INTRODUCTION TO BIOETHICS

A Brief Summary

By the Bishop of Christopolis

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1. Progress in Biotechnology

The argument is often made that man is the most perfect creature and therefore represents the epitome of creation. Science, history, daily life, and religious traditions that establish man under God yet above the rest of creation, attests to this. The presence of man at the end of creation, his gradual creation rather than his immediate formation, as is the case with other organisms, and his installation as the administrator and steward of creation seem to grant him a unique and benign authority. Such authority, according to its use or abuse, has often been associated with humanity's happiness or misery[1].

This authority has become even more formidable because man now has at his disposal the power not merely to assist and serve nature, but to also intervene in the reproductive process, to discover unimaginable scientific therapies, diagnoses, preventive measures, and even experiment on his own being[2].

New medical techniques are developed daily. These are then presented to the public as necessary advancements whose purpose is to improve the quality of human life. Through these achievements, new horizons are open and new perspectives etched. At the same time, however, a completely new situation surfaces, posing risks but also new hopes for humanity's future. And this is because recent developments have led, for the very first time, to conditions wherein a single human is no longer the subject of one's experiment; now, the entire human race is affected by such work[3]. Perhaps what is occasionally said about the medical sciences is correct, that is, medical science has never been seen in such

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[1] Χριστοδούλου (Παρασκευαΐδου), Μητροπολίτου Δημητριάδος (μετέπειτα Ἀρχιεπισκόπου Ἀθηνῶν), «Εὐγονική-Ἠθικοί προβληματισμοί καί προοπτικές», Αὐτοέκδοση, Ἀθήνα 1997, σελ. 7.
[2] Γρινιεζάκη Μακαρίου Ἀρχιμανδρίτου, «Νομική ἐπάρκεια ἤ ἀνεπάρκεια στά σύγχρονα ἐπιτεύγματα τῆς ἰατρικῆς βιοτεχνολογίας», Ἐκδόσεις Τυποκρέτα, Ἡράκλειο 2000, σελ.18.
[3] Μιχαλοδημητράκη Μανώλη, «Κλωνοποίηση: Σκέψεις πάνω στήν Ἰατρική καί στό Δίκαιο», Ἀνέκδοτη ὁμιλία, 1999, σελ. 1.

beneficial light, but at the same time it has never been viewed with such suspicion and uncertainty, especially in light of what lies ahead.

We should not search for the causes of this new state of affairs beyond the condition of the human. One could say with certainty that modern man rushes to acquire knowledge. However, he is not searching for knowledge that benefits, but rather, knowledge that ensures power and authority. Moreover, the idea that the more knowledge one possess the greater authority he possesses has now become etched in the mindset of modern man.

The intellectual and informed person is he who possesses and understands; he is the person who possesses his own property within the boundless field of the universe. Thus, we see repeated in our own days that which occurred with the first humans who ate from the forbidden fruit of knowledge and suffered terrible consequences. It should be stated that their mistake was not that they tasted the fruit, since the fruit was indeed theirs, but that they rushed to eat the fruit. In other words, they prematurely ate from the tree, following their distorted desires[4].

Something similar seems to occur today, especially since scientific research often seeks to penetrate the mystery of life and to achieve that which is unfeasible in an uncontrolled and unsustainable pace.

Consider, for instance, that humanity never imagined that it would make such swift advancements in genetics. As a result of such development, we can now prescreen and treat conditions during the embryonic state of human development, and we are even able to assist human reproduction through artificial means.

No one could have ever imagined that we would be able to manufacture produce on demand or that we would be able to determine the quality and characteristics of livestock. Today, however, this is quite common and we have become accustomed to hearing about mutations and genetically modified organisms (GMO). Humanity has created an "Aryan race" of crops and livestock, emphasizing particular traits in order to increase levels of production.

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[4] Γρινιεζάκη Μακαρίου Ἀρχιμανδρίτου, «Ποιμένες καί Ποιμαινόμενοι - Τό Ἱερατικόν Ἦθος καί οἱ Ποιμαντικές προσδοκίες τῆς Ἐκκλησίας», Ἐκδόσεις Ἀκρίτας, 1η Ἔκδοση, Ἀθήνα 2006, σελ. 18.

Moreover, modern scientists could have never expected to have such understanding and control over the human genome, especially since Watson and Crick discovered the double helix structure of DNA in 1956. This discovery made it possible to study the most basic component in the development of biological organisms. As a result, scientists can now identify mutated or deficient genes and attempt to eliminate, correct, or enhance them. Researchers are now able to test for genetic diseases as they strive to develop treatments and enhancements to the human genome[5].

There are remarkable advancements in the field of surgery, a specialized component of medicine with incredible potential. Artificial dialysis represents one of the greatest discoveries in this field. While the actual device for dialysis was invented in 1940, its use, however, was quite difficult because there was no way to connect the patient to the machine. In 1961, Dr. Belding Scribner first conceived of a plastic tube, which was used to connect patient to machine. With this simple achievement in medicine, people who were once doomed to die were given the chance to an extended life[6].

Organ transplantation was a natural consequence following the discovery of hemodialysis. Researchers were able, after careful research, to understand and identify the mechanisms that joined organs and tissues. With this knowledge they were able to successfully transfer organs from one organism to another. The first attempt at transplanting an organ occurred in 1954 with the transplant of a kidney, while in 1969, physicians for the first time attempted to transplant a human heart. A century ago, the transplantation of a heart, kidney, liver, or any other vital organ from one organism to another was mere science fiction.

Finally, as we discuss the most recent achievements of genetics and biotechnology, it would be remiss if we do not mention the creation of Dolly. There was no way one could predict that science could be used to create an organism. It was even more difficult to imagine that multiple copies of a single organism could be produced through nuclear transfer, using the differentiated nucleus of an adult cell! Today this is

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[5] Kass R. Leon, «The New Biology: What Price Relieving Man's Estate?», Abridged from Science 1971, Volume 174, Copyright 1971, American Association for the Advancement of Science, pp. 779 ff.

[6] Childress James, «Who shall live when not all can live», Abridged from Soundings, Vol. 53, 1970, pg. 339.

feasible through cloning. Such methodologies were successfully used to clone mammals, paving the way for cloning to be used for reproductive and therapeutic purposes[7].

We realize, therefore, that those things considered impossible and unachievable just a few years ago have become feasible and we have actually begun achieving them. Development is rapidly progressing; efforts are admirable; the results of science are unfathomable yet celebrated. Nevertheless, the lingering question that keeps arising with each step forward is whether such advancements will be used for the benefit of man—allowing us to remain optimistic—or whether they will be utilized carelessly, absent virtue and discernment—causing ripples of unprecedented concern[8]. History teaches us that science must be an uninterrupted dialogue between logic and ethics. Otherwise, the Platonic aphorism, "every scientific endeavor devoid of virtue is diabolical and irrational"[9].

