TRANSHUMANISM AND CHRISTIANITY.
CONFLICT OR COMPATIBILITY?

CĂLIN EMILIAN CIRA[*]

ABSTRACT. In recent times, humanity has experienced an extraordinary evolution of science and technology. In this context, the transhumanist movement has emerged, which argues that through scientific and technological knowledge it will be possible to modify the human nature and the surrounding world by employing genetic engineering, biotechnologies, artificial intelligence. Thus, in this article we will try to very briefly outline the challenges that this way of thinking brings for the Christians and possible ways of responding to some of these issues.

Keywords: Christianity, Transhumanism, technology, science, Christian anthropology.

As a result of the scientific evolution of the modern era, our perspective on nature and people has undergone a series of radical changes. A better understanding of the laws of nature brought about extraordinary technological advancements. Consequently, nowadays science and technology represent a decisive factor in the functioning of society. This extraordinary success of the two spheres often leads to scientism and the belief that all of the problems of the world can be solved through technological means. One of the trends supporting such ideas is Transhumanism which essentially proposes the creation of a new man:

> "Transhumanism is a way of thinking about the future that is based on the premise that the human species in its current form does not represent the end of our development but rather a comparatively early phase"[1].

From this definition it results that humanity has the right and the possibility to modify not only the external environment, but also human nature itself. In order to achieve this desideratum the proposed means are not prayer, ascesis, the

---

[*] *PhD in History, PhD Candidate in Theology, Babeș-Bolyai University, Faculty of Orthodox Theology, Romania.*
[1] Nick Bostrom, "The transhumanist FAQ - A General introduction - Version 2.1. (2003)", accessed January 23, 2019, https://nickbostrom.com/views/transhumanist.pdf.

cultivation of virtues, but reason, the scientific method, genetic engineering, artificial intelligence. The latter will lead to the creation of a new species, more disease-resistant, with above-average intelligence and with a longer lifespan, even capable to achieve, at some point, immortality.

One could argue that the Church should not pay attention to this way of thinking, as the ideas advocated by Transhumanism seem taken out of science-fiction literature and films, but in reality, their ideas are based on the current scientific and technological progress. For this reason, understanding the ideas promoted by this movement is imperative and the Church should offer responses to these challenges.

The present article is a very brief introduction to the vast and complicated topic of the relationship between Christianity and this new trend. For this reason, we will start from a short presentation of Transhumanism which will help us observe how these ideas evolved over time, followed by an outline of the Christian perspective on technology, the positions of Transhumanism and Christianity on the human body and the challenges for the Christian religion brought forth by artificial intelligence.

Transhumanism. A Brief History

The ideas promoted nowadays by the transhumanist movement have prevailed, in various forms, throughout the history of mankind. For example, we can find the idea of achieving immortality depicted in the Epic of Gilgamesh or in various tales where the notion of an elixir of youth searched for by medieval alchemists is present[2].

The Renaissance is regarded by the historians of Transhumanism as a key moment because, unlike in previous eras, "the human being and the natural world again became legitimate objects of study"[3]. However, most often Transhumanism is seen as a continuation of the Enlightenment which set an emphasis on reason, education, knowledge and science:

> "Trans-humanism emphasizes the philosophy's roots in Enlightenment humanism. From here comes the emphasis on progress (its possibility and desirability, not its inevitability), on taking personal charge of creating better futures rather than hoping or praying for them to be brought about by supernatural forces, on reason, technology, scientific method, and human creativity rather than faith"[4].

---

[2] See Nick Bostrom, "A history of transhumanist thought", *Journal of Evolution and Technology*, 14 (April. 2005):1.

[3] Nick Bostrom, "A history of transhumanist thought"*, 2.

[4] Max More, "The philosophy of transhumanism", in *The transhumanist Reader*, ed. Max More and Natasha Vita-More (Chichester: Wiley Blackwell, 2013), 4.

From this perspective we can see the antitheological and antichristian view. Man is solely responsible for fulfilling his destiny, he is no longer dependent on the divinity. Nonetheless, an important precursor who lived during the scientific revolution and was, in fact, the one to propose and develop the scientific method, Francis Bacon (1561-1626), was he himself a Christian. In *Novum Organon* (1620) he proposes a new method for achieving knowledge:

> "It was a qualitative and organized approach to the acquisition of reliable knowledge about the natural world, one that relied upon induction rather than tradition"[5].

