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## **The Image of the Perfect Human**

### **Eugenics in the Human Genetic Engineering Era**

#### **Abstract**

*The aim of this paper is to give an overview of some of the problems related to the practice of perfecting humans through genetic engineering, why it is precarious, and how this concept of creating humans with flawless genes has always been a part of human history, especially when considering the various eugenics movements and policies of the early 20th century. The central thesis of the text is that the production of human beings through genetic enhancement, although still unattainable, should be carefully put on the table for discussion but avoided in practice. In fact, this type of human enhancement is at its core a form of modernised eugenics, so it is more practical to abandon the concept of building the perfect human.*

#### **Keywords**

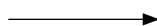
image, human, genetic engineering, technology, genes, nature, eugenics

When discussing images, one typically refers to a form of representation, such as a painting, photograph, or mirror reflection. This concept of representation can also be applied to human beings in general, including how individuals perceive themselves in relation to others and how society perceives them. Humans can even be described as images, not only in the theistic sense of being made in the image of God, but also from a broader philosophical perspective. Although the term *image* can have many definitions and manifestations, the working notion here is that an image is a form of mental representation or projection. It is important to note that a person can even be regarded as an image created by others, merely a reflection of how the individual is perceived. Alternatively, a person can be understood as nothing more than a complex cluster of genes that responds to a given environment. However, it is noteworthy to observe the effects of applying a naturalistic and reductionist understanding of human beings to the fields of humanities, politics, and economics. The guiding question is: can one create a human being the way an individual paints a work of art – by choosing the right tones, giving it shape, depth, making it brighter? Is it possible to create others' images by endowing them with beautiful, properly built and structured genes? And can this image be deceptive?

People have been persistently trying to create the “perfect” human image through the eugenics. It can be said that different forms of utopian projections and eugenics have always accompanied humanity,<sup>1</sup> although it was first

<sup>1</sup>

Plato, for example, in one of his later dialogues, *Magnesia*, in which all the citizens are completely virtuous. This ideal city, through *Laws*, imagines an ideal utopian polis, called



defined by Francis Galton, cousin of Charles Darwin. Galton fathers the notion of this highly problematic practice, based on pseudoscientific groundings,<sup>2</sup> which had and still has serious political and practical implications for millions of human beings.<sup>3</sup> Influenced by Darwinism and its theories, Galton tried to explore not only heredity, but also hereditary genius: how often the geniuses and character of one individual is inherited by their offspring.<sup>4</sup> In another study of his, Galton even suggests that:

“It must be recollected that success of this kind implies the simultaneous inheritance of many points of character, in addition to mere intellectual capacity. A man must inherit a good health, a love of mental work, a strong purpose, and considerable ambition in order achieve success of the high order of which we are speaking.”<sup>5</sup>

This understanding of the inheritance of various qualities was Galton’s reason for proposing an artificial selection through which society can be purified and made more perfect. He describes eugenics as “the science which deals with all influences that improve the inborn qualities of a race; also with those that develop them to the utmost advantage”.<sup>6</sup> Thus defined, eugenics allows for virtually any improvement or cultivation of a person to be considered a practice of eugenics, including education. The subsequent development of eugenics led to the emergence of many subdivisions, such as racial, gender, individual, and embryonic eugenics, each with its own specificities. The main focus of this text is on the concept of eugenics as a whole, rather than its individual subdivisions. This approach provides the reader with a more comprehensive understanding of the issue at hand.

To understand the current state of the debate on human genetic engineering, a brief overview of the history of eugenics is needed, insofar as basic eugenic understandings and arguments can be identified in the foundations of the project of *creating* the perfect human by genetic engineering. The eugenics movement’s origins were in the United States, where, at that time, the number of mental health facilities<sup>7</sup> and prisons<sup>8</sup> increased dramatically over a short period of time, which is considered indicative of declining society. In 1906, the *American Breeders’ Association* established the so-called *Committee on Eugenics*,<sup>9</sup> which was tasked with collecting data on inherited traits and promoting “the value of superior blood and the menace to society of inferior blood”.<sup>10</sup> In 1910, the well-known biologist and eugenicist Charles Davenport, whose activities were funded by the Rockefeller Centre, set up the *Eugenic Records Office*,<sup>11</sup> which researched mainly the inheritable traits in different nations and races. Davenport also provided this information to other countries interested in improving their societies. As a direct consequence of those studies, the notions of the two most basic types of eugenics, differing from one another by the measures they suggested for bettering the nations, emerged: (1) the positive, through which the reproduction of people with desirable qualities is promoted and encouraged, and (2) the negative, which aims to deter the “unfit” people from procreation, most often by means of chemical castration. By that time in the United States there was an increase in the number of diagnosed “simpletons” who are in institutions and hospitals.<sup>12</sup> That is why, in 1914, a report by the *American Breeder’s Association*, entitled *On the Best Practical Means of Cutting off Defective Germ-Plasm in the American Population* announced the decision that “society must look upon germplasm as belonging to society and not solely to the individual who carries it”.<sup>13</sup> The report proposed sterilization, isolation and re-education of people with physical/mental/behavioural deficits. A total of 32 states introduced laws to enforce

sterilization of the unsuitable, including criminals, insane, mentally retarded, and rapists.

It is little known that many Scandinavian countries at that point also support and integrate eugenic policies.<sup>14</sup> In Germany, however, these policies were introduced much later than in the United States – in 1933. At that time in Germany all individuals determined to deviate from normal behaviour, whether institutionalized or not, were subjected to mandatory sterilization. This is how the project for racial hygiene emerged, a period during which the German state “cleansed” itself of the Jews, Roma, Sinti, and various degrees of “imperfect” and “harmful to the nation mutts” (the so-called *Mischlinge*),<sup>15</sup>

its laws, defines what is good and just for the people, who, if abiding to those laws, will be fine citizens. For more on this polis see: Plato, *The Laws*, transl. Trevor J. Saunders, Penguin Books, Harmondsworth 1970, Books 4–12. Another example is the selective infanticide in Sparta: children who had defects and/or looked unhealthy were killed, so that the society could remain “strong”. For more on this practice see: Marc Huys, “The Spartan Practice of Selective Infanticide and Its Parallels in Ancient Utopian Tradition”, *Ancient Society* 27 (1996), pp. 47–74.

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Although this paper does not examine why eugenics can be perceived as pseudoscience, arguments supporting this statement can be found in e.g. J. Marks, “Historiography of eugenics”, *American journal of human genetics* 52 (1993) 3, pp. 650–652; Siddhartha Mukherjee, *The Gene. An Intimate History*, Scribner, New York 2016, pp. 115–125.

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Such is the case with the Uyghurs in China, a Turkic ethnic group, who have been subjected to gross human rights violations in concentration camps, and by coercive sterilization to prevent procreation. The case of the Uyghur minority in China is well explained in: Mamtimin Ala, *Worse than Death. Reflections on the Uyghur Genocide*, Hamilton Books, London 2021.

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Francis Galton explores this problem in his book *Hereditary Genius. An Inquiry Into Its Laws and Consequences*, Macmillan Publishers, London 1869.

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Francis Galton, “Hereditary Character and Talent”, *Macmillan's Magazine* 12 (1865), pp. 157–166, 318–327, here p. 318.

6

Francis Galton, “Eugenics: Its Definition, Scope and Aims”, in: Francis Galton, *Essays in Eugenics*, The Eugenics Education Society, London 1909, pp. 34–43, here p. 35.

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Proof of this claim can be found in: Department of Commerce and Labour, Bureau of Census, “Growth or diminution of insanity”, in: Department of Commerce and Labour, Bureau of Census, *Insane and Feeble-minded in Hospitals and Institutions. 1904*, Government Printing Office, Washington 1906, pp. 8–9.