Parallel to the enthusiasm for human achievements, there are many questions that deserve responsible and informed responses. These questions could be grouped into three categories. The first category includes those issues related to the beginning of human life; the second category is related to those topics related to the duration of human life; and the third category highlights the end of biological life[10]. In the chapters that follow, we have posed a series of questions to help us reflect on human life and how developments in biotechnology may pose serious consequences to man's identity and his relationship to other persons and the rest of the world. Beyond this, our questions and general reflection

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[7] Wilmut T, Schnicke Ak, McWhit J, Kind Aj, Campbell K., «Viable offspring derived from fetal and adult mammalian cells», Nature 385, 1997, pp. 810-813.

[8] Χριστοδούλου (Παρασκευαΐδου), Μητροπολίτου Δημητριάδος, (μετέπειτα Ἀρχιεπισκόπου Ἀθηνῶν), «Κλωνοποίηση καί DNA στήν ὑπηρεσία τῆς ζωῆς ἤ τοῦ ὀλέθρου;», Αὐτοέκδοδη, Ἀθήνα 1995, σελ. 5.

[9] «πᾶσα ἐπιστήμη χωριζομένη ἀρετῆς πανουργία καί οὐ σοφία φαίνεται» Πλάτωνος, «Μενέξενος», 347α.

[10] Ὁ π. Ἰωάννης Μπρέκ σέ ἄρθρο του δημοσιευμένο στό περιοδικό «Σύναξη» ἀναφέρει: «Ἡ νέα αὐτή ἐπιστήμη πού χρονολογεῖται ἀπό τά τέλη τῆς δεκαετίας τοῦ 1960, ἐστιάζει τό ἐνδιαφέρον της σέ τρεῖς κυρίως περιοχές: 1) τήν ἀρχή τῆς ζωῆς (τεχνητή ἀναπαραγωγή, ἔκτρωση, ἐνδομήτρια χειρουργική κλπ.)· 2) τίς διάφορες μεθόδους γιά τή διατήρηση καί ὑποστήριξη τῆς ζωῆς (αἱμοκάθαρση, ἀναπνευστῆρες, φαρμακευτικές καί γονιδιακές θεραπεῖες, μεταμοσχεύσεις ζωτικῶν ὀργάνων κλπ)· καί 3) τό τέλος τῆς ζωῆς (ἀντιμετώπιση τοῦ πόνου σέ ἀσθενεῖς πού διανύουν τό τελικό στάδιο, διακοπή ἤ ἄρνηση χορήγησης τροφῆς καί ἐνυδάτωσης, εὐθανασία κλπ.)». π. Ἰωάννου Μπρέκ (John Breck), «Βιοηθικά διλήμματα καί Ὀρθοδοξία», Μετάφραση ἀπό τά Ἀγγλικά: Τάσος Ζαννῆς, Σύναξη, Τριμηνιαία Ἔκδοση Σπουδῆς στήν Ὀρθοδοξία, Τεῦχος 68, Ὀκτώβριος-Δεκέμβριος 1998, σελ. 5.

will certainly help to better understand the impetus that led to the creation of a new scientific field, which first appears in the 1970s.

2. Challenges Related to the Beginning of Life

Modern genetics has managed to answer three human dreams. First, to avoid having children when this is not desirable. Man has achieved this through advances in contraception, sterilization and abortion. Second, to have children when he desires them. This was achieved through assisted reproduction technologies, and in general, through treatments that address infertility. Third, having children exactly as he desires. And this has been achieved through preimplantation genetic diagnosis (PGD), which gives us the ability to select for certain traits. This becomes available soon after the decryption of human DNA, and after developments in abortion techniques and in eugenics[11].

Accordingly, a first glance of these issues inevitably leads us to ask whether it is acceptable to produce children according to predetermined human expectations, and whether the decryption of DNA will help humanity or if it could ultimately lead us to seek the same horrific eugenic goals as in World War II. One is now left pondering whether there are such things as "positive attributes" to humanity. And, of course, we take into consideration that "one of the greatest contributions of James Watson, one of the two Nobel laureates who discovered the double helix of DNA, is that the knowledge gained by the study of the genome would have broader medical and social consequences. This led to the creation of the ELSI program in 1989"[12].

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[11] Σταυρόπουλου Ἀλεξάνδρου, «Ἠθική συμβουλευτική προσέγγιση στίς σύγχρονες τεχνικές ἀναπαραγωγῆς τοῦ ἀνθρώπου», Ἀνάτυπο ἀπό τόν χαριστήριο τόμο πρός τιμήν τοῦ Ἀρχιεπισκόπου Ἀλβανίας Ἀναστασίου (Γιαννουλάτου), Ἀθήνα 1997, σελ. 330.

[12] Κόϊου Νικολάου, «Ἠθική θεώρηση τῶν τεχνικῶν παρεμβάσεων στό ἀνθρώπινο γονιδίωμα, Ἐκδόσεις Κέντρου Βιοϊατρικῆς Ἠθικῆς καί Δεοντολογίας», Ἀθήνα 2003, σελ.104. Σημειώνει ἐπεξηγηματικά ὁ Ν. Κόϊος στό ἴδιο σημεῖο ὅτι τά ἀρχικά τοῦ ELSI προέρχονται ἀπό τό Ethical, Legal and Social Implication of the HGP ποῦ σημαίνουν Ἠθικές, Νομικές καί Κοινωνικές Ἐπιπτώσεις τῆς Χαρτογράφησης τοῦ Ἀνθρωπίνου Γονιδιώματος. Πρέπει νά σημειωθεῖ ὅτι μερικά ἀπό τά θέματα πού ἀπασχολοῦν τό ἐν λόγω πρόγραμμα εἶναι: ἡ δίκαιη χρήση τῆς γενετικῆς πληροφορίας, οἱ ἐπιδράσεις καί ὁ ἀντίκτυπος τοῦ γενετικοῦ ἐλέγχου, οἱ ἐπιπτώσεις στίς προσωπικές ἀναπαραγωγικές ἀποφάσεις, ἡ κατάχρηση τῆς γενετικῆς πληροφορίας, θέματα ἐμπορευματοποίησης καί πνευματικῆς ἰδιοκτησίας τῶν ἀποτελεσμάτων τῶν ἐρευνῶν στό γονιδίωμα κ.ἄ.

The fact is that we can now use raw material and human intelligence to design ourselves. The result of such design, because it falls outside of the bounds of natural selection and is not an expression of love between two people, relies on laboratory procedures and represents both the arrogance of human reason and also the desperation and despair of modern man. This exercise is both arrogant, because we seek to create a person according to our own preferences; it is desperate, because we constantly fail to overcome death and the fear that death stirs in us. We create man, therefore, according to our passions and desires, and this causes in us real anguish and fear.

Our concerns are similarly intensified around prenatal diagnosis. Prenatal screening and diagnosis attempt to control, and possibly correct, certain defective genes. The goal is to prevent them from being transferred to future generations. Moreover, by studying and predicting trends in diseases and genetic predispositions, we can more easily identify possible treatments. However, there are questions about how such personal information will be used. For example, many health insurance companies require genetic information before insuring people. What happens, then, if someone has a predisposition to cancer? Will insurance companies and governments refuse to insure him or assist him in his retirement? Will private and public sectors refuse to care for him out of fear of rising premiums? We realize that there is no single rule that defines how this information will be used, how it will be shared, and who will manage it. Naturally, there are also fears about how such information may lead to violations in labor rights and increase bias against people who are viewed as “unhealthy”.