In the 19th century, characterized by an extraordinary scientific and technological revolution, the belief that through these means man is in charge of his destiny grew stronger. Charles Darwin's theory of evolution by means of natural selection was especially instrumental in this respect because it presented the world as a living, ever-changing, ever-perfecting organism:

> "[...] And as natural selection works solely by and for the good of each being, all corporeal and mental endowments will tend to progress towards perfection"[6].

Another important precursor of the movement, to whom the use of the term is actually attributed, was the biologist Julien Huxley (1887-1975). The first chapter of his book *New Bottles for New Wine* (1957) bears the name "Transhumanism". For him

> "the human species can, if it wishes, transcend itself – not just sporadically an individual here in one way, an individual there in another way, but in its entirety, as humanity. We need a name for this new belief. Perhaps *transhumanism* will serve: man remaining man, but transcending himself, by realizing new possibilities of and for his human nature"[7].

Alongside these optimistic perspectives, there were also thinkers who saw in the use of technology the potential for the instauration and upsurge of evil and for the installment of dictatorial regimes. Two famous names are worth mentioning: Aldous Huxley and George Orwell. In the novel *Brave New World*, Aldous Huxley (1894-1963), Julien Huxley's brother, imagines a world in which

---

5 Michael S. Burdett, "Contextuliazing a Christian Perspective on Transcendence and Human Enhancement. Francis Bacon, N.F. Fedorov, and Pierre Teilhard de Chardin", in Ronald Cole-Turner, *Transhumanism and transcendence. Christian Hope in the Age of Technological Enhacement* (Washington DC: Georgetown University Press, 2011), 21.

6 Charles Darwin, *On the Origin of Species* (London: ElecBook, 1997), 403.

7 Julien Huxley, *New Bottles for New Wine* (London: Chatto and Windus Ltd., 1957), 17.

technology is used to engineer human beings in laboratories and medicine able to psychologically manipulate and induce a state of satisfaction. It is, in fact, a world characterized by hedonism. The novel *1984* written by George Orwell (1903-1950) also presents a dictatorship in which technology is used for the control and surveillance of the population.

At the same time, we need to mention Eugenics, a movement supported by various countries (such as USA, Canada, Sweden, Germany) in the 19th century and the first half of the 20th century. This trend maintained that the risk of the genetic degradation of the population is real and, as a result, certain races and disabled persons had to be discouraged from reproducing. These ideas can also be considered precursors of Transhumanism:

> "[...] Like its forebear, the eugenics movement, transhumanism will result in terrible deeds. Transhumanism sometimes claims to be a 'liberal eugenics', purified of all that was evil in the old eugenics"[8].

A major characteristic of all the above-mentioned authors is their atheism. However, we can also find Christian thinkers who expressed ideas regarding the possibility to modify the human nature through science and technology: Nikolai Fydorovich Fydorov (1829-1903) and Pierre Teilhard de Chardin (1881-1955).

Nikolai Fydorovich Fydorov is a lesser known author but one with an original vision. He assumed his Christian Orthodox identity but at the same time he was a firm believer in reason and science. He believed man can control the forces of nature and even defeat death. In fact, he stated that through technology the universal resurrection of human beings is possible:

> "When the theoretical reason which studies death and life, and the practical one which returns life and thus defeats death (in the task of universal resuscitation), together carry out the will of the Son, who gave the commandment for all to come together, and the will of the Holy Spirit, who acts (and not 1 16 only speaks) within those who unite, then in working on the Common Task they will learn to make a reality of 'the hoped for' "[9].

Father Teilhard de Chardin, unlike Fydorov, was a well-known thinker in the Catholic world, as well as in the Protestant, Orthodox and even secular ones. He was a complex personality, specializing in natural sciences (paleontology, geology) as well as in theology. He states: "we have seen and admitted that evolution is an ascent towards consciousness"[10]. At the same time, he militates

---

[8] Steven J. Jensen, "The Roots of Transhumanism", *Nova et Vetera,* English Edition, 12, no. 2 (2014): 516.

[9] Nikolai Fydorovich Fydorov, *What was man created for? The Philosophy of the Common Task* (London: Honeyglen, 1990), 116-117.

[10] Pierre Teilhard de Chardin, *The Phenomenon of Man* (Harper Perenial Modern Classics, 2008), 258.

for the use of knowledge to improve the human organism through "a nobly human form of eugenics"[11].

