Science and Theology: Perspectives for the Future

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Introduction

For this paper, I intend to address questions that arise at the interface of theology and modern science. I do not have the opportunity to cover the many issues that are important today including environmental issues, beginning of life issues, and others as they are too large for an article of this size. I will at first give some introductory comments on the science-theology interface and then talk more specifically about genetic engineering which is a real issue we face today.

I want to note that much of the work that is done at the theology science interface is done as part of IOTA's Science and Theology group. This year our IOTA was held in Volos in the Metropolis of Demetrias and Almyras. At the conference we had 8 sessions that were devoted to discussions directly on issues of science and theology[1]. I hope many in the audience will have the opportunity to join IOTA on 2027 meeting.

Why am I taking on this topic? As a scientist who has also studied theology, I feel that my job is to bring the problems and promise of science to the theological table in a way that is based in the reality of everyday science. In the modern world, there is a tension that exists between science on the one hand and religious groups on the other. Many scientists are

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1. "What Is Iota?", International Orthodox Theological Association, September 2, 2023: https://iota-web.org/. https://iota-web.org [29.9.2023] .

atheists and do not (perhaps cannot) consider religious thinking in their work. Many religious groups on the other hand, directly oppose the work of science. This was perhaps most evident in the COVID crisis when religious groups (including many of our own Orthodox) refused to accept scientific information about how COVID is spread and how one can best protect oneself from the infection. I will not talk about COVID here, but this is a topic that perhaps we need to revisit now that the crisis is not as acute as it was two years ago.

Science and Theology Interface

At the beginning of this meeting His All-Holiness Patriarch Bartholomew stated that "science is the great power of our time", stressing the need for greater science understanding and dialogue today. Professor Stamoulis noted that "science should not run counter to theology", and I agree with that. There should not be inconsistencies between the facts of science and what the Church says are facts; one will have to be wrong in those situations.

There are clear points of interface for science and theology... but there are some issues where scientific information is ignored by the Church or at least the Church is not informed by scientific thinking. I will use as my example here considerations of beginning of life issues where the understanding of how babies are made was not known in human science until the late 1700s and early 1800s, and yet the Church Fathers opined on issues of birth, miscarriage and abortion based on false information. Revisiting those issues in light of today's science is warranted. Nevertheless, within the context of science, approaches and perspectives evolve over time, particularly as more information becomes available. For religion, interpretations of Scripture and Church concepts also evolve as new discussions bring out new points. Both science and religion are influenced by the surrounding culture.

We must also consider the idea that scientific technology is complex, and sometimes the Church might accept one approach to carry out work and not another. One could be ethical from the Church perspective and the other one is not. For that reason, studies of bioethics often get into the "weeds of how a technique is done." For example, there are examples of In Vitro Fertilization (IVF) that the Church might accept and other examples of how it would not. Fertilization that leads to implantation of all embryos, in most examples is not considered to be problematic, but fertilization that leads to remaining embryos being discarded or relegated to a freezer for decades until they are no longer viable in most cases would not be acceptable.

Based on all the above perspectives, recent years have also seen a strong polarization on these issues, predominantly in western cultures. A significant concern that has come up over the years is the lack of engagement of scientists by the theological world. Theologians are often talking about scientific concerns of which they have little experience or understanding. If the dialogue between scientists and theologians is to be concerned with issues of consequence to the world, scientists must be at the table in these discussions. Otherwise, the theology is working to solve problems that scientists have not or may never develop. For example, discussions of transhumanism may be important because thinking about questions brought to the fore by transhumanism helps us define the human person and understand our relationship with the world better. Nevertheless, the science that is expressed by much of transhumanism is not scientifically realistic, perhaps for centuries. Transhumanism posits that human thoughts can be placed into containers that can later be uploaded into other brains or computers[2]. This is far beyond what science can consider now or in the near future. Science does not know how a single thought is generated at this point, much less being able to preserve it or place it in a container.

Similar types of discussion have been brought up about salvation of non-human extraterrestrial life, a discovery that has not yet been made and would depend to a large extent on the type of life that exists. Again, while discussion may have value in explaining an understanding of who we are as a human species, the value to science itself is not really useful as it is based on a premise which may never be true in our lifetime's.

2. M. J. McNamee – S. D. Edwards, "Transhumanism, medical technology and slippery slopes", *J Med Ethics* 32, 9 (2006), pp. 513-518.