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Evidence of that can be found in: Charles A. Ellwood, “Has Crime Increased in the United States since 1880?”, *Journal of the American Institute of Criminal Law and Criminology* 1 (1910) 3, pp. 378–385, doi: <https://doi.org/10.2307/1132761>.

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For more information on the *Committee*, see James A. Field, “The Progress of Eugenics”, *The Quarterly Journal of Economics* 26 (1911) 1, pp. 1–67, here p. 35, doi: <https://doi.org/10.2307/1884524>.

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Albert R. Jonsen, *The Birth of Bioethics*, Oxford University Press, New York 2003, p. 168.

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J. A. Field, “The Progress of Eugenics”, p. 35.

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Department of Commerce and Labour, Bureau of Census, *Insane and Feeble-minded in Hospitals and Institutions*, pp. 8–9.

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A. R. Jonsen, *The Birth of Bioethics*, p. 170.

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Vincent Naeser, “Eugenic marriage bills in the Scandinavian countries”, *The Eugenics review* 6 (1914) 3, pp. 238–239. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2987058/> (accessed on 15 December 2023).

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The German word *Mischling* means *hybrid*, *half-breed*. The term is also used to describe



all based on the percentage of the Aryan blood of their ancestors. They were categorized as alien to the German nation groups and therefore – racially inferior and socially harmful, “subhumans” (*Untermenschen*)<sup>16</sup> who were understood as subjects to be controlled and ultimately – obliterated. Meanwhile, numerous human experiments were conducted, using concentration camp prisoners as test subjects.<sup>17</sup> The most well-known example were the experiments of Josef Mengele, which were closely related to the studies of the inheritance of certain traits.<sup>18</sup> Those experiments were carried out in a particularly cruel way, regardless of the suffering of the tortured.<sup>19</sup>

The atrocities of these sterilization programmes and policies make the issue of genetic engineering particularly acute, burdening it with fears of creating a potentially dangerous eugenic technology, through which it may become possible to dare to dream of painting the most “beautiful”, yet still unachievable, image of all – the one of the perfect human being.<sup>20</sup> To see how well these fears could be justified, a brief overview of the history and methodology of genetic engineering itself, as a branch of biological knowledge and technology, along with its application in medicine, is needed to see if there is indeed such a relation between progress and eugenic tendency.

### The Scientific Imaging

Among the many discoveries and experiments that have contributed to the development of genetic engineering, the most fundamental is the study of Matthias Schleiden and Theodor Schwann from 1839. They both developed the cell theory,<sup>21</sup> which initiated a paradigmatic shift in biology. Their conclusions are as follows: (1) the cell is the basic structure and functional unit of life, (2) therefore all living organisms are made up of at least one cell, and (3) new cells are formed only by already existing cells.<sup>22</sup> Later, the main features of living matter were outlined: self-renewal (the ability of cells to change); self-regulation (the adaptability of cells to a given environment); reproduction (the ability to create new offspring), and development (the possibility of evolutionary progress).<sup>23</sup>

These prerequisites, among many others, made the development of reproductive medicine possible. In simple terms, it aims to artificially induce new life through external intervention. Attempts to improve this particular type of health are not new. Such practices are among the most ancient and primitive practices typical of all human societies: starting to cultivate fruits and vegetables; animal breeding; the choice of marriage partners based on their ancestors’ health; the diets of pregnant women, striving to give birth to a boy or girl, the belief in harmful and useful colours of clothing; gifts and prayers for fertility addressed to gods and their human counterparts from kings to saints.<sup>24</sup>

Naturally, with the development of biotechnology and the expansion of knowledge in cellular and molecular biology, reproductive technologies have successfully broadened their scope; they have a preventative and diagnostic function, extending even to the “management” of reproductive problems.<sup>25</sup> A peculiar control over nature is achieved – people who cannot create a generation on their own are given a second chance; moreover, they can undergo in vitro fertility cycles at a convenient time for them. Now, however, new heights are being reached – scientists are even trying to successfully induce eggs from skin cells.<sup>26</sup> In addition to scientific advancements, medical genetics is also developing, offering genetic consultations to examine foetal chromosomes.<sup>27</sup>

There is also amniocentesis, which tests the foetus for genetic damage, and in the early days of this procedure some doctors even refused to carry out the test unless the future mother first signed a consent form to abort the foetus if abnormalities were found.<sup>28</sup>

a type of person who is not of pure (Arian) decent, and was used in the *Nuremberg Laws* (*Nürnberger Gesetze*). For more information on this matter and on this term: Cornelia Essner, “Ausbau und Funktionsweise des Systems”, in: Cornelia Essner, *Die Nürnberger Gesetze oder Die Verwaltung des Rassenwahns 1933-1945*, Schöningh, Paderborn 2002, pp. 174–233.

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Heinrich Himmler, *Die Schutzstaffel als antibolschewistische Kampforganisation*, Zentralverlag der NSDAP, Franz Eher Nachf., München 1937, p. 14. Available at: <https://archive.org/details/Himmler-Heinrich-Die-Schutzstaffel/page/n1/mode/2up> (accessed on 15 December 2023).

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At that time using prisoners as test subjects is a practice typical not only for Germany but also for many other countries as well. Such is the case in Japan’s *Unit 731*, a research and public health unit, which conducted horrific experiments on prisoners, such as vivisections, testing biological and mainstream weapons on them. For more information on Unit 731 see: Hal Gold, *Japan’s Infamous Unit 731*, Tuttle Publishing, North Clarendon 2019.

18

Benno Müller-Hill, “Genetics of susceptibility to tuberculosis: Mengele’s experiments in Auschwitz”, *Nature Reviews Genetics* 2 (2001), pp. 631–634, doi: <https://doi.org/10.1038/35084588>.

19

Ibid.

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The idea of the human being as the highest form of existence in all living entities is quite common since ancient times, given that humans have reason. Many philosophers and writers have tried to define what a human is and most of them regard humans as being the most complex animal. Such a view on the matter can be found in diverse discourses, the Christian understanding of humans as the “crown of creation” to Alexander Pope’s *Essay on Man*. The above-mentioned concept, combined with the individual’s inclination for curiosity and imagination, results in a great deal of utopian and dystopian literary and philosophical works, in which humans

are portrayed as enhanced physically and/or morally, therefore even more perfect and somewhat beautiful. Such examples of improving human nature can be found in Goethe’s portrayal of Faust, which later inspired Spengler’s definition of the *Faustian man* and the corresponding historical stage. This is a softer form of Nietzsche’s *Übermensch* in *Thus Spoke Zarathustra*, an essentially literary work with a strong philosophical and ideological influence. Literature also owes widely popular images that have become unique examples of conceptions with a strong moral or amoral charge, such as Mary Shelley’s *Frankenstein* or *Justine, or The Misfortunes of Virtue* by Marquis de Sade. All of them play not only a background role in understanding the relationship between science, ethics, and health, but also form mass evaluative attitudes through the widespread popularity in expanding genres from opera through film to jokes and everyday word usage.

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Paolo Mazzarello, “A unifying concept: the history of cell theory”, *Nature Cell Biology* 1 (1999) 1, pp. E13–E15, doi: <https://doi.org/10.1038/8964>.

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Ibid., p. E14.

23

John R. Baker, “The Cell-Theory: a Restatement, History, and Critique”, *J Cell Sci* s3-89 (1948) 5, pp. 103–125, here pp. 105–106, doi: <https://doi.org/10.1242/jcs.s3-89.5.103>.