One movement that enjoys great attention within Transhumanism nowadays is that of "technological singularity":

> "At the basis of the definition of TS (technological singularity, our note) is the simple idea of the progress of an (artificial) intelligence superior to the human one.[...] Within cognitive and computational sciences it represents the alleged moment when an intelligence like AI (artificial intelligence, our note) will surpass human intelligence and the technological progress will become extraordinarily rapid, making the future unpredictable (as if it weren't unpredictable already!) and completely different from what we see today"[12].

What we can observe is that the ideas supported by the advocates of Transhumanism are not necessarily new. The dream of improving the characteristics of human beings and of achieving immortality has been ever-present throughout history. Today it seems more plausible as a result of the rapid technological and scientific developments. It has supporters within the academia, the press, and also within the fields of information technology and biotechnology.

This illustrates the major importance of this way of thinking. For this reason, the Church must try to respond to the challenges posed by transhumansits.

The Relationship between Christianity and Technology

Technology was and still is a permanent presence in the life of man. Ever since prehistoric times, human beings have used their intelligence to design tools able to ease their existence or ensure their survival. Today, as a result of the swift development of technology, people, perhaps, trust it more than they trust the deity.

Technology may refer to the following: the "totality of human artifacts", the "totality of technical activities (i.e. the design assumption)", the "totality of technical knowledge"[13]. As such, we can assert that technology controls society and has even become an aim in itself.

In this context, one must reflect upon the type of attitude Christians should have towards technology. Should they oppose it, embrace it or, rather, a perspective based on reason is required? In order to attempt an answer, we will start from the Holy Scripture and from some religious authors and Holy Fathers.

---

[11] Pierre Teilhard de Chardin, *The Phenomenon of Man,* 282.

[12] Bogdan Popoveniuc, *Filosofia Singularității. Creierul global o etică a gândirii fără om* [*The Philosophy of Singularity. The Global Brain an Ethics of Humanless Thinking*] (Bucharest: Eikon, 2016), 64.

[13] See Bogdan Popoveniuc, *Filosofia Singularității. Creierul global o etică a gândirii fără om*, 21.

In the Holy Scripture, crafts are seen as a gift from God:

"See, I have called by name Bezalel son of Uri son of Hur, of the tribe of Judah: and I have filled him with divine spirit, with ability, intelligence, and knowledge in every kind of craft, to devise artistic designs, to work in gold, silver, and bronze, in cutting stones for setting, and in carving wood, in every kind of craft" (Exodus, 31, v.2-5).

Also, in the same chapter, verse 6, the idea of God offering the gift of technical intelligence appears: "[...] I have given ability to all the skilled workers." Clement of Alexandria in *The Stromata* sustains that crafts and philosophy are from God:

"Indeed the Scripture calls 'wisdom' any human science and art; indeed, there are many sciences and arts covered by the human mind![...] Rightfully, the apostle said that the wisdom of God is *'of many kinds'*, has 'many faces and many forms' and shows its power, for our benefit, through art, science, faith, prophecy[...]"[14].

At the same time, Origen in his *Homilies on Numbers* wrote:

"[...] the craftsman's wisdom is from the Lord, whether in gold or in silver or in any other material, and also the weaver's wisdom. And notice that it can be justly said about all these that the knowledge of these is from the Most High"[15].

Origen considers that although science is God's gift it can also be used for evil:

"[...] the wisdom of all knowledge traces its origin to God, but sinks into evil when men of evil purpose, or even demons, mix in certain corruptions of the wisdom of God [...]"[16].

At the same time, Saint John Chrysostom in *Homilies on Genesis* considers that crafts and arts are the gift of wisdom given to people by God:

---

[14] Clement of Alexandria, *Scrieri. Partea a doua. Stromatele* [*Works. Part two. The Stromata*], in *Părinţi şi scriitori bisericeşti* 4 [*Fathers and Writers of the Church* 4], translation, foreword, notes and indices by Pr. D. Fecioru (Bucharest: EIBMBOR, 1992), 24.

[15] Origen, *Homilies on Numbers*, trans. by Thomas P. Scheck, edited by Christopher A. Hall (Downers Grove: InterVarsity Press, 2009), 112.

[16] Origen, *Homilies on Numbers*, 113.

" [...] Look, beloved, how life moves slowly forward, how life begins to organize, how the people, one by one, discover, with the help of their God given wisdom, all sorts of arts and crafts; and this is how the arts and crafts came to exist"[17].