This all reflects misunderstandings that have crept into thinking on both sides of this discussion. There needs to be an understanding overall that science cannot test God's existence in the world. The scientific method has limitations, and proofs of spiritual truths (or Truths) are not possible for science. Science often (but not always) functions through the generation of hypotheses that can be tested; this is a tool that scientists can use to query what is happening in the world. Despite this, neither scientific truth nor theological Truth can be decided by a majority vote. When one reflects on the history of the Church, it has been noted that there have been examples of times when only a few people alive were expressing the Truth of the Church.

There are also some concerns that scientific perspectives promote materialism; while it is true that scientists study the material world, they do not really have access for scientific inquiry into the spiritual realm except through their own personal lives of prayer and ascesis. Science tests the material world and thus is focused on material. Science cannot invoke supernatural causes to events because it is not in the realm of what scientists can test. Nevertheless, some scientists take this to the extreme and promote scientism, the idea that modern natural sciences provide our only access to the world and the only approach that can provide "truth."

Francisco Ayala who passed away a few years ago was a noted Roman Catholic theologian and scientist, he had worked under Theodosius Dobzhansky, an Orthodox scientist who studied evolution. He said the following, which is a comment on the relative importance of science as a means of understanding the world: "...science is a way of knowing, but it is not the only way. Knowledge also derives from other sources, such as common sense, artistic and religious experience, and philosophical reflection"[3].

We live in a world that is polarized with regard to almost any issue that can be discussed. This polarization is discussed in a societal context from not only Church and scientific perspectives, but also from the vantage point of cultural and political angles. Piglucci noted the definition of

3. F. Ayala, "Intelligent Design: The Original Version", *Theology and Science* 1, 1 (2003), pp. 9-32; https://doi.org/10.1080/14746700309643.

fundamentalism as "In its broadest sense…fundamentalism is a form of ideological intransigence, which is not limited to religion, but includes political or social positions as well…"[4]. Religious fundamentalism often expresses itself in a belief that some text or source that is to be understood literally, and this text can be not only Biblical but based on the canons, the words of the bishops, and others. Scientific literalism is often expressed in the idea that the empirical data are all that matter, negating experience, emotions and other issues. I often use this story to explain scientific literalism. I had a student who had set a water bath for 100°C. Water was steaming out, it was nearly boiling, but the thermometer read 25°C. He came to me and reported that the water bath was broken and that it could not reach the needed temperature. He accepted the validity of his empirical measurement, the thermometer instead of accepting what his senses told him, which was that the water was at 100°C but that the thermometer (and not the water bath) was broken.

Scientists should be free to pursue basic research in various different areas, but they cannot be expected to be arbiters of ethical decisions. Most scientists do not have a broad enough picture of work in the field to understand the ethics of different approaches. While scientists have the in-depth knowledge of a given technique or approach, they do not have the training or experience needed to examine the ethics of the work. The Church is needed here.

There are issues that create tension between science and religion. Some of these are easier issues to deal with such as ecological considerations, organ transplantation, end of life issues, and others. Nevertheless, there remain many difficult issues that will require much dialogue and consideration for resolution. How much of our behavior is nature vs nurture and as a consequence, is there a portion of human behavior that is not controllable? Certainly, some mental disorders appear to be out of the control of the individual, but what about other behaviors such as alcoholism, homosexuality and others? The medical world notes that homosexuality is a normal variant of human sexual behavior, but this is

4. M. Pigliucci, EMBO reports 6 (2005), pp. 1106-1109; https://doi.org/10.1038/sj.embor.7400589.

not necessarily the perspective expressed by the Church even if there is a loving attitude toward the homosexual parishioner[5].

Genetics and Behavior

The full understanding of human behavior is not yet available to science. The question of the role of nature vs nurture in human develop is age-old and still has not been resolved. Recent work has suggested a role for environment and even randomness in the selection of particular neuron pathways in the human. Comparisons of these pathways even in twins show distinct differences that suggest that they are not determined strictly by genetics[6]. Massive efforts that have led to the sequencing of thousands of human genomes in recent years, and these have revealed much about similarities and differences among individuals.

