πύλη) (1770) and an epitaphios of St. Catherine (1805) stored in the museum "σκευοφυλάκειον" of the Monastery. The depiction of detailed astronomical instruments in the icons is evidence for the knowledge of the artists and the interest of the monks of the Sinai Monastery in science.

Evolutionary Theory and the "Revival of Russia"

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1. The evolutionary theory of Ch. Darwin, and modern one, doesn't fit into the process of "the revival of Russia". In modern Russia only 24,4 percents of respondents consider the evolutionary theory as proved and almost 24,0 percents support the "creative" theory, that is so-called "scientific creationism". At the same time 34,5 percents of respondents think that the modern science isn't able to answer a question of the origin of a human species.

2. This relation to the evolutionary theory represents a result of interaction and sometimes an antagonism of various public subjects such as Russian state, church, "ruling elite", scientific community and some other communities of the Russian citizens consisting so-called "civil society".
3. Position of scientific community is ambiguous and heterogeneous, and it is not influential. The main demarcations line is defined mainly by that how close or, on the contrary, far professional sphere of the activity of scientists is from evolutionary biology. Such scientists as biologists, geologists, physicists, chemists, etc.) in general positively estimate the evolutionary theory, support secular nature of education and stand against the introduction of any form of teaching of religious outlook in secondary and high school. Humanitarians, in particular lawyers and linguists, take an opposite position.
4. The main part of "civil society" passively or actively supports the demand of right radical orthodox to impose a ban on teaching of the evolutionary theory at school.
5. Such relation to the evolutionary theory in society is a result of persistent efforts of quite certain social forces and groups who try to discredit it and except of educational process. The church and the state have actually uniform position and occupy a dominant place in mass media. Such unanimity of views and actions is explained simply. So-called "revival of Russia", being above all a restoration of capitalism in the country, and then a fixing of results of this restoration in interests of "ruling elite".
6. The evolutionary theory is already enlisted in the category of the values not corresponding to a thousand-year Russian tradition and it is estimated, as well as its carriers, in particular atheists, secular humanists, communists, and other "evil spirits", extremely negatively. In 2005 36 percent of respondents supported a ban of public statements against religion; 17 percent stands for that opponents of belief weren't allowed to teach at universities and, at last, 22 percent stand for that the books written by "atheists" were withdrawn from libraries. By the way, the law on an insult of feelings of believers can be applied against evolutionists as the evolutionary theory, especially an explanation natural, instead of a divine, evolutionary origin of man certainly is offensive for feelings of believers.
7. In these conditions change of the relation to the evolutionary theory and, especially, development of new evolutionary culture is impossible without the valid and full revival of the country which can be reached only through carrying out a new course and a new, post-capitalist Renaissance.

Beyond Conflict and Complementarity: On 'Science and Religion' in Contemporary India

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Science and Religion are two different 'Modes of Existence' (Latour 2005, 2013). To think of the relation between science and religion in terms of the binaries of 'conflict' and 'complementarity' is both analytically and descriptively inadequate. Using this formulation, the paper attempts to discuss through detailed ethnographic description, the manner in which scientists in a leading Indian scientific research institute defined and practiced religion and atheism(s). Instead of posing science and religion as dichotomous categories the paper demonstrates its easy coexistence within the everyday lives and practices of Indian scientists. The hyper rationalism associated with modernity and western science did not over determine their everyday life and practices. The 'religious' scientists did not perceive their religiosity in opposition to science, nor did they accept the conflictual view of science and religion. For them, science and religion are two different Modes of Existence, and they perceived the science-religion conflict as an artificial one. Likewise, the 'atheistic' scientists did not find any contradiction in following a 'religious' lifestyle and simultaneously identified themselves as atheists or non-believers. The paper argues that the acceptance of a western canonical understanding of atheism or unbelief imposes a closure on the multiple cultural meanings assumed by these categories. Any attempt to universalize or homogenize the experiences of belief and unbelief against the scale of Western modernity runs the risk of neglecting the enmeshing of these categories within the complex life worlds of Indian scientists. The paper questions the tacit acceptance of the distinctions between science and religion and seeks to evolve new vocabularies to talk about these categories within non-western societies. The paper argues that the study of atheism(s) and rationality(s) should not be just a simple-minded attempt to find western parallels. In fact, by finding multiple understandings of religion, culture, and atheism, perhaps we can open new avenues for thinking about them in the West as well.

Religion, Science and the Rejection of Spiritual Entities in 17th c.

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From the ancient times various spiritual (or quasi-spiritual) entities possessed an important place in philosophical or scientific theories on the nature and function, mainly – but not only – of living beings. Notorious examples were the 'natural faculties' of Galen as well as the 'spirits' (physical, vital and animal); these entities, given a prominence in the works of Galen, retained a central place in physiology during the Middle Ages and the Renaissance. During these centuries the importance of such entities was rather augmented, including a host of so-called 'occult qualities'. With Paracelsus, Paracelsians, Van Helmont etc., such entities become even more prevalent and more concretely characterized, as 'archei', 'internal alchemists', 'life spirits' etc. But during the 17th century tendencies to altogether eliminate such entities became influential. An important tendency in this direction is associated with the revival of ancient atomism and the formulation of the so-called 'mechanical philosophy'. It is noteworthy that, apart from Descartes, two main – and, in a sense, emblematic – representatives of this philosophy were ministers of the Catholic Church, namely Pierre Gassendi and Marin Mersenne. Another tendency, which appeared rather later, did not adopt such a clear-cut atomistic-mechanistic philosophy, but tried, following the example of Newton, to formulate laws of the living systems avoiding any discussion about the nature of the causes. With this tendency, which was followed mainly in Protestant milieus, spiritual entities were eliminated as well.

This presentation tries to elucidate to some extent several questions arising in connection with the interactions between religious faith and the formulation (or rejection) of philosophical and scientific theories in the 17th century – especially regarding the existence and function of spiritual entities.

- Were (and to what extent) these entities undesirable (or rejectable) to the church – and particularly at this time? And, on what grounds?
- Can we determine any essential differences between the attitude of the Catholic and that of the Protestant church (or of the various 'variants' of the latter)?
- To what extent can we tell that the confession of the scientists/philos-

ophers influenced them in rejecting these entities? Or were theological (or quasi-theological) arguments used to facilitate a 'progress' of science/philosophy to a direction that seemed timely?
- To what extent was there an objection, on theological grounds, to that 'mechanical philosophy'? And from which circles or tendencies?
- What about the views/arguments of philosophers/scientists who defended spiritual entities, but had a quite clear religious orientation?

Positioning Heisenberg's Uncertainty Principle in the Science-Religion Debate

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In a number of publications written mainly by theologians, Werner Heisenberg's Uncertainty Principle is portrayed as the core principle of modern physics establishing the inadequacy of science in giving a consistent picture of the physical world.

In the first part of our paper, we will argue that such an assumption is based on a complete misunderstanding of the notions of 'uncertainty' and 'indeterminacy' in quantum mechanics as well as on a direct renunciation of the materiality of quantum entities, drawing heavily from the anti-realist storeroom.

In the second part of our paper, we will give an account of Heisenberg's life and politics focusing on his adaptation to the Nazi regime and his participation in the their bomb program in an attempt to destabilize the image of the 'religious scientist' so common in the relevant literature.