Prenatal screening is also utilized to diagnose a disease, syndrome or chromosomal abnormality in the fetus. Many times, when testing yields undesirable results, people will end the pregnancy with few ethical issues to consider. What will occur when proposing abortion becomes the prevailing course of action under such circumstances?

Aside from the fact that there is still a need for a broader understanding of illness, trials, and tribulations, which are shunned by a humanity that prefers personal pleasure, we ought to also study the status of the fetus. There is a need to consider the fetus under the same light as we do all persons rather than as an inferior object. To help us focus on this issue, consider the following plausible scenario that highlights the importance and

value of life during all stages of development: a fetus is diagnosed with Huntington's disease, a condition that manifests itself after the age of forty. To understand the opportunities, prospects and potential of a person who may live to his fortieth year, consider Mozart, who, at forty years of age, had already composed much of his music, and Saint Basil the Great, who had largely completed all of his writings by that age. Thus, a disease presently expressed or that is expected in the future should not be used as a reason to terminate life. No matter what the disease, and no matter the stage in life a disease is first experienced, life must always have priority.

What we observe in the case of abortion is that great emphasis is placed on human rights, that is, on the effort to connect a conscious and informed decision to childbearing and parenthood. If this cannot be maintained it appears that human rights are violated. Unilateral support of reproductive rights often conflicts and even eliminates the rights of children, which in some cases represent little more than another consumer good to be ordered and purchased. One of the tragic mistakes that often occur is that we separate the needs and rights of unborn children from the freedom and the right that one has to procreate. Balance requires that we secure the rights and respect both, the parents and the unborn child.

Moreover, we encounter a great dilemma surrounding the life of the embryo, which can be destroyed without any difficulty when someone decides they wish to terminate a pregnancy. Human rights, in this case, are applicable in one direction only. Notwithstanding this dilemma, the issue becomes more complex when abortion is considered a way to end a pregnancy that resulted from rape or incest, or when a pregnancy threatens the mother's psychological well-being or jeopardizes her life. How should we respond to these circumstances, and what decisions are required in order to defend life and the personal value of the fetus?

Related to the issue of abortion, especially as it relates to the status and value of the embryo, is the issue of artificial reproduction technologies (ART). ART allows us to fertilize ova in vitro, transferring embryos into a woman's body. This method often produces multiple embryos, often for practical reasons. For instance, multiple eggs are fertilized at once because it is difficult to procure oocytes and because fertilizing multiple eggs at once will provide the embryos needed for multiple ART cycles, if required. This

leaves us facing a serious question: can we proceed with artificial reproduction in light of the production of excess embryos? What will become of the extra embryos once pregnancy is achieved? How will these embryos be used and handled? Should they be stored, for how long, and who decides their ultimate fate? Of course, legislation in some countries endeavors to resolve this problem, but, at best, laws seem to only solve the practical aspects of the issue and not the moral quandary.

Similar problems arise with the issues of surrogacy; when donor gametes are used; when a woman who utilizes IVF and other ARTs is of an advanced age; and also, when cryopreserved sperm of deceased men is used. "On a purely scientific level, the price one pays [for utilizing ART] seems quite high, given that [scientists] have observed the formation of chimeras and chromosomal mosaicism, that is, when an embryo fuses to another in the early stages of development following the implantation of multiple embryos. The resulting embryo bears cells (tissue) from different cell lines"[13].

Cloning seems to represent an answer to the problem of excess embryos since nuclear transfer will trigger only a single ovum, which eventually will be implanted. Although cloning is still in its infancy, we can with confidence that its use would potentially have irreparable consequences to human reproduction. And this is the case because cloning, when used as a method of reproduction, eliminates genetic diversity. Cloning does not ensure the development of the species through mutations, which occur naturally through sexual reproduction. In the final analysis, cloned organisms transfer the same genetic information from generation to generation, potentially leading to an epidemiological catastrophe. Essentially, reproductive cloning constitutes biological regression, condemning humanity to a genetic future based solely on its past[14].

Of course, cloning does not only raise concerns because of its biological consequences, but it also raises a number of ethical issues. For example, will cloning also undermine the uniqueness of the human person given that it can theoretically produce an unlimited number of genetically identical organisms? What will theology have to say

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[13] Ἀλλαχιώτη Σταμάτη, «Βιοηθική, Ἀναφορά στούς γενετικούς καί τεχνολογικούς νεωτερισμούς», Ἐκδόσεις Ἑλληνικά Γράμματα, 1η Ἔκδοση, Ἀθήνα 2004, σελ. 81.

[14] Γρινιεζάκη Μακαρίου, Ἀρχιμανδρίτου τοῦ Οἰκουμενικοῦ Θρόνου, «Κλωνοποίηση, Ἠθικοκοινωνικές καί Θεολογικές Συνιστῶσες, Ἐκδόσεις Γρηγόρη, Σειρά: «Παντοδαπά τῆς Βιοηθικῆς», Τόμος 2ος, Ἀθήνα 2014, σελ. 236.

about cloning since it allows for the production of a person without conception—that is without the fertilization of an egg—which, according to theology, is the moment when ensoulment occurs? Accordingly, will a cloned human being have a soul? Moreover, what can we say about therapeutic cloning, through which we will theoretically be able to produce copies of ourselves to serve as warehouses of organs to be used for transplantation? Lastly, how can we accept the use of embryonic stem cell research? On the one hand, this may lead to new medical treatments, on the other hand, however, it inevitably destroys the embryos used for research?

The aforementioned outlines the dilemmas related to the beginning of human life. Our concern continues, however, with those ethical issues connected to the duration of human life, which are equally as important and critical.

3. Challenges related to the duration of human life

One of the most important ethical concerns in medicine connected to the duration of human life is organ transplantation. Although organ transplantation helps improve the quality of life and also extend life, it nevertheless continues to generate a number of concerns in the minds of people, especially with regard to the means by which organs are procured. As we will see in more detail in the chapter on transplantations, there is serious concern over misconduct given the fact that the shortage of organs has influenced the way we approach a number of other issues, including anencephalic infants and the process by which we hasten death in order to procure organs.

We could briefly say that, "the two main points of the ethical reflection on transplantations is, on the one hand, the possibility of abusing the free will of a potential donor, and on the other, the arbitrary determination of death. The first issue led to the notion of presumed consent and the second led to the novel expression, 'brain death.' The main problem today on this subject focuses on how 'consensual' presumed consent is and how 'dead' is brain death"[15].