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Such practices and beliefs are thoroughly examined in: Jared Diamond, *Guns, Germs, and Steel. The Fates of Human Societies*, Norton, W. W. & Company, Inc., Worldwide 2017.

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For example, *in vitro* fertilization and intracytoplasmic sperm injection.

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Chika Yamashiro *et al.*, “Generation of human oogonia from induced pluripotent stem cells *in vitro*”, *Science* 362 (2018), no. 6412, pp. 356–360, doi: [10.1126/science.aat1674](https://doi.org/10.1126/science.aat1674).

Because of the need for greater precision in reproductive management, *in vitro* procedure and genetic engineering techniques emerged, as they were seen as the most powerful tool of positive eugenics.<sup>29</sup> Their purpose at the outset was quite simple – to identify, at the cellular and molecular level, the most important factors in embryonic development. Even nowadays in this research field the struggle for achievement, discovery and funding in this area is fierce.<sup>30</sup> As a result, in 2017, CRISPR/Cas9, a genetic engineering technology, became even more refined: it enabled activation or silencing genes *in vivo*.<sup>31</sup> The applications of this type of manipulation are infinite, ranging from agriculture through xenotransplantation, editing human DNA, even the elimination of whole species.

Although it has been the subject of much research, human gene editing is still far from being a standard medical procedure because of numerous risk factors associated with its use, mainly due to insufficient knowledge of the gene binding process. The most obvious example is mosaicism – when not all cells carry the newly introduced mutation or transgene.<sup>32</sup> It has even recently been found that most people may be resistant to this type of intervention.<sup>33</sup> Still, a study confirms that CRISPR/Cas9 may safely be used in cancer patients, even though it still unclear if it is effective or not.<sup>34</sup>

The relation between scientific and technological progress and the tendency towards eugenics was illustrated, but the topic of creating the perfect human through eugenics and genetic engineering is subject of intense debates by scientist, politicians, economists, and bioethicists.<sup>35</sup> As far as genetic engineering is concerned, the most essential aspect in these debates is whether it is appropriate to allow the enhancement of a human being to transcend the boundaries of natural assets and the medically optimal state of a healthy individual.<sup>36</sup> In this discussion, there are two main points of view. On one hand, there are the advocates against human enhancement – the bioconservatives; on the other, are the more liberal-minded utilitarians, consequentialists, and most of all – transhumanists.

### **Bioconservatism: Preserving the Image of Human Nature**

In principle, religion, mainly Christianity, is the most influential opponent of natural science in general and of its attempts to intervene in the nascent human life, especially as it sees the human as a creation of God, and the beginning life – as God's gift.<sup>37</sup> Nowadays, this can be seen most clearly in the consistent discussion, and, ultimately, in the condemnation of such attempts by one of the most organized and uniformed versions of Christianity in the world – Catholicism.

In recent decades, the Roman Curia and its pontiffs – Pope John Paul II, Benedict XVI and Francis – have shown an increasing interest in participating in secular affairs. While this is typical of the Catholic Church, which sees its main role as peacekeeping and often substitutes the mission of saving souls for the mission of saving lives, the trend is significant: following the predominantly political interests of John Paul II and the focus on greater scientific rigour under Benedict XVI, Francis is seeking to shape the future more generally in the “common human home”. This is evident in the encyclical letter *Laudato si'*.<sup>38</sup> In it the emphasis is not only on the environmental issues, a problem that cannot be partially solved, but also on the general question of the meaning of life, which Francis breaks down into several sub-questions

affecting the value of human existence: “What is the purpose with which we are born?”, “What are we working and fighting for?”, “Why does the Earth needs us?”. The response to all questions concerning our common life, the Pope says, must be preceded by a radical proposal for discussion, especially in the field of ecology, where it is impossible to be bitter without answering the right questions.

Central to the encyclical *Laudato Si'*, is the issue of anthropocentrism. Pope Francis emphasises on the problem that people cease to think about the harm

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The reason for that is that many researchers found that examination of fetal chromosomes is a crucial tool for reducing the rate of “abnormal” babies being born. Examples of such studies are: M. A. Ferguson-Smith, M. E. Ferguson-Smith, “Screening for fetal chromosome aberrations in early pregnancy”, *Journal of clinical pathology. Supplement (Royal College of Pathologists)* 10 (1976), pp. 165–76; M. F. Niermeijer *et al.*, “Prenatal diagnosis of genetic disorders”, *Journal of Medical Genetics* 13 (1976), pp. 182–194, doi: [dx.doi.org/10.1136/jmg.13.3.182](https://doi.org/10.1136/jmg.13.3.182).

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A. R. Jonsen, *The Birth of Bioethics*, p. 177.

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*Ibid.*, p. 14.

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A good example of this is the *CRISPR–Cas9* patent problem, which is explained in more detail in: Benjamin N. Gray, W. Murray Spruill, “CRISPR–Cas9 claim sets and the potential to stifle innovation”, *Nature Biotechnology* 35 (2017), pp. 630–633, doi: <https://doi.org/10.1038/nbt.3913>.

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Hsin-Kai Liao *et al.*, “In Vivo Target Gene Activation via CRISPR/Cas9-Mediated Trans-epigenetic Modulation”, *Cell* 171 (2017) 7, pp. 1495–1507.E15, doi: <https://doi.org/10.1016/j.cell.2017.10.025>.

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Desmond S. T. Nicholl, *An Introduction to Genetic Engineering*, Cambridge University Press, Cambridge 2008, p. 271.

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Carsten T. Charlesworth, *et al.*, “Identification of Pre-Existing Adaptive Immunity to Cas9 Proteins in Humans”, *Nature Medicine* 25 (2019), pp. 249–254, doi: <https://doi.org/10.1038/s41591-018-0326-x>.

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Edward A. Stadtmauer *et al.*, “CRISPR-engineered T cells in patients with refractory cancer”, *Science* 367 (2020) no. 6481, eaba7365, doi: [10.1126/science.aba7365](https://doi.org/10.1126/science.aba7365).

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The beginning of these debates dates back to the early 20th century and more information on the history of the first debates, especially in the United States, where those topics are more widely discussed, can be found in: A. R. Jonsen, *The Birth of Bioethics*, pp. 66–195. In more recent years, the debate on whether or not genetic engineering should be allowed, follows the experiment of He Jiankui, who in 2018 edited the genes of embryos. As a result of this editing, two babies are born – the twins Lulu and Nana. It is after the case of twins Lulu and Nana that scientists around the world want a moratorium on all clinical trials and uses of embryos that alter the inherited DNA sequence. For more information, regarding the moratorium: E. Lander *et al.*, “Adopt a moratorium on heritable genome editing”, *Nature* 567 (2019), pp. 165–168, doi: [10.1038/d41586-019-00726-5](https://doi.org/10.1038/d41586-019-00726-5).

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See: Jonh. H. Evans, *Playing God? Human Genetic Engineering and the Rationalization of Public Bioethical Debate*, The University of Chicago Press, Chicago 2002; Douglas Walton, “The Slippery Slope Argument in the Ethical Debate on Genetic Engineering of Humans”, *Science and Engineering Ethics* 23 (2017), pp. 1507–1528, doi: <https://doi.org/10.1007/s11948-016-9861-3>.

37

The Christian views in general, and this one in particular, are wonderfully systemized in Henry Bettenson, Chris Maunder, “Genetic engineering”, in: Henry Bettenson, Chris Maunder (eds.), *Documents of the Christian Church*, Oxford University Press, New York 2011, pp. 494–497.