While many diseases have single genes that are involved as their cause –diseases such as sickle cell anemia, neurofibromatosis (type 1), cystic fibrosis and many more– it is more common that diseases have multigenic causes some of which include large numbers of possible genes. Over 108 genes have been implicated in schizophrenia, and this is not thought to be an exclusively genetic disease with possible roles for environment as being important[7]. Bipolar disorder has been shown also to be multi-genic with possible environmental modulatory factors[8]. Some other complex behaviors have also been reported to involve multi-genic factors along with

5. R. L. Kinney 3rd, "Homosexuality and scientific evidence: On suspect anecdotes, anti-quated data, and broad generalizations", *The Linacre Q* 83, 2 (2016), pp. 364-390; https://doi.org/10.1179/2050854915Y.0000000002.

6. J. Chen, J. Yu, J. Zhang, X. Li, M. McGue, "Investigating genetic and environmental contributions to adolescent externalizing behavior in a collectivistic culture: a multi-informant twin study", *Psychol Med*. 45, 9 (2015), pp. 1989-1997; https://doi.org/10.3390/cells 11192964.

7. A. F. Pardiñas, P. Holmans Consortium, D. A. Collier, D. Rujescu, G. Kirov, M. J. Owen, M.C. O'Donovan, J. T. R. Walters, "Common schizophrenia alleles are enriched in mutation-intolerant genes and in regions under strong background selection", *Nature Genetics* 50, 3 (2018), pp. 381-389; https://doi.org/10.1038/s41588-018-0059-2.

8. B. Kerner, "Genetics of bipolar disorder", *Appl Clin Genet*. 7 (2014), pp. 33-42; doi:10.21 47/TACG.S39297.

possible environmental modulation including novelty seeking personality trait, tobacco addiction, alcoholism, and homosexuality[9].

The genetics of alcoholism was studied first in fruit flies since they have an addiction to the alcohol found in rotting fruit. Scientists developed an "inebriator", an instrument that put fruit flies in at the top with increasing levels of alcohol being pumped in as the animals descended the instrument. The animals at the bottom were most resistant to the effects of alcohol and thus were considered to be "alcoholic flies"[10]. Scientists studied the genes involves and found several genes that appeared to be important in the disorder and have found mutations in that gene in some humans that are prone to alcoholism. This of course does not mean that if a person has that particular genetic makeup that they will go on to become alcoholic, it only predicts a tendency in some individuals[11]. Nevertheless, it may put sin in a slightly different perspective if one understands that some people have a genetic tendency that will have influence over them. Some characteristics appear to be fully genetic such as those single-gene traits mentioned above, others may be multi-genic, and most apparently include a genetic and an environmental component. For most traits expressed by humans, we do not know what combination of genetics and environmental factors are needed. There is a complexity here that defies an easy description.

Much of what we know about the genetics of behavior comes from twin studies. There are a variety of studies that have examined identical twins raised apart, identical, and fraternal twins, and twins compared with other siblings. Twin studies have suggested that a variety of complex traits have a genetic component including Alzheimer's disease, autism, reading

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9. Shanya Sivakumaran, F. Agakov, Evropi Theodoratou, Lina Zgaga, Teri Manolio, I. Rudan, P. McKeigue, J. Wilson, H. Campbell, "Abundant pleiotropy in human complex diseases and traits", *American journal of human genetics* 89, 5 (2011), pp. 607-618; doi: 10.1016/j.ajhg.2011.10.004.

10. N. S. Atkinson, "Tolerance in Drosophila", *Journal of Neurogenetics* 23, 3 (2009), pp. 293-302; doi:10.1080/01677060802572937.

11. E. J. Devor, C. R. Cloninger, "Genetics of alcoholism", *Annual Review of Genetics* 23 (1989), pp. 19-36. doi:10.1146/annurev.ge.23.120189.000315; H. J, Edeberg, J. Gelernter and A. Agrawal, "Genetics of Alcoholism." *Current Psychiatry Reports* 21 (2019), pp. 1-7; https://doi.org/10.1007/s11920-019-1008-1.

disability, verbal reasoning, scholastic achievement, and others[12]. Identical twins are considered to be identical genetic copies of each other, but often they express differences due to the ways in which genes are regulated; despite identical sequences, twins often have differences in "epigenetic" processes that allow for some genes to be turned off in some cells and others to be turned on in some cells. This is generally considered to be a random process and as such, identical twins will age differently due to these differences[13].These twin studies help to sort out some genetic effects, but by no means do they fully explain the full cause of human disease.