[15] Χατζηνικολάου Νικολάου Ἀρχιμανδρίτου (νῦν Μητροπολίτου Μεσογαίας καί Λαυρεωτικῆς), «Πνευματική ἠθική καί παθολογία τῶν μεταμοσχεύσεων». Στό βιβλίο: «Ἐκκλησία καί Μεταμοσχεύσεις», τῆς Ἱερᾶς Συνόδου τῆς Ἐκκλησίας τῆς Ἑλλάδος, τό ὁποῖο ἐπιμελήθηκε ἡ

Beyond these main concerns, there are other issues: 1) What are the criteria for selecting potential organ recipients? 2) The trade of organs on the black market, especially in developing countries. 3) The timing of organ procurement 4) Are organs donated or are they procured? 5) And finally, while organ transplantation may extend life, it does little to solve the problem of death.

We can also include within the category of the duration of human life that which is related to the family and the relationships between spouses, parents and their children, and the family's relationship with society as a whole. The news media reminds us daily of the serious dilemmas that families face. For instance, domestic violence is an issue that is frequently reported. It significantly destabilizes the sacred institution of the family and trivializes human dignity.

When speaking of domestic violence we often focus our attention on the husband's abuse of his wife (battered woman) or parental abuse of minors (child abuse). We must, however, underline that there are four main forms of domestic violence according to international literature: 1) Violence of children toward their parents 2) Violence of parents toward their children 3) Violence between spouses 4) Violence between siblings.

How we will help eliminate domestic violence and sexual abuse is the main issue. Most tend to condemn and marginalize the perpetrators and wish to dedicate more attention to the victims. However, responding in this way does little to address the internal condition of the perpetrator because, if left untreated, he will continue searching for other ways to satisfy his passion. Perhaps, then, what we ought to do is ensure that we address the condition of the abuser while caring for the person who has been abused. It may be helpful to also consider that perpetrators of such abuse may have, at one point or another, been also the victims of abuse. Should love be directed toward the abuser and the abused, or is this merely ideological and utopian theory?

Similar to this, and at times even related to the issue of domestic violence, is the issue of addiction, since all addictions disrupt balanced coexistence within a family and society. It is clear that along with the addicted person there are also those who are co-

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Εἰδική Συνοδική Ἐπιτροπή ἐπί τῆς Βιοηθικῆς, Ἔκδοση Κλάδου Ἐπικοινωνίας καί Μορφωτικῆς Ὑπηρεσίας τῆς Ἐκκλησίας τῆς Ἑλλάδος, Ἀθήνα 2001, σελ. 288.

dependents, i.e. the husband or the wife, children, other relatives, and friends. How are we to address our family members and friends who are addicted to drugs and alcohol? For instance, how should a wife and children deal with their alcoholic husband and father, and how should parents protect their child who is addicted to drugs? Such being the case, we must also address the condition of those individuals who, by virtue of their relationship to the addict and the perpetrator, must endure an array of irrational demands of the abuser and addict.

Addiction is a great chapter in our society. Many, irrespective of their religious convictions, their national origin, their social background and educational level, face an uncontrollable passion that resembles idolatry. Essentially, the word "addiction" describes an unhealthy relationship with substances or behaviors that alter one's thought, making it impossible for the addicted person to control his life. Of course, every form of addiction has a particular consequence[16].

Alcohol and drug addiction seem to be very prevalent and lead to well-known consequences, including major withdrawal symptoms, isolation and antisocial behavior, aggression and violence, and the overall loss of physical and mental health. Undoubtedly, alcohol and drug addiction resembles a soluble compound that literally destroys everything: family, relationships, careers, social living, health, and economic vitality. Moreover, it is also known that in order to feed one's addiction, he or she may become involved in selling drugs, prostitution, theft, or other criminal acts.

Today, however, we also observe other expressions of addiction that are just as dangerous, such as obesity (food addiction); uncontrollable consumerism (the addiction to shopping, usually through the procuring of debt); religious fanaticism (addiction to religious contexts, persons, situations, superstition, sorcery, magic, etc.); and gambling. While not much is said about them, there are also addictions related to work and to sex, which seem to have risen to epidemic levels. In the former case, people who multitask suddenly find themselves prisoners of endless desires, perfectionism, and an insatiable thirst for the acquisition time and money. The workaholic is never on time, is always rushing desperately, which means that he is also likely to neglect his family and his social

[16] π. Ἰωάννης καί Λύν Μπρέκ, «Ἀπό τή γέννηση ὡς τόν θάνατο. Ὀρθόδοξες προσεγγίσεις σέ βιοηθικά διλήμματα», ὅπ. π., σελ. 174.

circle of friends, and in many cases he suffers from sleep disorders and depression due to high levels of anxiety.

Unfortunately, this is exacerbated by today's way of life, primarily in capitalist societies where competition and the expansion of wealth are embraced as ideals, often at the expense of justice and equity. Moreover, such systems tend to favor the rich, giving them greater opportunities to expand their wealth while exhausting the poor and weak. Such a society, then, pressures man to become more efficient and work incessantly to remain productive, thereby increasing his wealth. Eventually, however, man is overwhelmed and becomes part of the dysfunctional condition.

In the latter case, things are more serious, since sexual addiction continues to claim ever-more victims. Particularly with the ease with which we access the Internet—which has literally invaded our homes, our private spaces, our bedrooms, our schools, our workplace, and even our pockets via mobile technology, sexually addicted people become trapped in a world of sexual fantasy and debauchery. This will eventually lead to an isolated lifestyle, where the person ignores other obligations. Furthermore, they often experience difficulty functioning sexually under all other circumstances and have a hard time conducting any work if they don't first have their "dose" of sexual stimulation.

Excessive sexual gratification can cause one to assume a "sexual" identity, which can only be fulfilled by embracing and realizing their sexual desires by wearing sexual clothing; consuming "sexual" food and drink; listening to sexual music; watching sexual movies; and utilizing products and medications to enhance their sex drive.

Addiction creates serious ethical dilemmas that go well beyond the boundaries of biology and medical intervention. In fact, we could say that medicine alone—without the assistance of the Church or the presence of some spiritual or psychological intervention—has a difficult time treating a person with any addiction.

Furthermore, human experimentation is quite an important topic related to the duration of human life. We recognize that biotechnology can only continue to develop through testing and experimentation. Who, however, ought to undergo such experiments?

Well known are the heinous crimes conducted in the last century, not only during the Second World War, but also with each subsequent violation of the Nuremberg Code. For instance, we know that the dysentery vaccine was tested on children in orphanages;

mentally ill patients and prisoners were infected with the malaria virus; and similar experiments were conducted while researching yellow fever, measles, syphilis and other diseases. "More recently, it was discovered that during the Cold War, hospitalized patients were injected with plutonium and uranium; institutionalized children were injected with radioactive material; and experiments that exposed the sexual organs of prisoners to radiation were also conducted. Moreover, during this time, the CIA distributed hallucinogenic drugs (LSD) to patients without their knowledge or consent"[17].