38

Pope Francis, *Laudato si'*. *Encyclical Letter on Care For Our Common Home*, Vatican City 2016. Available at: [http://www.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco\\_20150524\\_enciclica-laudato-si.html](http://www.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html) (accessed on 15 December 2023).

they are causing to nature and only strive to improve their comfort through economic, social, work and technological goods. According to his view, any diversion from the just and the rational makes it possible to lower the criteria of what is acceptable and what is not, and “human beings will always try to impose their own laws and interests on reality”.<sup>39</sup> Embryo experimentation, as Francis agrees with Benedict XVI, becomes admissible only to indulge the persistent selfishness of the pre-existing humans:

“If personal and social sensitivity towards the acceptance of the new life is lost, then other forms of acceptance that are valuable for society also wither away.”<sup>40</sup>

Also important in view of the debate of genetic engineering is Pope John Paul II’s encyclical letter *Evangelium Vitae*,<sup>41</sup> in which human life is directly linked to God’s plans, and is therefore inviolable. This encyclical also affirms a fundamental religious view: everything that opposes life as such (abortion, euthanasia, degrading human dignity) is shameful and is an abomination to the Creator.<sup>42</sup> That is why this encyclical letter focuses on problems regarding life – what was once considered criminal and morally reprehensible is now subject to receptiveness on the part of society. Abortions and embryo experimentation violate the fundamental right to life, which should be sacrosanct. In this sense, artificial reproduction (in particular – leftover embryos) is therefore considered to be a threat to existence, because by destroying the embryos in the name of science, human life is reduced simply to biological matter and research resource. The existence of each individual is a gift from God, he argues, an expression of his love. It is impossible for such a good, as the nascent life, to be left in the hands of men to serve their other needs.<sup>43</sup>

In the context of bioethical debate on genetic engineering this encyclical letter plays a particularly important role because it specifically states that even the embryos are carriers of dignity.<sup>44</sup> The text also examines fundamental concepts and categories such as *natural* and *predetermined*, *dignity*, *justice*, *the right to a better life*. Interestingly, most bioconservatives,<sup>45</sup> whether they realize it or not, structure their arguments directly or indirectly in accordance with these concepts typical of the Christian tradition as such.

This particularly important topic of technology and editing life was also taken up by a student of Martin Heidegger, Hans Jonas. Jonas was strongly influenced particularly by Heidegger, Edmund Husserl, and by Immanuel Kant’s moral philosophy. Heidegger’s influence over Jonas can be seen mostly in Jonas’ main fields of interest – philosophy of technology, politics, religion, and bioethics. In his critical essay, *The Question Concerning Technology*, Martin Heidegger points out that for technology not to slip out of man’s hands, its essence must be discovered. He presents technology as a special kind of “strut”, “apparatus” (*Ge-stell*);<sup>46</sup> something that is only seemingly sustainable and can yield at any moment. In fact, Hans Jonas became a strong supporter of Heidegger’s idea of the dangerous growth of the influence of technology, and in addition to sharing these views, Jonas furthered his research in this area, building on the key issues posed and discussed by Heidegger. In one of his earliest works, *The Imperative of Responsibility. In Search of Ethics for the Technological Age*, Hans Jonas began his study on the influence of technology in the modern world, believing that ethics could not in fact deal with the new problems facing humanity.<sup>47</sup> This is due to the fact, that, according to the Jonas, (1) “modern technology has turned into an infinite forward-thrust of the race, its most significant enterprise, in whose permanent, self-transcending advance to ever greater things the vocation of man tends to be

seen, and whose success of maximal control over things and himself appears as the consummation of his destiny<sup>748</sup> and (2) that none of the previous ethics could have considered this state of human life, the distant future, or even the way of existence of the race.<sup>49</sup> Therefore, the ethics of responsibility should be considered of vital importance, insofar as at present only current interests are discussed,<sup>50</sup> while future problems, which are also not individual but universal, are not being properly addressed.

Jonas deepened his studies with special attention to the question of technology, which can be seen in one of his later articles: *Technology as a Subject for Ethics*. In it, Hans Jonas raises a common thesis – technology in itself is neither bad nor good, it just is, in fact, the way it is used can be categorized as good or bad.<sup>51</sup> This article is quite interesting, because in it Jonas points out that the ethical boundaries, which are already difficult to see, are completely blurred when it comes to the use of technology.<sup>52</sup> This is particularly problematic given the vast range of technologies in an ever-globalizing world. For the Jonas, people “mortgage future life for present short-term advantages and needs – and mostly self-created needs at that”,<sup>53</sup> and for this reason special attention should be paid to the concept, a key one to Jonas’s ethical understandings – responsibility. The more comprehensive the technology becomes, the more the responsibility to the next generations, and to all of humanity, must increase, in such way that “chance of coping with that mortgage has not been compromised in advance”.<sup>54</sup>

In the last part of his article, Hans Jonas also comments on the modification of the genetic code, which in fact imposes an entirely new metaphysical question. Jonas formulates it as follows: “whether and why there ought to be

39  
Ibid., sec. 75.

40  
Ibid., sec. 120.

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Ioannes Paulus PP. II, *Evangelium Vitae. To the Bishops, Priests and Deacons, Men and Women religious lay Faithful and all People of Good Will on the Value and Inviolability of Human Life*, Vatican City 1995. Available at: [https://www.vatican.va/content/john-paul-ii/en/encyclicals/documents/hf\\_jp-ii\\_enc\\_25031995\\_evangelium-vitae.html](https://www.vatican.va/content/john-paul-ii/en/encyclicals/documents/hf_jp-ii_enc_25031995_evangelium-vitae.html) (accessed on 15 December 2023), sec. 2.

42  
Ibid., sec. 3.

43  
Ibid., sec. 44.

44  
Ibid., sec. 81.

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Such as Michael Sandel and Jurgen Habermas.

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Martin Heidegger, “The question concerning technology”, in: Martin Heidegger, *The Question Concerning Technology And Other*

*Essays*, transl. William Lovitt, Garland Publishing, New York and London 1977, pp. 3–35, here p. 19.

47  
Hans Jonas, *The Imperative of Responsibility. In Search of Ethics for the Technological Age*, The University of Chicago Press Ltd., London 1985, p. 1.

48  
Ibid., p. 9.

49  
Ibid., p. 8.

50  
Ibid., pp. 22–23.

51  
Hans Jonas, “Technology as a Subject for Ethics”, *Social Research* 49 (1984) 4, pp. 891–898, here p. 891.

52  
Ibid., p. 892.

53  
Ibid., p. 893.

54  
Ibid.

a mankind? Why, therefore, Man as evolution has produced him ought to be preserved, their genetic heritage respected? Even why there ought to be life at all?"<sup>55</sup> Jonas discusses the problem of genetic editing<sup>56</sup> in more detail in a separate article, *Ethics and Biogenetic Art*. In it, Jonas defines genetic engineering as "artificially steered and accelerated evolution".<sup>57</sup> The objects of this research of his are cloning and gene editing. Jonas emphasizes the duality of technology, giving an example with somatotropin.<sup>58</sup> Somatotropin, also known as growth hormone, can also be produced artificially using recombinant DNA technology. On the one hand, this hormone can help many children who have stunted growth,<sup>59</sup> which morally justifies the use of this technology. On the other hand, it can be used not only for medical purposes, but entirely for aesthetical ones. In fact, for Jonas, the ethical perspective on the interference in nascent human life is essential to determine whether "arbitrary recreation is fair to the direct objects of those techniques".<sup>60</sup> Natural diversity, and therefore human biological diversity, is actually due to chance, that is, to a certain coincidence in the gene combinations. That is why there are people who are not physically healthy, who are less adaptable and so on. These imperfections, which have arisen by chance, with the help of biotechnology, can be, if not completely eliminated, then at least quite reduced. However, according to Jonas, genetic engineering can influence not only the "negative" but also the "positive". In fact, recombinant DNA technology is another example of how a well-designed technique that seeks to improve one's life can be infinitely dangerous. To illustrate this, Hans Jonas makes a comparison between genetic and mechanical constructions and says that "if a mechanical construction turns out wrong, we scrap it. Are we supposed to do the same with a biological reconstruction that turns out wrong? Our whole attitude to human misfortune and those afflicted by it would take a new, antihuman direction?"<sup>61</sup> Moreover, unlike mechanical errors, biological ones are irreversible. That is why Jonas takes a bioconservative position, according to which allowing gene editing interventions is tantamount to opening a Pandora's box,<sup>62</sup> and people are neither disciplined nor reasonable enough to be given the power to determine other people's lives. That is why Jonas's point of view can be summarized in his words:

"The human condition constantly cries out for improvement. Let us try to help. Let us try to prevent, to alleviate, and to heal. But let us not try to play creators at the roots of our being, at the primal seat of its mystery."<sup>63</sup>

In this context, a brief overview of a philosophical, but not a very well-developed perspective, of Jürgen Habermas, presented in his book *The Future of Human Nature*, also deserves attention. Habermas, more or less like Hans Jonas, also regards embryonic genetic engineering as an interference with human freedom and as blurring the boundaries between people and things because people are repairing themselves as if they are broken objects.<sup>64</sup> His criticism on this type of meddling in nature's ways is structured around the relation between generations and the thesis that, when intervening in the genetic code of another individual, people "undermine the symmetrical relationship between free and equal human beings".<sup>65</sup> Thus man should not have the power to control natural order.

For one to be truly free, one's life must not be in the hands of another human being. This is exactly what Habermas considers to be at the heart of morality – that one is equal in birth to others. If this freedom is taken away, it could be a critical moment for humanity, because "domination of nature turns into

an act of self-empowering of man, thus changing our self-understanding as members of the species”.<sup>66</sup> But this criticism is far from sufficient to justify the title of the book, *The Future of Human Nature*, in which Habermas does not really address the problem of what *is* human nature but prefers to simply point out that it is people born without genetic enhancement. It is therefore unclear how human self-understanding would change.

Another way of defending a biocoservative position is presented by Michael Sandel, who in his book *The Case against Perfection: Ethics in the Age of Genetic Engineering* opposes the potential of genetic engineering. At the outset, he insists that scientific progress brings with it the promise of healing and preventing many diseases, and this will lead to the possibility for man to manipulate their own nature. And not only that: the individual would be able to develop beyond the boundaries of a normal healthy individual.<sup>67</sup> Sandel also suggests another major problem affecting genetic engineering, namely, that a potential child is pushed toward a specific future by parents who have unwarranted authority to decide what their child should be. This concerns two particularly important and somewhat overlapping concepts – *the right to an open future* or *the right to autonomy*.<sup>68</sup> The first one, he believes, requires the potential child not to be deliberately genetically determined and targeted for a particular lifestyle.

Unlike most bioconservatives, Sandel rejects the popular argument often used to disprove the benefits of genetic engineering: that of an autonomy. For him, this justification is weak because, if applied, it is suggested that without artificial intervention in the genetic code, children can decide for themselves what traits and features they should have.<sup>69</sup> The free choice of the future, however, is a serious problem, because it gives one the opportunity to be proud of their successes and to be disappointed with their downfalls. Sandel also describes what people would lose if genetic manipulation were accepted. First, he puts

55  
Ibid., p. 895.

56  
This topic is key to Jonas, who is a Jew. He himself, during Hitler’s dictatorship, shortly after Martin Heidegger joined the *National Socialist German Workers’ Party*, managed to leave Germany in 1933, moving to England and later to Palestine. For more information on Hans Jonas’ life and work see Christian Schütze, “The Legacy of Hans Jonas”, *The Hastings Center Report* 25 (1995) 7, pp. 40–43, <https://doi.org/10.2307/3528007>.

57  
Hans Jonas, “Ethics and Biogenetic Art”, *Social Research* 71 (2004) 3, pp. 569–582, here p. 570.

58  
Ibid., p. 573.

59  
Ibid.

60  
Ibid., p. 574.

61  
Ibid., p. 580.

62  
Ibid.

63  
Ibid., p. 581.

64  
Jürgen Habermas, *The Future of Human Nature*, Polity Press, Cambridge 2003, p. 13.

65  
Ibid., p. 23.

66  
Ibid., p. 48.

67  
Michael Sandel, *The Case against Perfection. Ethics in the Age of Genetic Engineering*, The Belknap Press, Harvard University Press, Harvard 2007, p. 5.

68  
Ibid., p. 7.

69  
Ibid., pp. 7–8.

*humility* – accepting children as a *gift* and as they are.<sup>70</sup> Second, the sense of responsibility of the moral agent will also be subject to change because the lab worker and the parents will choose the baby’s genes and predispositions to a specific life, so the child will be able to excuse every action through the notion that they is not responsible for their actions, their creator is. At the same time, according to Sandel,<sup>71</sup> solidarity toward less fortunate individuals will diminish. Perhaps the most significant problem, however, is that genetic enhancement uses medical means for non-medical purposes, which will inevitably affect not only a particular individual but humanity as a whole. A new form of class society could form – the class of the enhanced and that of the naturals; thus, “the old eugenics meets the new consumerism”.<sup>72</sup>

An original approach, aiming at preserving the image of the human being as is, is introduced by Francis Fukuyama. He also views human genetic engineering as a new kind of eugenics in his work *Our Posthuman Future. Consequences of the Biotechnology Revolution*.<sup>73</sup> Fukuyama correctly points out that it would be very difficult to achieve statistically significant genetic alteration that would lead to a higher behaviour. The reason is that there is a multi-layered genetic dependency that proves to be difficult to understand and to be fully controlled. Even if a successfully enhanced person is observed, the change would be to the “individual’s patrimony but not the human races”,<sup>74</sup> i.e. there will be no statistically significant alteration. Yet the difficulties lying in front of genetic engineering should not be underestimated. Fukuyama notes that there are many risks such as the possibility of side effects, population problems, and finally, the problem of technology accessibility.

Perhaps the most significant, but unfortunately too weak, argument is the idea of *Factor X*. By it Fukuyama means the indeterminate quality that makes a human person. Therefore, the most serious concern, when it comes to genetic engineering, is the change in human nature,<sup>75</sup> which is “fundamental to our notions of justice, morality, and the good life”.<sup>76</sup> Changing the genotype directly diminishes the idea of dignity insofar as it relates to the “nature of nature itself”.<sup>77</sup> Genetic engineering will, in his opinion, create a new post-human class that will have the right to demand more and more rights at the expense of unedited people. The problem, however, is that *Factor X* does not give clear information as to why there is something in human nature that would be worth preserving at all.

### **The Transhumanist Vision: The Image of the Perfect Human**

In contrast to the bioconservative reasoning, adherents of transhumanism are raising their counterarguments in support of the upgrading of human capabilities through technology. The article by the philosophers Nick Bostrom and Rebecca Roache, *Ethical Issues in Human Enhancement*,<sup>78</sup> summarizes many of the most common transhumanists’ views on the matter.

In the first part of the text, they explain the essence of the technological enhancement of the human being supported by them.