Despite the fact that there is a positive attitude of the Scripture and of the Holy Fathers towards technology, it is regarded as a consequence of the fall from grace, because in Paradise these means were unnecessary. The "garments of skin" given to Adam and Eve in the Scripture can mean mortality and, implicitly, the new organization of postlapsarian life:

> "Saint *John Chrysostom* teaches us that before the fall from grace, 'citadels', 'crafts', or 'garments' were unnecessary. 'They were not needed at the time, but afterwards became necessary as a result of our own incapacity; these and all those other needs. All these were brought to life by death itself. The 'garments of skin' are the attire with which man confronts death. We can regard them as the new organization of human life, as new methods, as different clothing, one could say, adequate and indispensible for confronting the various conditions faced by our planet after the fall"[18].

The Holy Scripture, the Fathers and church writers argue that technology, the crafts, are a gift of the wisdom with which God has endowed man. At the same time, they urge discernment in their use because they can be used for evil and even for the destruction of man. This appeal to resort to reason is valid even nowadays when we live in a permanent "technological revolution" that risks altering and even destroying the person.

The Body in Christian and Transhumanist Anthropologies

The problem of the body is a fundamental one in both Christianity and Transhumanism which aims to modify it through biotechnology and even eliminate it by transferring consciousness into a computer. Christianity, on the other hand, does not see the body as something to be eliminated, but on the contrary, due to the Incarnation and Resurrection of Christ, corporeality is a

---

[17] Saint John Chrysostom, *Scrieri. Omilii la Facere* (I) [*Works. Homilies on Genesis* (I)], in *Părinți și scriitori bisericești* 21 [*Fathers and Writers of the Church* 21], translation, introduction, indices and notes by D. Fecioru (Bucharest: EIBMBOR, 1987), 367.

[18] Panayotis Nellas, *Omul – animal îndumnezeit* [*The Deification of Man*], introduction and translation diac. Ioan I. Ică jr. (Sibiu: Deisis, 1994), 54-55.

fundamental dimension of the person next to the soul. Man is made up of body and soul. Each of these elements taken separately does not form the whole man. In fact, the body was created before the soul:

> "We are amazed by the fact that, according to the biblical passage in the Genesis, the human body was the first created by God: 'Then the LORD God formed man from the dust of the ground and breathed the breath of life into his nostrils, and the man became a living being' (Gen.2, 7), the dust designating the body and the breath of life, the soul"[19].

The creation of man was a special act of God:

> "[...]The act of creating the man differs from the act of creating nature even in its component related to the body. God made the body 'from the dust of the ground', so he did not simple order the ground to make the man, thus giving it power. By this he distinguished the human body from the rest of nature, more than the bodies of various animals differ from nature. He made the body for the soul which is especially related to God"[20].

The creation of man in the image of God is another fundamental aspect of Christianity that shows us the importance of the human being:

> "And God said: 'Let Us make man in Our image, after Our likeness, to rule over the fish of the sea and the birds of the air, over the livestock, and over all the earth itself and every creature that crawls upon it' "(Gen.1, 27).

This aspect reveals the extraordinary value that man has in creation. By image, the Fathers of the Church understand that man is a rational, creative being, in charge of and responsible for creation[21]. These characteristics, however, were weakened by the fall from grace which led to an alteration of the divine image. Nevertheless, God did not abandon man but sent His Son into the world for his salvation. Especially through this act of the Incarnation of the Logos we can see the importance of the body in Christianity:

> "The Word became flesh and made His dwelling among us. We have seen His glory, the glory of the one and only Son from the Father, full of grace and truth" (John.1, 14).

---

[19] Jean-Claude Larchet, *Semnificația trupului în Ortodoxie* [*Theology of the Body*], translated by sister Antonia (Bucharest: Editura Basilica a Patriarhiei Române, 2010), 15.

[20] Dumitru Stăniloae, *Teologia Dogmatică Ortodoxă* [*Orthodox Dogmatic Theology*], 2nd edition, vol.1 (Bucharest: EIBMBOR, 1996), 266.

[21] See Panayotis Nellas, *Omul – animal îndumnezeit*, 9.