We are thus left wondering whether it is possible for medical science to progress without human experimentation. Moreover, we are forced to think about the immense economic interests associated with pharmaceuticals. Is it possible that certain treatments have now become solely the privilege of the wealthy? Is it possible for us to accept research on human embryos? Can Christian anthropology acknowledge the human being as merely biological material? On the other hand, what pastoral solutions can be offered? Prohibitions, of course, often constitute easy solutions. However, is it appropriate for Orthodoxy to denounce both research and researchers by issuing general statements of condemnation? Can we place barriers on research given that it is impossible for the Church to limit such work?

People suffering from HIV/AIDS also fall into the category of ethics and the duration of life. Granted, in advanced countries, patients with AIDS have been able to prolong their lives through advances in medication. We should not, however, forget the global AIDS epidemic, especially in Sub-Saharan Africa and Southeast Asia. It is known that some African natives have sought to become infected with the virus because pharmaceutical companies that wish to study their behavior consider them useful. These people, once infected, are viewed as "test subjects." And while up to this point they may have had nothing to eat or drink, and no place to sleep, they suddenly find themselves with a bed and clean linens. They go on to enjoy the care provided by researchers and healthcare workers. They are housed in a healthcare facility rather than dwell in a straw hut, and, most importantly, they are given breakfast, lunch and dinner! Therefore, they much rather die from AIDS than from hunger, thirst and other hardships.

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[17] Ἀλαχιώτη Σταμάτη, «Βιοηθική, Ἀναφορά στούς γενετικούς καί τεχνολογικούς νεωτερισμούς», ὅπ. π., σελ. 64.

The issues related to AIDS should strike further concern in us. Very often several Christian communities, including, in some cases, the Orthodox Church, hold onto the idea that AIDS is the result primarily of homosexual activities. As such, these communities consider AIDS a just punishment imposed by God to curb sexual perversion.

Clearly, this is not the case, primarily for two reasons: first, because God does not punish people for their faults, nor does He punish by casting an epidemic that affects all people indiscriminately. God, at least as understood by Orthodox theology, is the source of love. God forgives and cares for mankind. Moreover, we have no indication and no testimony that in the eyes of God homosexuality is more reprehensible than other sinful acts, such as murder, injustice, theft, child abuse, etc. The second reason why we do not accept AIDS as God's punishment against homosexuality is that most cases of transmission worldwide occur through heterosexual activity, through the transfusion of infected blood, and between mother and child during and immediately after pregnancy[18].

There continue to be unresolved issues surrounding HIV/AIDS. For instance, we must consider how we ought to treat infected people, especially during what could be considered their lowest moment in life. How do we convince their family members, society, schools and universities to accept them, and how do we help ensure equal opportunities for them? And finally, how do we help ease their hearts and minds when even as Christian religious groups continue to condemn them to the inner fires of hell. And all this occurs during a time when they are in greater need of support, love and a renewed relationship with God?

Yet one more issue that should greatly trouble us is man's relationship to the natural environment. Orthodoxy maintains that people must be good stewards of the God's creation. This can only be realized when we finally understand that nature is not our personal property and we accept that we do not have the right to abuse it as we seek to fulfill our personal aspirations. Unfortunately, there is a prevailing theory of man as dominator, that is, as the owner and proprietor of the world. Perhaps this abusive authoritarian perspective over nature is what led to unexpected and unfavorable

[18] π. Ἰωάννης καί Λύν Μπρέκ, «Ἀπό τή γέννηση ὡς τόν θάνατο. Ὀρθόδοξες προσεγγίσεις σέ βιοηθικά διλήμματα», ὅπ. π., σελ. 39.

consequences. Given this reality, the questions are endless. For instance, we say that it is good to emphasize man's stewardship of the natural world rather than his reign over it. Practically speaking, however, what does Christian anthropology have to say about abnormal weather phenomena, or about the contamination of the environment, human experimentation on animals and plants, or about humanity's creation and use of bioweapons, and our role in the extinction of species and the emergence of new diseases?

The aforementioned considerations help us paint a picture of the ethical issues that arise during the course of human life. We have not referred to every issue; there are several others, including family planning, contraception, stress and anxiety, racism, violence at schools, and the economic and financial crises. Reference to only a select numbers of issues has been made because our goal is to raise awareness around some of the more central issues. These questions, of course, are not limited to the duration of life, but also extend into the sacred hour of death, as will be reviewed in the next section.

4. Challenges related to the end of human life

There is much talk today about the issue of brain death, which is directly related to the procurement of organs[19]. Controversy arises because of the ever-changing criteria for determining brain death, which clearly implies that the standards for determining death at one point in time may later prove inadequate. For this reason, the introduction of this term led to several adverse responses within the medical and scientific communities[20].

Some of the main arguments against the notion of brain death include: 1) The close relationship between brain death and the procurement of organs. We must note at this point that initially the purpose of a neurological determining death was not to advance organ transplantation, but rather to the assist members working in the ICU overcome the insurmountable impasse created by the use of artificial ventilation[21]. 2) The

[19] Χριστοδουλίδη Κυπριανοῦ, «Μεταμοσχεύσεις: Λύση ἤ Πρόβλημα;», Ἐκδόσεις Ὑπακοή, Ἀθήνα 1995, σελ. 25.
[20] Beecher, H.K., Dorr, H.I., «The new definition of death, Some opposing views», International Journal of Clinical Pharmacology, Vol. 5(2), 1971, pp. 120-124.
[21] Wijdicks, E.F.M., Dirigner M.N., «Brain death in historical perspective». In the Book: Wijdicks Eelco, «Brain Death», Lippincott Williams and Wilkins, 2001, pg. 13.

confusion between brain death, comatose and the vegetative state among the general public, which increases people's insecurities and fears about the diagnosis of brain death. 3) The belief that brain-dead patients may retain some higher brain functions in light of some peripheral spinal reflexes. For some people, this is a clear indicator that death has not occurred. 4) The fear that our strong desire to prolong life and our utilitarian vision of medicine could lead to frivolous decisions and erroneous results[22].

Therefore, the question of brain death, even when viewed alone, leads us to conclude that the dawn of human life passes through unprecedented conflicting concerns. Does brain death actually constitute death or is it part of the process of dying? And, if represents a process rather than actual death, then how can we procure organs or how will we disconnect a patient from mechanical ventilation? Some doctors have no problem disconnecting patients from respirators to make more beds available in the ICU; however, others have a serious problem of conscience, especially those who feel coerced by legal mandates. What happens when physicians feel compelled while everyone else speaks about human rights and otherwise try to defend freedom?

The process of determining brain death alone essentially reveals how convoluted the issue really is, given that "death, once a condition that was determinable through observation by even the average person, has now become a condition determined only by expert personnel, confirmed with high-tech devices, defined by state laws, and which leads to a number of areas of contention, given that its acceptance remains largely a subjective matter"[23].

Euthanasia has also been the cause of several ethical debates, not only of our times but also in the past. Over the course of time, there have been countless interpretations and conclusions expressed by sociologists, lawyers, religious leaders, theologians, philosophers, politicians and doctors, all of which have yielded diverse approaches to the issue.