“... enhancement interventions aim to improve the state of an organism beyond its normal healthy state.”<sup>79</sup>

The idea, proposed by Bostrom and Roache, concerning the extension of human life is quite interesting:

“... make further radical gains in human life expectancy, it will become necessary to slow or reverse aspects of human aging.”<sup>70</sup>

According to them reversal is necessary because eventually the cells will start to age and die, which in turn will lead to the death of the whole organism. Therefore, as much as medicine tries to find a panacea, it will not be enough; if all cancer patients are cured today, they will die of heart attack or encephalitis tomorrow. Additionally: even if the aging process is truly stopped, the individual is expected to live up to 1000 years. According to many supporters of rejuvenation, preventing aging will not only prolong life, but will also greatly benefit people’s health – they will be able to grow without aging. In the authors’ view, this presents a wonderful opportunity for a person to study, travel and do all the things that one’s life would not have achieved.<sup>81</sup>

The notion of reversing the aging process has been the subject of much criticism, especially from bioconservatives<sup>82</sup> one of which is to questioning whether human life would be meaningless if it had no end. Here, Bostrom and Roache apply an ethically inadequate argument, shifting to the issue if every life is worth saving, which, they find, is not the case.<sup>83</sup> According to them, there may be lives that are not worth saving, but this should not deter other people who would benefit from prolonging or immortalizing their existence. I hold the belief that such shift is highly problematic, as it suggests that there should be some sort of an arbiter, who is competent and virtuous enough to decide if people’s lives are worth saving, even such as those described by Bostrom and Roache “lifestyles entirely devoted to apparently worthless pursuits such as playing computer games or watching daytime TV, or lifestyles devoid of intellectual, social, or cultural enrichment”.<sup>84</sup> A major concern, however, is that this article does not really consider and explain who and why should have such great power to decide the future of others and whether or not

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Ibid., p. 45, 86.

71

Ibid., p. 89.

72

Ibid., p. 72.

73

Francis Fukuyama, *Our Posthuman Future. Consequences of the Biotechnology Revolution*, Farrar, Strans and Giroux, New York 2002.

74

Ibid., p. 79.

75

Which is mostly genetically predetermined, rather than environmentally.

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F. Fukuyama, *Our Posthuman Future*, p. 83.

77

Ibid., p. 156.

78

Nick Bostrom, Rebecca Roache, “Ethical Issues in Human Enhancement”. Available

at: <https://nickbostrom.com/ethics/human-enhancement.pdf> (accessed on 15 December 2023).

79

Ibid., p. 1.

80

Ibid., p. 3.

81

Ibid., p. 5.

82

The life expectancy and overpopulation problems are widely discussed in the field. A good effort to systemize the main points is made in Brad Partridge *et al.*, “Ethical Concerns in the Community About Technologies to Extend Human Life Span”, *The American Journal of Bioethics* 9 (2009) 12, pp. 68–76, doi: <https://doi.org/10.1080/15265160903318368>.

83

N. Bostrom, R. Roache, “Ethical Issues in Human Enhancement”, p. 5.

84

Ibid., p. 5.

their lives are worth living. Another point that Bostrom and Roache overlook is quite important: what happens to those who cannot prolong their lives, for example those with health problems and diseases, while others can, would this not make the prospect of one's own death even more unbearable?<sup>85</sup> And also, all people are considered equal, at least on paper, which allows people to live together in relative safety, because if an individual transgresses certain boundaries or the rights of others, they will be punished for it. By changing the relationship between human beings and death, a biological constant, the nature of human beings is changed in the sense that the natural processes that define us as a species and make us living matter no longer hold us. But only some of us, since not everyone would or could undergo life extension. The rest remain *generic* human beings, whose value of life and general worth would be determined by the enhanced. This is particularly worrying when we combine this argument with that of overpopulation and add the variable of food and water resources. Humans have the power to effectively alter their environment and adapt it to their needs. But even now, people are struggling with problems caused by overpopulation, such as world hunger, unclean water, limited space to inhabit, and ecological crisis. The planet's resources are finite and insufficient as it is. Now imagine that the population not only grows but also stops dying. The war for resources would not be far away, even with efforts to create them artificially, there would not be enough for everyone. If this happens the whole notion of equality is exposed, because there is an actual threat of social division, a dystopian one, in which the *superior* species deems the *inferior* as not good enough and not fit enough to live and drain the limited natural supplies.

Both Bostrom and Roache try to weaken overpopulation objection through several explanations. They hold the belief that the biggest problem with the overpopulation is actually that there would be more elderly people who will “place an unacceptable financial burden on the young”.<sup>86</sup> The improvement in human capacity would contribute to restoring and extending the working capacity, especially this of the elderly, and that would contribute to a greater economic benefits for society:

“... tackling the aging mechanism may actually alleviate many of the problems that we currently associate with an aging population: many aged people alive today, being too infirm to work, are reliant on state support, and so the years that modern medicine has bought them are ones in which their economic contribution to society is negative. Life extension by delaying or reversing the aging process, in contrast, would increase healthspan, enabling old people to contribute financially and otherwise to society well beyond the sixty-five or so years currently expected. And, when they do finally become ill and die, there is little reason to think that the cost of their care would be any more expensive than it is today. In fact, society could benefit from being able to amortise such costs over a greater number of years.”<sup>87</sup>

Firstly, even assuming that life extension is feasible, I am not sure that it would be applicable to the elderly – there are already irreversible ageing processes, tissue damage, slow metabolic processes. In this sense, I find it somewhat doubtful that life extension, as Roach and Bostrom envisage it, would mean an increase in the working capacity of the elderly. I also believe that seeing the elderly as a burden that needs to be turned into a profitable and exploitable resource is extremely problematic, because this approach would demolish the concept of human solidarity, since it implies that the individual can be considered unfit to be in a society and to live solely on the basis of ageing, a perfectly natural biological process that could prevent individuals

from *monetizing* their existence. Such an idea would reduce human life and relationships to mere economic interest.

Another point that Bostrom and Roache make is that that people are constantly surrounded by means that directly and indirectly extend life. The prohibition of radical prolongation of life logically leads to a general reduction of cautious way of living – to drive without belts, to have no warning messages on cigarette boxes, etc.<sup>88</sup> In my opinion it would be ignorant to think that a person's infinite existence – cellular immortality – even if achieved in the future, guarantees protection from harm; incidents can hardly be prevented, for example, a person can still break their neck at 21 years of age. Also equally absurd is the idea that, when one refuses to extend their own life, one should stop cherishing and preserving it, and yet again, would this imprudence apply to people who are not able to extend their life, should they also cease to preserve it through more conventional methods such as wearing a belt?

In their article, Bostrom and Roache also address the issues regarding embryo selection. It concerns the selection of a *quality generation* and the possible moral problems in such cases. The question, as posed in the article, is as follows: “Is there anything wrong with using any of these techniques to produce children with desirable qualities?”<sup>89</sup> Bostrom and Roache argue that people who oppose *in vitro* procedures due to the discarding of embryos must be aware that more than half of the embryos conceived naturally die anyway.<sup>90</sup> If one is against *in vitro* fertilization based on this argument, they say, then one must also be against natural conception. These kinds of enhancement interventions will shift the question from “Which one to exist?” to “What kind of person will be born?”. In the same passage in the text, the two authors criticize Habermas' claim that altering the child's genetic code would infringe its freedom. As a counterargument, they put forward the following reasoning: genetic factors influence what a person would accomplish in life, regardless of whether another person determined their genes or not.<sup>91</sup> The conclusion is that it is no less autonomous, even vice versa, because the child will have better tools to identify and understand hers or his ambitions.<sup>92</sup> According to Bostrom and Roache, a genetic improvement would not destroy the essence of the parent-child relationship, but would actually improve it. There is also criticism against Michael Sandel and his view of children as a gift. The critique is based on Nick Bostrom's thesis that after genetic alteration they would still be considered a gift, it would even be easier for parents to love a child, which is “bright, beautiful, healthy, and happy”.<sup>93</sup> In choosing the best traits of the future generation, parents should adhere to those that are

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A similar argument is considered also by John K. Davis, “Four Ways Life Extension will Change Our Relationship with Death”, *Bioethics* 30 (2015) 3, pp. 165–172, doi: <https://doi.org/10.1111/bioe.12161>.