Gene editing

The first genetic modification studies were begun in 1920's with agricultural breeding of crops to improve yield and allow for survival in adverse environmental conditions. This developed into breeding of larger cows and pigs for greater meat production and a better resistance to infections. Genetic engineering technology of the late 1980's through to the early 2010's allowed for actual engineering that placed genes for (as an example) human insulin in cows so that cow's milk produced human insulin thus abnegating the need for the use of porcine insulin that elicited many dangerous immune responses in diabetic patients over the years[14].

The question then is not whether we should do genetic engineering (we obviously do it now) but whether we should do it in humans. In fact, we also do genetic engineering in humans today to prevent at least some single-gene diseases such as severe combined immune deficiency.

12. Sylia Wilson, C. C. Fan, J. Hewitt, "ABCD Behavior Genetics: Twin, Family, and Genomic Studies Using the Adolescent Brain Cognitive Development (ABCD) Study Dataset", *Behavior Genetics* 53, 3 (2023), pp. 155-158; https://doi.org/10.1007/s10519-023-10144-z.
13. Tr. O. Tollefsbol, *Epigenetics of Aging*, New York 2010, Springer; https://doi.org/10.1007/978-1-4419-0639-7.
14. Y. M. Khodarovich, I. L. Goldman, Elena R. Sadchikova *et al*., "Expression of Eukaryotic Recombinant Proteins and Deriving Them from the Milk of Transgenic Animals", *Applied Biochemistry and Microbiology* 49, 9 (2013), pp. 711-722; https://doi.org/10.1134/S0003683813090020.

These children would live as ‘bubble babies” in a sanitary and protected environment their entire lives without the gene replacement therapy that is delivered by a virus and corrects for their genetic abnormality. This old approach to genetic engineering is clumsy and allows for the introduction of numerous errors in the process of carrying out the genetic correction.

In recent years, we have seen the advent of CRISPR (Clustered Regularly Interspaced Short Palindromic Regions) which has allowed for the introduction of genetic corrections to the genome in the virtual absence of off-target effects. This new technology is relatively simple (can be carried out routinely in most molecular biology labs in the world), cost-effective, and efficient[15]. Genetic diseases for which the scientific community felt some fear about off-target (i.e., unwanted) effects could now be corrected with CRISPR. A variety of different diseases are currently being considered for gene editing using this approach, most recently Sickle Cell Anemia[16, 17].

Gene editing of the normal somatic cells of the body is not really novel and has been done over the years, as we note above. CRISPR, however, afford such precision that scientists are now considering editing of the eggs or sperm of an individual, a change that would lead to changes in all of the cells of the offspring and would remain in the human population so long as those individuals were capable and engaged in breeding. This type of change is different because it would be a genetic change in the human gene pool. The gene pool is a combination of all of the genes present in a reproducing population of a species. A large gene pool has extensive genomic diversity and is better able to withstand environment challenges. Inbreeding contributes to smaller gene pool making populations or species less able to adapt and survive when faced with environmental challenges. Modifications in the gene pool can be “forever” in that as long as the population is alive, and some members have the alterations then

15. G. Blattner, Alessia Cavazza, A. J. Thrasher, G. Turchiano, “Gene Editing and Genotoxicity: Targeting the Off-Targets”, *Frontiers in Genome Editing* 2 (2020), pp. 1-10; https://doi.org/10.3389/fgeed.2020.613252.

16. M. Adli, “The CRISPR tool kit for genome editing and beyond”, *Nature communications* 9, 1 (2018), pp. 1911-13; https://doi.org/10.1038/s41467-018-04252-2.

17. G. Chen, Tingyi Wei, H. Yang, G. Li, H. Li, “CRISPR-Based Therapeutic Gene Editing for Duchenne Muscular Dystrophy: Advances Challenges and Perspectives”, *Cells* 11, 19 (2022), pp. 2-26; https://doi.org/10.3390/cells11192964.

the genes will remain. If a cow develops a problematic gene that hurts the species, we can kill it. We cannot do that to a human.

How should humans consider whether to edit our germline (eggs and sperm) cells? While an Institutional Review Board examines the ethics of a particular procedure on a single individual or a population of patients, there is no group that considers the question of whether a procedure might injure humans as a species[18]. What is the ethics of this work and how do we consider it? We do not yet know the risks of this procedure, we know that it could affect humanity as long as we exist, and yet long-term consequences cannot yet be discerned.