Since antiquity, the word "euthanasia" has signified the good, ideal, and glorious death. Etymologically, it is derived from the verb, εὐθανατέω-ῶ, which means to die a

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[22] Νικολάου (Χατζηνικολάου), Μητροπολίτου Μεσογαίας καί Λαυρεωτικής, «Ἀλληλων Μέλη. Οἱ Μεταμοσχεύσεις στό φῶς τῆς Ὀρθόδοξης Θεολογίας καί Ζωῆς», Ἐκδόσεις Κέντρου Βιοϊατρικῆς Ἠθικῆς καί Δεοντολογίας, 1η Ἔκδοση, Ἀθήνα 2005, σελ. 247.

[23] Νικολάου (Χατζηνικολάου), Μητροπολίτου Μεσογαίας καί Λαυρεωτικής, «Ἀλληλων Μέλη», ὅπ. π., σελ. 246.

good—praiseworthy—death. Today, however, euthanasia refers primarily to a good, painless, or easy death, rather than a death that follows a dignified life and glorious end, as was the case with the ancient Greeks.

Ethically, euthanasia is reprehensible, irrespective of whether it is a deliberate act to end life (active euthanasia) or the interruption of critical life-sustaining provisions such as food and hydration (passive euthanasia). In the former case we view this as a form of suicide, while the second instance meets all the elements of murder.

Of course, the ultimate end of euthanasia doesn't seem to be suicide or murder, but rather, the desire to avoid a frightening death, or rather, to be more precise, the desire to avoid a bad and painful death. Moreover, we need to give serious consideration on what exactly is meant by "bad death." Absent an eschatological framework, death becomes the end of our existence and our presence in the world. Under such circumstances, we would never praise the martyric death of the Saints. When we believe in life after death, a "bad death" is never associated with a painful transition "from death unto life"[24]. Consequently, we could agree with those who believe that the meaning of death is only discovered beyond death.

How should we address those individuals who desire to end their lives? Have we considered that the desire to die might be premature and stem from depression and feelings of despair? Additionally, what ought we do when relatives seek such measures, invoking feelings of pity, which might also suggest one's desire to eliminate his responsibilities toward their dying family member?

It is most tragic when euthanasia is proposed for minors. Already, in Belgium, steps are being taken to legalize euthanasia as an option for minors. There were of course some opposition, but the Justice Committee rejected the petition of some members of parliament and requested that the issue be further examined[25]. Under the new bill, a minor who is conscious could ask to be euthanized, provided four conditions are met: 1) The patient must be in the final stage of a terminal illness; 2) The patient must suffer persistent and unbearable physical pain; 3) Parental consent must be obtained; and 4) The

[24] Ἰωάν. 5, 24.
[25] http://gr.euronews.com/2014/01/15/belgium-child-euthanasia-bill-passes-latest-hurdle/

patient must have consulted with an expert team of doctors. A psychologist finally decides whether the minor is capable of freely making such a life-ending decision[26].

It is expected that this process, beyond the moral dilemmas, will lead to several practical problems. Critics of the law argue that it impossible for a child, even if there is parental consent and the support of a psychologist, to make such a choice. How can we be sure that the decision is not ultimately that of the parents alone? How can we be sure that the parents, because of their frustration, are not guiding their child to this end? And, why should the death of a minor be hastened even more? After all, given that one of the basic requirements of the proposed law is for the minor to be at the end stage of a terminal illness, he will likely die very soon anyway.

At this point we could discuss the condition of patients in the final stages of their lives, an issue that deserves our serious attention. It is wrong for us to think that the end of life is only a matter that concerns those close to death. This is not only the issue of the dying patient, but also of doctors, nurses and family members. Of course, following death, we must consider how to manage the grieving process.

Consequently, we are forced to think about when it is morally acceptable to save someone and when to allow a person to die following prolonged treatment or artificial life-sustaining measures. How should we address patients in the final stage of life? Should we accept extreme measures that relieve pain on the one hand yet hasten death?

Advances in technology lead to a number of challenges that continue to remain on the theoretical plane. But, in the near future we will certainly be forced to make decisions when confronted with rapid developments in biotechnology. A series of such future challenges are highlighted in the following section.

5. Other Current and Forthcoming Ethical Dilemmas

The topics discussed thus far represent examples of problems we currently face during the three stages of life, that is, birth, the duration and death. There are, of course, several other significant issues that could be explored, such as: selective family planning methods and the theory of the pre-embryo. What shall we say about those who choose

[26] http://www.ethnos.gr/article.asp?catid=22769&subid=2&pubid=63963207

hunger strikes as their final effort to improve their quality of life? What could be our position on the use of surgical methods to enhance one's physical appearance or to change one's sex? How do we address the great epidemic of depression, which seems to be gaining a firmer grasp on society? Is it morally acceptable to change the genetic lines of plants and animals? Does everyone's life have the same value? Do animals have rights? Is there such a thing as "just war"? What are the root causes of the environmental crisis?

Other issues that need addressing include cremation and burial of those who have committed suicide or have died through the process of physician-assisted suicide. It is understood that in the case of medically assisted suicide, the doctor is often present and is a critical component in maintaining the painless and peaceful death for the patient. How should we, therefore, address directed suicide, which is completely different from assisted suicide? How should we view the individual who provides instructions and directs patients—often minors—on how to end their lives? Here we are talking about the pure manipulation of patients by individuals who often hide their identity, knowingly committing a highly dangerous, illegal, and certainly unethical act.

There are a series of reports of post-mortem experiences and visions, often referring to experiences of the soul's separation from the body and also to accounts of movement from darkness into light. How can the Church address these issues with those who have utterly rejected the metaphysical?

A number of our dilemmas today are not necessarily related to man's intervention or misguided ways. Some of these arise abruptly, with little early detection of their source and origin. Unfortunately, we will face an ever-growing number of such issues in the near future. The greatest challenge perhaps will come with the advent of new diseases, many of which may lead to global epidemics. The Ebola outbreak and epidemic in Western Africa is an example of such unexpected crisis[27]. How will we handle disease that is not controlled or created by us? And what will we say to those who question the source of the disease if it is indeed not introduced in the world by man's direct intervention? Is God responsible? Can God be the source of evil?

[27] http://www.iatronet.gr/iatriko-lexiko/aimorragikos-pyretos-apo-ton-io-empola.html

The aforementioned questions and dilemmas reveal man's anguish in addressing and understanding the numerous issues that he confronts on a daily basis. However, there are many who believe that man has already turned the page and has begun moving within a new biomedical orbit, which will inevitably lead to unprecedented challenges.

It is believed that man, as *homo sapien*, is already reaching the end of his era, preparing to transition into *homo scientificus*[28]. He will become the creature of the new era and will be supported and maintained through technology. This prospect is challenged by our logic; we try to show that it is impossible for human biological functions to depend solely—or even largely—upon technology. We go on and think that even if this were possible, we would surely have a series of safety protocols in place, but one can never tell what the future will bring. Considering, however, recent scientific applications of artificial cardiac pacemakers and the advancements made in microchip technology implanted in the brain, we realize that there are already people whose vital biological functions have been improved and maintained through technology.