86

N. Bostrom, R. Roache, “Ethical Issues in Human Enhancement”, p. 6.

87

Ibid., p. 6.

88

Ibid.

89

Ibid., p. 20.

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Ibid.

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Ibid., p. 21.

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Ibid.

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Ibid., p. 21.

valued in every historical and cultural context: intelligence, happiness, health and more.<sup>94</sup> The claim that embryonic enhancement is a coercive eugenics practice is also rejected because it does not harm people by killing them or deterring them from reproduction, so Bostrom and Roache classify it rather as positive eugenics.<sup>95</sup> Regarding Fukuyama's arguments, in particular the one about the new rights that enhanced people will demand, transhumanists respond that the moral status does not change reciprocally with improvements in people's capacities.<sup>96</sup> In conclusion, they reiterate that

"... there are no compelling reasons to resist the use of genetic intervention to select the best children. There are, however, important issues relating to the fact that such intervention would involve the selection of traits of a person who has no say in the matter, and for this reason it is of paramount importance to consider at all times the best interests and future welfare of the resulting children."<sup>97</sup>

However, at its core genetic engineering definitely can be considered as nothing but a eugenic practice. Most advocates of transhumanism<sup>98</sup> are aware of this and are apprehensive of the negative connotations that it brings with it, so they raise the idea of the so-called *new eugenics*.<sup>99</sup> As a foundation of the new eugenics lie the liberal projects of genetically upgrading the future generation in a non-forceful manner, that does not violate its autonomy and freedom.

This right of self-determination of the subject was first systematized by the English philosopher John Stuart Mill. In his essay *On Freedom*,<sup>100</sup> he argues that one has the right to dispose of herself in every aspect, insofar as the individual does not violate the rights of others.<sup>101</sup> Society can only express an opinion on the individual's personal choices through advice, guidance, or persuasion; if, however, one affects the interests of others, then the individual can be sanctioned by society or judicature.<sup>102</sup> Similarly, most supporters of the transhumanist movement believe that genetic engineering does not lead to defiling other's interest; on the contrary, it is a way of improving a potential future life. This, from common transhumanist's standpoint, means that the use of such technologies can be seen not only as permissible, but also as highly desirable. However, as I stated in the beginning of the article, all human qualities are subjectively good or bad, and it seems as the goal of *producing* perfect human image is not so much the embetterment of humanity from moral aspect, it actually creates a false projection of good, which actually, when inspected, is nothing more than what is perceived as a benefit for the state.

This can be seen in the idea of the *genetic supermarket*. This concept was first illustrated by the libertarian philosopher Robert Nozick in his book *Anarchy, State, and Utopia*. In it, he describes a place where future parents will "shop" for the genetic traits of their future children, and the state will not have the right to interfere in parental choices.<sup>103</sup> With this, Nozick tries to avoid the memory of the old and coercive eugenics. Nozick's book is one of the most candid acknowledgments and indisputable evidence of the possibility of using technologies such as genetic engineering in the future to satisfy consumerist attitudes and to achieve market goals.

It is noteworthy that today most supporters of the idea of a genetic supermarket, such as Allen Buchanan and Ronald Dworkin, are not against the state obliging future parents to genetically better their children, as long as this is done in accordance with the right to autonomy of the potential new life. Furthermore, in a joint work, Buchanan, Dan Brock, Norman Daniels, and Daniel Wickler unite around the idea that the state "does have a legitimate role as guardian of the genetic well-being of future generations".<sup>104</sup> In

fact, the philosophers believe that such state participation in the genetic pool is as justifiable as it is in the conservation of non-renewable resources, as well as in investing in medical and scientific research, because it will bring long-term dividends to the state.<sup>105</sup> Buchanan et al. think of justice mainly through the concept of fair equality in opportunity for people who are part of a cooperative society.<sup>106</sup> The goal of these philosophers, as they define it, is to restore the “normal functioning of our species”<sup>107</sup> in order to enable all people to be effective participants in the concept of social cooperation. Thus, it is understood that in fact it is the diseases that inhibit this normal functioning. Therefore, genetic improvements, including physical, sensory, and cognitive embetterments, become permissible.<sup>108</sup>

Buchanan *et al.* consider the concept of genetic intervention not from a social perspective, but through focusing mainly on autonomous individuals. They cite the need to “correct” and prevent so-called “defects” as a central problem, because “not only limit opportunities but cause severe suffering”.<sup>109</sup> That is why Buchanan *et al.* believe that people have a moral commitment to reduce severe genetic damage, and thus reduce the number of people suffering from them, otherwise people will be in moral failing.<sup>110</sup> Particularly controversial, given the analogy the philosophers use, is the comparison of the moral failing of the inability to prevent harm in “defects” with the moral wrongness of child abuse and neglect.<sup>111</sup> For Buchanan *et al.* there is no conceptual difference between the latter and former, so they argue that all variants of prevention are allowed – genetic screening, selective abortions, as well as interference in the genetic code. For the philosophers, the argument of *open future* is in no way relevant to the genetic manipulations of nascent human life, because in fact no one chooses what to be born.<sup>112</sup> Buchanan *et al.* argue that in fact the future

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Ibid., p. 23.

95

Ibid.

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Ibid., p. 24.

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Ibid., p. 25.

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Such as Christopher Gyngell, Alan Buchanan, Ronald Dworkin, John Harris, and Dan W. Brock.

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A term also known as *liberal eugenics* and first used by Nicholas Agar. See: Nicholas Agar, “Liberal Eugenics”, *Public Affairs Quarterly* 12 (1998) 2, pp. 137–155.

100

John Stuart Mill, *On Liberty*, The Pennsylvania State University, Pennsylvania 1998.

101

Ibid., p. 69.

102

Ibid., p. 14.

103

Robert Nozick, *Anarchy, State, and Utopia*, Blackwell Publishers Ltd., Oxford 2011, p. 315.

104

Allen E. Buchanan *et al.*, *From Chance to Choice. Genetics and Justice*, Cambridge University Press, Cambridge 2009, p. 336.

105

Ibid., p. 337.

106

Ibid., p. 79.

107

Ibid., p. 71.

108

Ibid., pp. 100–103.

109

Ibid., p. 99.

110

Ibid., p. 325.

111

Ibid., p. 256.

edited child will have a better chance to cope with the difficulties of life, and even to be more competitive.

John Harris, a bioethicist with a transhumanist view, also thinks alike, insisting that technological enhancement of human capabilities is necessary.<sup>113</sup> According to him, the course of natural selection is too slow, so mankind needs a deliberate selection to improve evolution itself.<sup>114</sup> This would be beneficial not only to the individual who will have a better life, but also to the state, which will govern better, able-bodied and intelligent people, i.e. there will be no public decline and regression. Improvements in this sense are also a moral obligation, they are “ethical imperatives which have placed human enhancement firmly on the agenda of all who care about the future of humankind”.<sup>115</sup>

### Some Additional Considerations and Conclusions

The aim of this paper was to explore why the *production* of perfect humans through genetic enhancement, while still unattainable, should be cautiously put on the table for discussion but avoided in practice. This proposition was argued through a brief recapitulation of the history of the eugenics movement and was further explored by reviewing some of the key bio-conservative and transhumanist arguments on the subject. It was made clear that the basis of the modern transhumanist project of creating better human beings is in fact the same eugenics with a modern twist. However, it seems to me that the transhumanist line of argument is not entirely convincing, mainly because, as has been shown, it has flaws, vagueness and ambiguity, especially when it comes to explaining what exactly in our human nature is worth preserving. I am inclined to attribute the latter to the lack of a unified understanding and agreement about what it is to be human. Nevertheless, the task facing bioconservatives seems almost impossible: to argue for the preservation of human nature without being able to say exactly what it is.