Through the Incarnation and especially through the Resurrection, Christ shows us that we are called to eternal life. Not only is the soul immortal but due to the Resurrection of Christ we have the guarantee of our own deliverance from the bondage of death: "But now Christ has been raised from the dead, the first fruits of those who are asleep" (1 Cor. 15, v.20). Saint Paul in the First Letter to the Corinthians wrote that the resurrected bodies will have a new state. They will no longer be subjected to decay and death:

> "So will it be with the resurrection of the dead: What is sown is perishable; it is raised imperishable; It is sown in dishonor; it is raised in glory. It is sown in weakness; it is raised in power. It is sown a natural body; it is raised a spiritual body" (1Cor, 15, v.42-44).

On the surface, the transhumanist movement and Christianity seem to have a similar purpose, overcoming the defects of the body and even immortality itself. However, the means of achieving these goals are different from the Christian approach. If in Christianity it is God who accomplishes the resurrection of the dead and the transfiguration of the world, in Transhumanism man, with the help of technology, wants to attain this fact. The attitude towards the body is ambivalent in the case of transhumanists. On the one hand, the body is viewed positively because it is the support of the mind, so it is a necessity. On the other, we also encounter a Gnostic perspective that sees in the body something that needs to be modified or even overcome because it is a mere material structure: "Up until now, our mortality was tied to the longevity of our *hardware*. When the hardware crashed, that was it"[22]. The quote underlines the fact that man's soul is not immortal. However, the mind could be transferred to another "hardware", just like a file or computer software:

> "As software, our mortality will no longer be dependent on the survival of the computing circuitry. There will still be hardware and bodies, but the essence of our identity will switch to the permanence of our software. Just as, today, we don't throw our files away when we change personal computers – we transfer them, at least the ones we want to keep. So, too, we won't throw our mind file away when we periodically port ourselves to the latest, ever more capable, 'personal' computer"[23].

It is interesting that this idea is similar to metempsychosis, but it is a transmigration of the mind directed by its owner.

---

[22] Ray Kurzweil, *The Age of Spiritual Machines* (New York: Viking, 1999), 94.
[23] Ray Kurzweil, *The Age of Spiritual Machines*, 94.

As we can observe, there is a different perspective on the relation to the body in Christianity and in Transhumanism. For Christians, the body is the creation of God called to immortality and resurrection while the other vision wants a radical alteration of the body and even a liberation from it. Another aspect that differentiates the two is that God can transform the universe and the body while man, although he desires to achieve immortality, in reality cannot do so because he is unable to eliminate all existential risks that can lead to death.

Artificial Intelligence

Another great technological and moral-theological challenge is the extremely rapid evolution of the field of artificial intelligence. This field of research is relatively new: "AI is one of the newest fields in science and engineering. Work started in earnest soon after World War II, and the name itself was coined in 1956"[24]. According to John McCarthy, one of the pioneers in the field, artificial intelligence

> "is the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but AI does not have to confine itself to methods that are biologically observable"[25].

Experts in the field distinguish between two types of Artificial Intelligence. The first, called narrow AI, which performs specific tasks in a limited field of activity (e.g., industrial robots) and General Artificial Intelligence (General Artificial Intelligence), which is a system with an intelligence equal or greater than human intelligence (not yet accomplished). This technology raises a series of questions such as: how the automation based on artificial intelligence affects work, war and also whether it is possible to achieve intelligence at the human level or even a super-intelligence. If this is possible how should we relate to these inventions? Another issue under debate is related to the role of the human being in such a technological context. Theology has an obligation to get involved in these issues in order to provide an answer to the faithful but also to the secularized world.

---

[24] Stuart Russel, Peter Norvig, *Artificial Intelligence. A Modern Approach.* Third Edition (Upper Saddle River: Prentice Hall, 2010), 1.

[25] John McCarthy, "What is artificial intelligence?", accessed February 18, 2019, http://jmc.stanford.edu/articles/whatisai/whatisai.pdf.

As a conclusion

As we could see, in general Transhumanism is at odds with Christian ideas. The focus is on the man who, with the help of technology, can, we dare say, find salvation. Singularity is the moment when the world will be transformed into a "new heaven and a new earth". Although there is this optimistic dimension, the followers of this movement also see the risks posed by the prefigured changes. As such, they mention the risk that only those with financial possibilities will have access to various skill-improving technologies and thus inequalities will be exacerbated and, as a result, social conflicts will develop; the evolution of artificial intelligence will lead to the disappearance of many trades and jobs, to environmental damage, to the possibility to control the population much easier and even to the emergence of dictatorships. At the same time, in Transhumanism there is no talk of immortality of the soul and of life after death. It all comes down to this world. That is why all hope is placed in what man can do. Christianity, regardless of confession, cannot neglect such ideas, but must engage in a dialogue with the supporters of this movement. At the same time, discernment is necessary. A Christian cannot believe that man is capable to free himself from the "bondage of sin and death" strictly through technological means. This is a form of idolatry.