On a daily basis, researchers continue to make incredible achievements in this area. Fr. John Breck reminds us that, "Recent experiments on mice and chimps have demonstrated that the brain is able to interact with electronic instruments, making it possible for the activity of animal to be accurately determined with the implantation of electrodes in those regions of the brain responsible for such behavior. Neural implants have already made it possible for mute patients to communicate via computers and the deaf to finally hear. Similar links between the brain and electronics will make it possible for the paralyzed to gain use of their limbs"[29].

Certainly in this case, everything sounds acceptable, and therefore everyone may commend the use of technology from the outset. However, we must also note that life's dependency on technology provokes terrible uncertainty. Technology is an artificial and malleable power; it is not natural to the world. This means that the same technology used to help people see and hear, to move and to think, can be used to manipulate and control one's hearing and sight, movement and thought. Every aspect of human life could

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[28] π. Ἰωάννης Μπρέκ, «Ἀπό τή γέννηση ὡς τόν θάνατο. Ὀρθόδοξες προσεγγίσεις σέ βιοηθικά διλήμματα», ὅπ. π., σελ. 36.
[29] π. Ἰωάννης καί Λύν Μπρέκ, «Ἀπό τή γέννηση ὡς τόν θάνατο. Ὀρθόδοξες προσεγγίσεις σέ βιοηθικά διλήμματα», ὅπ. π., σελ. 37.

theoretically be controlled and recorded. This raises the question of personal freedom and autonomy. We ask, "Why should my actions be visible and followed by 'Big Brother'? Why should people have the ability to control and observe our actions, and who will be doing the observing and controlling"?

The major challenge, of course, for the future is already in the experimental level, that is, the genetic crossing of human and other animal species[30].

According to Lifenews.com, scientists at the University of Wisconsin have successfully transplanted human embryonic cells into the brain of a mouse. The transplanted cells developed and helped increase the mouse's intelligence; following the transplant, the mouse was able to discern sounds, an impossible task prior to the transplant. Japanese scientists have been using pigs for the cultivation of human organs, while in 2011 The Daily Mail reported that British scientists had created more than 150 hybrid embryos of animal and human origin. Hybrid embryos were produced as early as 2008, with the *Human Fertilisation and Embryology Act*[31]. For instance, the research team of Newcastle Tyne University has introduced human skin cells into cattle ova with the intent of using the resulting embryos for therapeutic purposes; however, the embryos only survived for three days.

A number of other similar examples of efforts to create transgenic organisms could be mentioned. The purpose, of course, of these labors has always been medical and therapeutic in nature. Notwithstanding this, many have noted that this is simply a pretext for uninhibited research on human embryos.

The dimensions that this phenomenon can acquire are immeasurable. Unfortunately, in most countries there is no legal framework for the prohibition or control of such organisms. What will happen, then, with the creation of these organizations? Do we even understand that we are creating chimeras? At what point do we cease addressing humanity's need for medical treatment and begin to fulfill our ambitions? Does man

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[30] http://www.pentapostagma.gr/2014/02/διασταυρωση-ανθρωπου-και-ζωου-με-ιατρ.html?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+pentapostagma+%28ΠΕΝΤΑΠΟΣΤΑΓΜΑ%29#.Uv3_SrRqM2w

[31] http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.legislation.gov.uk/ukpga/2008/22/contents

realize the enormous ethical issues at stake given that we are casually flirting with the prospect of crossing the divide between man and animal?

Under the same context we may include our efforts to create a fetus with multiple parental lineage, also known as "multiplex parenting"[32]. According to a recent statement of César Palacios-González, John Harris, and Giuseppe Testa in *Medical Ethics,* geneticists will soon be able to create artificial or synthetic gametes, also known as "in vitro generated gametes (IVG)"[33]. This new prospect is quite unique and promising, not only because it enables couples of the same sex to bear genetically linked progeny, but also because it broadens people's reproductive rights. Thus, geneticists will be able to create offspring using the genetic information of not only two heterosexual individuals—the father and the mother—as was the case until now, but that of many other people.

Therefore, synthetic artificial gametes, in theory, and perhaps one day in actuality, allow for a genetic link between multiple parties. A single person, in other words, may be related to a number of individuals from whom genetic material was procured. The ethical dilemmas arising from this process are many. This method strongly emphasizes one's reproductive rights and autonomy, which could easily be the focal point when seeking the use of all available genetic technologies in order to have a child[34]. There are a number of questions to ask. For instance, how will these embryos develop and will the new reproductive technology lead to serious side effects? Shouldn't there be certain measures in place guaranteeing one's reproduction rights? Can each of us invoke a so-called "reproduction right," and if so, does this automatically give one the green light to use any genetic technology to bear a child?

Furthermore, we are attempting to create new organisms without paying attention to nature's own selection process, which, for millions of years preferred reproduction through the two sexes. What, then, are the implications and what are the side effects of

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[32] Καλοκαιρινοῦ Ἑλένη, «Ἀναπαραγωγική αὐτονομία καί ἠθική εὐθύνη: Σκέψεις γιά τίς τεχνικές τῆς ἰατρικῶς ὑποβοηθούμενης ἀναπαραγωγῆς», Εἰσήγηση στό 2ο Διεπιστημονικό Συνέδριο μέ γενικό θέμα: «Ἰατρική Εὐθύνη καί Βιοηθική - Σύγχρονες προσεγγίσεις καί προοπτικές τοῦ μέλλοντος», 14-15 Μαρτίου 2014, Ἐφετεῖο Ἀθηνῶν, σελ. 6.
[33] César Palacios-González, John Harris, Giuseppe Testa, Multiplex parenting: IVG and the generations to come, Journal of Medical Ethics, doi:10.1136/medethics-2013-101810.
[34] Καλοκαιρινοῦ Ἑλένη, «Ἀναπαραγωγική αὐτονομία καί ἠθική εὐθύνη», ὅπ. π., σελ. 7.

such steps? And, finally, if we can accept any form of life, then what is keeping us from embracing human-animal hybrids?

We should not ignore lingering questions concerning the actions and the prospects of science in the name of progress and development. In the past, human indifference led to tragic and irreparable consequences. Just a few years ago, for instance, the destruction of the natural environment was considered an ecological problem, today, however, we talk about an ecological crisis, while experts predict that in a few years we will face an ecological disaster[35].

In essence, we should not simply evaluate our options by simply looking at the present situation or only considering our personal needs and interests. We are members of a global community, which is not limited to our present time and place, nor is it delineated solely by our own biology. Certainly, science is criticized and evaluated daily; so are its achievements. For this reason, every scientific endeavor must stand the test of history and humanity, especially given that every achievement renders each scientist accountable not only to the present community, but most especially to future generations.