But this does not persuade me that the transhumanist argument is more dominant and convincing. In addition to the transhumanist attempts to argue for the need to create the perfect human, there are a number of particularly worrying circumstances. First of all, there is a purely technical barrier that is not insignificant because it affects the safe use of CRISPR/CAS9. It is extremely difficult to predict in the long term how an apparently successful mutation will affect other generations. It may be beneficial for generations F1, F2 and F3, but still lethal in F4. In other words, it will take years before certain gene modifications can be considered safe. Although research is often carried out on stem cells and then on animals, it will eventually be necessary to experiment on humans, which is particularly problematic from an ethical point of view, since the intervention is highly unpredictable and therefore unsafe.<sup>116</sup>

Another issue is the eugenic nature of the procedure and how it would affect society when it comes to both somatic and embryonic gene editing. In the first case, there is an ill individual whose health must be restored back to *normal* through genetic engineering. In the second, we have a human whose disease is inheritable. In order to prevent passing on the disorder, the embryo derived from the individual genetic material is edited. What is being observed is much more scientific eugenics, which corrects the “spoiled” soon-to-be-person at the cellular and atomic level. So far, however, the problem seems relatively small insofar as there is simply a scientific statement – fixing/editing

someone's genes, which is being practically isolated from sociocultural contexts and ethical reflections. But with the advancement of technology, the information channels are broadening, and every scientific discovery becomes more accessible to the laymen. The real problem arises when scientific terminology is introduced into everyday language and social context. For example, a defective gene very often leads to the classification of the human being itself as defective, and therefore as redundant. And this is not a hypothetical future situation, but something that is happening now, especially in countries that are not able to integrate disabled people well enough.<sup>117</sup> That means that even now there is somewhat of a genetic racism and it would only intensify in the presence of a social division of enhanced-not-enhanced. Indicative in this regard is the opinion of Daniel Callahan, one of the founders of the *Hastings Center for Interdisciplinary Research in Biomedicine*. According to him there is inconsistency of "how can we both manage to live humanely with genetic disease and yet to conquer it at the same time?"<sup>118</sup>

This is why I think that the current state of the debate on human enhancement through genetic engineering is somewhat stalemated: on the one hand, the bioconservatives are trying to preserve an image of human nature that is too vague and blurred to distinguish what it is, and on the other hand, the transhumanists have visions of a "brave new world" of perfect beings. It should be noted that the way in which most transhumanists defend human enhancement, which can even be extreme at times, actually serves to promote the old eugenics by calling it *new*, thus making the bioconservative position seem more convincing, even though it is not. The interminability of the debate should not come as a surprise though, given that it is just a more modern version of the old eternal metaphysical question: do we leave things *as they are* or do we make them as they *ought to be*; we have metaphysical dimensions of ethics that apply to medicine via genetic engineering. So it seems reasonable, for example, to have disease prevention in the form of abortion, when previously it is clear that the foetus will have a genetic errors, as far as it can reduce suffering of another human being. However, it would be unacceptable to enhance potential people's life at the expense of making the lives of already born disabled people easier. As trivial as it may sound, in this way could certain basic values and important human qualities such as dignity, compassion and empathy be preserved. Because the extreme attempts to create the perfect human being are nothing but an *image*: a mere projection of our fantasy to

112

Ibid., pp. 170–172.

113

John Harris, *Enhancing Evolution. The Ethical Case for Making Better People*, Princeton University Press, Princeton 2010.

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Ibid., p. 4.

115

Ibid., p. 19.

116

This claim can be justified by a recent experiment, in which was reported that when using CRISPR/Cas9 in early embryos, there is a frequent loss of heterozygosity:

Gregorio Alanis Lobato *et al.*, "Frequent loss of heterozygosity in CRISPR-Cas9-edited early human embryos", *Proceedings of the National Academy of Sciences* 118 (2021) 22, doi: <https://doi.org/10.1073/pnas.2004832117>.

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Such as most Balkan countries.

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Daniel Callahan, "The meaning and significance of genetic disease: philosophical perspectives", in: Bruce Hilton (ed.), *Ethical Issues in Human Genetics*, Springer US, New York 1973, p. 89.

outdo nature as such and to simultaneously be the creator and the object of the imagery itself.

Aglaya Denkova

Slika savršenoga čovjeka

Eugenika u doba genskog inženjeringa ljudi

**Sažetak**

*Cilj je ovoga rada dati pregled nekih od problema što se tiču usavršavanja ljudi putem genetskog inženjeringa, zašto je to opasno i kako je ovaj koncept stvaranja ljudi s besprijekornim genima oduvijek bio dio ljudske povijesti, posebno kada se uzmu u obzir razni eugenički pokreti i politike s početka 20. stoljeća. Središnja je teza teksta da proizvodnju ljudskih bića putem genetskog poboljšanja, iako još nedostižnu, treba pažljivo raspravljati, ali izbjegavati u praksi. Zapravo, ova vrsta ljudskog poboljšanja u svojoj je srži oblik modernizirane eugenike pa je praktičnije napustiti koncept izgradnje savršenog čovjeka.*

**Ključne riječi**

slika, čovjek, genski inženjering, tehnika, geni, priroda, eugenika

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Das Bild des perfekten Menschen

Eugenik in der Epoche der menschlichen Gentechnik

**Zusammenfassung**

*Das Ziel dieser Arbeit ist, einen Überblick auf einige der Probleme bezüglich der Perfektionierung der Menschen durch Verwendung von Gentechnik zu schaffen, sowie auf die Gründe, warum es gefährlich ist, und die Tatsache, dass das Konzept der Erschaffung von Menschen mit makellosen Genen schon immer ein Teil der Menschheitsgeschichte war, insbesondere wenn man die verschiedenen eugenischen Bewegungen und Politiken des frühen 20. Jahrhunderts betrachtet. Die zentrale These des Textes ist, dass die Herstellung von Menschenwesen durch genetische Verbesserung, obwohl immer noch unerreichbar, sorgfältig diskutiert, aber in der Praxis vermieden werden sollte. Eigentlich ist diese Art der menschlichen Verbesserung im Kern eine Form der modernisierten Eugenik, daher ist es praktischer, das Konzept der Schaffung des perfekten Menschen aufzugeben.*

**Schlüsselwörter**

Bild, Mensch, Gentechnik, Technik, Gene, Natur, Eugenik

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L'image de l'homme parfait

L'eugénisme à l'ère du génie génétique appliqué à l'humain

**Résumé**

*L'objectif du présent article est de fournir une vue d'ensemble de certains problèmes liés aux perfectionnement des êtres humains par le biais du génie génétique, d'en comprendre les dangers, et de savoir comment ce concept de créer des humains avec des gènes « parfaits » a toujours fait partie de l'histoire humaine, notamment en tenant compte des divers mouvements et politiques eugéniques du début du XXe siècle. La thèse centrale du texte est que la production*

*d'êtres humains par le biais d'une amélioration génétique, bien que toujours inatteignable, doit être l'objet de discussions soigneusement menées tout en évitant sa mise en pratique. En réalité, ce type d'amélioration humaine étant essentiellement une forme d'eugénisme modernisé, il serait plus pratique d'abandonner l'idée de construire l'humain parfait.*

**Mots-clés**

image, homme, génie génétique, technique, gènes, nature, eugénisme