To pursue genetic engineering approaches even further, we must consider which genes we would edit. Some single-gene diseases (cystic fibrosis) involve multiple cell types; genetic modification of the eggs or sperm could influence all of the cells of the body and thus possibly lead to a resolution of the disease in these patients (although this is not at all certain). Some other diseases, however, that are multi-genic (with or without an environmental component) will be very hard to treat. How do we know that modification of several genes may not have unwanted consequences? Most genes do not have a single function, and we do not yet know the multiple functions of each gene. Suppose in the course of correcting for a problem we cause another? The complexity of the human genome makes this a real possibility.

Finally, how do we decide which genes we should edit in and edit out of the genome? Should we consider editing the 108 genes involved in schizophrenia, many of which may certainly play a role in personality development? Should we edit in genes for good scholastic achievement or good vocational skills? How will these decisions be made, and in the process of editing these in, how will be affecting all of humanity in the coming centuries? Much consideration should be made before humanity starts to edit the human gene pool by editing eggs or sperm. These ethical decisions will not be easy when one must weigh the treatment of a serious

18. Gayle E. Woloschak, "Human Subjects and Human Rights", in: A. G. Roeber's (ed.), *Human V. Religious Rights?: German and U.S. Exchanges and Their Global Implications*, Vandenhoeck & Ruprecht, Göttingen 2020.

condition (Cystic Fibrosis, for example) against possible harm to humanity that is ill – defined at this point.

Conclusions

The science and theology dialogue is challenged by the need to have active engagement of both sides. The most important point to be made here is the need for active and vibrant dialogue between the sciences and theology. This dialogue must be made with active scientists who are engaged in the discipline with the goal being a directing of energy from theologians to engage in topics and areas that are of real relevance to science itself. While many involved in the dialogue with science and religion discuss questions of transhumanism, extraterrestrial life, and life extension technologies, these are not topics that threaten humanity at the moment. Many of them are centuries away (at best) and remain esoteric. There are reasons to discuss those topics, and they involve predominantly working to try to understand our humanity more clearly and in the context of an unusual situation. Nevertheless, if theology wants to engage science "where it is at", then the dialogue is critical. In addition, as was noted in this article, science is complex and nuanced, and a better understanding of those nuances can be facilitated by active engaged scientists.

There are wide-ranging questions that would benefit from active honest engagement of both sides: such topics as beginning and end of life issues, environmental concerns, human sexuality (homosexuality, transgenderism), genetic technologies and more. As humanity considers next steps in our development and as we exert less control over our environment and simultaneously greater control of our genetic makeup, we must consider what are rational approaches to the future development of humanity. Technology is not likely to cure the ills of our planet, and it is doubtful even if we can manipulate our genes whether such manipulation will actually improve the plight of humans. We are in an age when we must think about what it means to be "*anthropos*" (*ἄνθρωπος*) not only from the perspectives of our genetics, not only from our place on this planet, but also within the cosmos as children of God. Metropolitan Anthony (Bloom) noted in his final encyclical: "Our task is not merely to imitate what was done by the saints of previous eras, but somehow to appropriate at a much deeper level the way in which they engage their own historical environment, seeking to respond as they would have responded had they lived in our day"[19].