6. Bioethics Becomes a Reality

Following the aforementioned considerations, we realize that while speaking about the advances in medicine and genetic biotechnology, we must call to mind both positive and negative consequences. Of course, biotechnology has undeniably improved the quality of life. Today we live in comfort; we can easily communicate with others and travel to distant places; health standards have improved; and the life expectancy of many communities has gone up. On the other hand, however, there are grave concerns about the rapid pace at which technology advances. In the previous sections we brought forth a number of fears, including: the development of bioweapons, the contamination of the environment, the development of mutated crops; we are also concerned about developments in medicine and our ability to experiment upon the human body. Whether

[35] Κεσελόπουλου Ἀνέστη, «Σύγχρονες προκλήσεις βιοηθικής», Τόμος ἀπό τό Παγκρήτιο Θεολογικό Συνέδριο στά Χανιά, «Σύνδεσμος Κρητῶν Θεολόγων – Χριστιανισμός καί Εὐρώπη – Προσπάθεια καταλλαγῆς στίς σημερινές θρησκευτικές, κοινωνικές καί πολιτικές προκλήσεις», Ἡράκλειον, 1997, σελ. 148.

we realize it or not, medical technology is a part of our daily lives. For this reason, a method of oversight is needed to ensure the future of humanity. To fill this role, a new science is required. Said differently, these fears, questions, gaps, and ethical dilemmas have given rise to a new discipline, namely Bioethics.

Coeus nicely summarizes the needs that led to the creation of bioethics, "The most recent discoveries of medicine and biology, along with those applications that emerged from them, established new standards in the medical field. Not only has the relationship between patient and doctor changed; there has been a major change in the overall approach to health, life and the role of living beings. Particularly, the potential risks, which are identified with each use of genetic technology, serve as the impetus for the creation of a moral framework for addressing new dilemmas. Classic medical ethics could hardly deal with issues such as gene therapy, genetic testing, cloning, IVF, organ transplantation, and other related topics. Medical ethics is limited to the moral obligations of physicians in the context of their practice, as well as the overall relationship between the physician and the patient. Therefore, a new field of research and reflection appeared upon the horizon, which later developed into a science. This new field was called, Bioethics"[36].

Bioethics, in its current form, primarily appears and develops in western societies, and its principles are formulated during the Nuremberg Trials, where, for the first time in history, the use of genetic, biological and medical technologies were condemned because they were used to serve the purpose of Nazi eugenics. The Nuremberg Trials led to the formation of formal ethical codes of conduct for medical research and human experimentation[37].

Notwithstanding this, the United States of America helped bring the term Bioethics into the fore roughly in early 1970s. A closer look, however, designates the start of the discipline on September of 1962. At this time, a special committee was convened in Seattle, Washington to examine bioethical issues. The committee tried to establish specific criteria for selecting patients who would participate in an upcoming

[36] Κόϊου Νικολάου, «Ἠθική θεώρηση τῶν τεχνικῶν παρεμβάσεων στό ἀνθρώπινο γονιδίωμα», ὅπ. π., σελ.108.
[37] The Nuremberg Code, Trials of War Criminals before the Nuremberg Military Tribunals under Control Council Law, Government Printing Office, Washington, D.C., 1949, Art. 10, Vol. 2, σελ. 181-182.

treatment program, named: "chronic hemodialysis." Among the criteria that had to be considered included the patient's autonomy, age, duration of treatment, economic status, and family dependency[38].

While this event was not the only factor for the development of Bioethics, once the work of this committee was publicly announced it bore a significant role in the overall history of the discipline. From that moment, bioethics committee began to be formed, articles were published in scientific journals, and academic departments for the study of bioethics were established, first in medical schools, and later in schools and departments of philosophy, theology and sociology. Indeed, the University of Crete established a multi-departmental doctoral program in Bioethics, while in Europe and America there are a plethora of graduate and doctoral programs in bioethics[39].

Moreover, numerous government committees have been established; journals dedicated to bioethics have been published; and a number of books and an encyclopedia have been written. There are also a series of bioethics associations that have been formed and countless conferences addressing bioethical dilemmas have been held over the years[40]. The Ecumenical Patriarchate has also taken under its auspices the bioethics series, "*Pantodapa tis Bioethics*" (Matters of Bioethics)—to which this book serves as the first volume—therein showing the great interest that the Ecumenical Patriarchate has on these matters. The Great Church of Christ has also formed a Special Synodal Committee on Bioethics, which is chaired by His Eminence Elder Metropolitan John of Pergamon. Similarly, the Church of Greece has a Synodal Committee for Bioethics, chaired by His Eminence Metropolitan Nicholas of Mesogaia and Laureotiki. This Committee has adopted decisions on a number of bioethical issues. Other bioethics committees have been established by other local Orthodox Churches. Furthermore, bioethicists regularly appear in court proceedings and hearings, often being referenced by the media in high profile cases[41].

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[38] A. R. Jonsen, «The birth of Bioethics», Special Supplement, Hastings Center Report 23, 6, 1993. Βλέπε ἐπίσης: Κόϊου Νικολάου, «Ἠθική θεώρηση τῶν τεχνικῶν παρεμβάσεων στό ἀνθρώπινο γονιδίωμα», ὅπ. π., σελ. 109-110.

[39] Κόϊου Νικολάου, «Ἠθική θεώρηση τῶν τεχνικῶν παρεμβάσεων στό ἀνθρώπινο γονιδίωμα», ὅπ. π., σελ. 110.

[40] Shannon Thomas A., «An Introduction to Bioethics», Third Edition Revised and Updated, Paulist Press, New York Mahwah, N.J. 1997, pg. 4.

[41] Shannon Thomas, «An Introduction to Bioethics», ibid, pg. 5.

Having said all this, it should be noted that the roots of the bioethics could be traced to antiquity. It is at this point where we discover ethics, which is applied to medical science and practice, albeit in a different form. The power of healing in ancient times was largely viewed as some metaphysical or divine gift, which meant that in many cases, the power to heal was associated with ritual and prayer. Even under such circumstances people feared that medicine could potentially harm the patient and even serve its own purposes. This best explains the efforts to place restrictions, principles and axioms that would regulate the limits of science and the relationship between doctors and patients[42].

According to *The Oath* of Hippocrates, ethics has a significant place in medical science. This pledge first presents the term "ethos" into medical treatment and identifies those circumstances under which medical activity can be characterized as "moral." The medicine of Hippocrates seems to have stood the test of time. Later, as new questions emerged, further human intervention was generated, which naturally left larger gaps in ethical thought. The ethical rules of Hippocrates seem unfit to address the new medical and scientific reality, which is why the modern scientific community marginalized them. Over time, there has been a serious need to discuss the numerous challenges and thoughts of philosophers, theologians, legal and medical practitioners from a common starting point and to develop positions for each ethical dilemma in life. In this way, the discipline of bioethics becomes a reality.

[42] Προκοπίου Δρ. Α., «Ὅρκος Ἱπποκράτη», Ὁμιλία στό Δ΄ Παγκύπριο Συνέδριο Βιοϊατρικῆς Ἠθικῆς της Ἕνωσης Ὀρθοδόξων Ἐπιστημόνων Λεμεσοῦ στίς 22-01-2000.