Nonetheless, a disciple of Christ can appreciate these advancements that take place and even become involved in the development of human knowledge and technology capable to ease and improve the lives of all. There is no incompatibility between such an activity and following the teachings of Christ, a fact that was emphasized by some authors and Fathers of the Church. But the church can reveal and draw attention to the fact that the desire to create a new man and even a perfect world lies not in our power but with God alone.

REFERENCES

Bostrom, Nick. *The transhumanist FAQ - A General introduction- Version 2.1. (2003)*. January 23, 2019. https://nickbostrom.com/views/transhumanist.pdf.

Bostrom, Nick. "A history of transhumanist thought". *Journal of Evolution and Technology*, 14 (April. 2005):1-25.

Burdett, Michael S. "Contextualizing a Christian Perspective on Transcendence and Human Enhancement". Francis Bacon, N.F. Fedorov, and Pierre Teilhard de Chardin. In *Transhumanism and transcendence. Christian Hope in the Age of Technological Enhancement*. Editor Role Cole-Turner, 19-35. Washington DC: Georgetown University Press, 2011.

Clement of Alexandria. Scrieri. Partea a doua. Stromatele [Works. Part Two. The Stromata], in Părinţi şi scriitori bisericeşti 4 [Fathers and Writers of the Church 4], translation, foreword, notes and indices by Pr. D. Fecioru, Bucharest, EIBMBOR, 1992.

Darwin, Charles, *On the Origin of Species*. London: ElecBook, 1997.

Fydorov, Nikolai Fydorovich. What was man created for? The Philosophy of the Common Task. London: Honeyglen, 1990.

Huxley, Julien. *New Bottles for New Wine*. London: Chatto and Windus Ltd., 1957.

Jensen, Steven J., "The Roots of Transhumanism". In *Nova et Vetera,* English Edition, 12, No.2 (2014): 515-541.

Kurzweil, Ray. *The Age of Spiritual Machines*. New York: Viking, 1999.

Larchet, Jean-Claude. *Semnificaţia trupului în Ortodoxie* [*Theology of the Body*]. Translated by Sister Antonia. Bucharest: Editura Basilica a Patriarhiei Române, 2010.

McCarthy, John. "What is artificial intelligence?" Accessed February, 18, 2019 http://jmc.stanford.edu/articles/whatisai/whatisai.pdf.

More, Max. "The philosophy of transhumanism". In *The transhumanist Reader*. Edited by Max More and Natasha Vita-More, 3-17. Chichester: Wiley Blackwell, 2013.

Nellas, Panayotis, *Omul – animal îndumnezeit* [*The Deification of Man*], introduction and translation diac. Ioan I. Ică jr. Sibiu: Deisis, 1994.

Origen, *Homilies on Numbers,* trans. by Thomas P. Scheck, edited by Christopher A. Hall. Downers Grove: InterVarsity Press*,* 2009.

Popoveniuc, Bogdan. Filosofia Singularităţii. Creierul global o etică a gândirii fără om [The Philosophy of Singularity. The Global Brain an Ethics of Humanless Thinking]. Bucharest: Eikon, 2016.

Stăniloae, Dumitru. *Teologia Dogmatică Ortodoxă* [*Orthodox Dogmatic Theology*]. 2nd edition. Vol.1. Bucharest: EIBMBOR, 1996.

Saint John Chrysostom, *Scrieri. Omilii la Facere* (I) [*Works. Homilies on Genesis* (I)], in *Părinţi şi scriitori bisericeşti* 21 [*Fathers and Writers of the Church* 21], translation, introduction, indices and notes D. Fecioru. Bucureşti: EIBMBOR, 1987.

Stuart Russel and Peter Norvig, *Artificial Intelligence. A Modern Approach.* Third Edition. Upper Saddle River: Prentice Hall, 2010.

Teilhard, Pierre de Chardin. *The Phenomenon of Man*. Harper Perennial Modern Classics, 2008.