ΠΕΡΙΛΗΨΗ

Ἐπιστήμη καὶ Θεολογία: Προοπτικὲς γιὰ τὸ μέλλον

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Σὲ αὐτὴν τὴν ἐργασία ἐμβαθύνουμε στὴν περίπλοκη ἀλληλεπίδραση μεταξὺ θεολογίας καὶ σύγχρονης ἐπιστήμης, μὲ ἰδιαίτερη ἔμφαση στὶς ἠθικὲς διαστάσεις τῆς γενετικῆς μηχανικῆς καὶ τὶς ἐπιπτώσεις της στὴν ἀνθρώπινη συμπεριφορά. Ἀναγνωρίζοντας ὅτι τὸ πεδίο ἐφαρμογῆς εἶναι περιορισμένο λόγῳ τῆς τεράστιας ποικιλίας σχετικῶν θεμάτων, ὅπως οἱ περιβαλλοντικὲς ἀνησυχίες καὶ ἡ προέλευση τῆς ζωῆς, ὑπογραμμίζεται ἡ σημασία τῆς γεφύρωσης τοῦ χάσματος μεταξὺ ἐπιστήμης καὶ θεολογίας. Τονίζεται ἡ ἀναγκαιότητα ἐνθάρρυνσης τοῦ διαλόγου μεταξὺ αὐτῶν τῶν δύο πεδίων, ὅπως καταδεικνύεται ἀπὸ τὸ ἔργο τῆς ὁμάδας Ἐπιστήμης καὶ Θεολογίας τῆς IOTA (International Orthodox Theological Association). Ἀντιμετωπίζεται ἡ ἔνταση μεταξὺ τῆς ἐπιστημονικῆς ἔρευνας καὶ τῶν θρησκευτικῶν πεποιθήσεων, ἐπισημαίνοντας περιπτώσεις ὅπου τὸ δόγμα συγκρούστηκε μὲ ἐμπειρικὰ στοιχεῖα, ὅπως ἡ κρίση τοῦ COVID-19.

Ἡ βασικὴ συζήτηση ἐπικεντρώνεται γύρω ἀπὸ τὴ γενετικὴ μηχανικὴ καὶ τὸν ἀντίκτυπό της στὴν ἀνθρώπινη συμπεριφορά. Περιηγούμαστε στὴν περίπλοκη περιοχὴ τῆς φύσεως ἔναντι τῆς ἀνατροφῆς, ἐφιστώντας τὴν προσοχὴ στοὺς περίπλοκους γενετικοὺς καὶ περιβαλλοντικοὺς παρά-

19. A. Bloom, "*The Comforter*": *Our Support and Strength for Mission; The Gift of the Holy Spirit: The Church as a Continual Pentecost*, St. Stephen's Press, 2000, pp. 11-22.

γοντες ποὺ ἐπηρεάζουν τὰ ἀνθρώπινα χαρακτηριστικὰ καὶ καταστάσεις, ὅπως ἡ σχιζοφρένεια, ὁ ἀλκοολισμὸς καὶ ἡ ὁμοφυλοφιλία.

Στὴν ἐργασία διερευνᾶται περαιτέρω ἡ ἐμφάνιση τῆς ἐπεξεργασίας γονιδίων, μὲ ἔμφαση στὴν τεχνολογία CRISPR, καὶ τὰ ἠθικὰ διλήμματα ποὺ σχετίζονται μὲ τὴν τροποποίηση τῆς ἀνθρώπινης βλαστικῆς σειρᾶς. Ἐξετάζονται οἱ συνέπειες τῆς μόνιμης ἀλλαγῆς τῆς δεξαμενῆς γονιδίων τοῦ ἀνθρώπου καὶ ἐπισημαίνεται ἡ ἀπουσία ἑνὸς ὁλοκληρωμένου δεοντολογικοῦ πλαισίου γιὰ τέτοιες ἐνέργειες.

Ἐν τέλει στὴν ἐργασία ὑπογραμμίζεται ἡ σημασία τοῦ ἐνεργοῦ καὶ γνήσιου διαλόγου μεταξὺ τῆς ἐπιστημονικῆς καὶ θεολογικῆς κοινότητας, ὑποστηρίζοντας μία πιὸ λεπτὴ κατανόηση σύνθετων ἠθικῶν ζητημάτων. Ἡ διασταύρωση τῆς ἐπιστήμης καὶ τῆς θεολογίας παρουσιάζει μία μοναδικὴ εὐκαιρία νὰ ἀναλογισθοῦμε τὸ μέλλον τῆς ἀνθρωπότητας, τόσο ὅσον ἀφορᾶ τὴ γενετική μας σύνθεση ὅσο καὶ τὴ θέση μας στὸ σύμπαν, καθὼς πλοηγούμαστε στὶς προκλήσεις τοῦ σύγχρονου κόσμου. Ἡ ἀνάγκη γιὰ μία βαθύτερη, περισσότερο ὁλιστικὴ προσέγγιση στὰ ζητήματα ποὺ ἀντιμετωπίζει ἡ ἀνθρωπότητα καὶ ἡ ἱκανότητα ἀντιμετώπισής τους στὸ πλαίσιο τῆς τρέχουσας ἐποχῆς μας εἶναι πρωταρχικῆς σημασίας.