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Why do Biofacts become Social Subjects with Moral Attributes

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Abstract

Biological progressives seek to transform human beings themselves through technology, and point the goal of biotechnology development to human enhancement and life creation, trying to create a superman that surpasses existing humans. Biofacts are based on the possible life of the current development of biotechnology, and they may bring many contradictions to post-human society. However, biofacts as special social subjects with both artificial and natural attributes, we should regard biofacts as the inheritors of the human race and civilization, so that they can truly become the subjects with moral attributes in post-human society.

Keywords

Biofacts; Biotechnology; Ethics of Technology; Social Subjects.

1. Biotechnology has Entered the Fast Lane

In the 21st century, human technology is no longer satisfied with the invention of machines and processes, and gradually turns to a deeper exploration of life itself. This emerging technological revolution is no longer limited to replacing human labour with machinery for greater productivity and promoting greater human happiness, but is also rooted in two other purposes: research for the purpose of curing disease and research for the purpose of enhancing human beings. Based on the possibility of a second technological development, Nicole Calafells collectively referred to human beings as biofacts, which are designed with purpose and at the same time have growth characteristics. Biofacts were born out of human purposeful behavior, but exist through the growth process [1].

In 2017, at the Third Shenzhen Business Conference, BGI Gene Wang Jian said, "In the next 5-10 years, we can chemically synthesize any life, and the progress of artificial life may be faster than artificial intelligence." [2] What Wang Jian said is by no means a fantasy of the sci-fi world, because the facts are there. Synthetic biology is the design, reinvention, and reinvention of life through technological means. In 2017, the team of Yuan Yingjin in Tianjin University has completed the accurate customization and synthesis of eukaryote yeast long chromosomes; in 2018, the Chinese Qin Zhongjun team, the American Jeff Lee and Bock team artificially modified eukaryotic life, integrating 16 chromosomes of Saccharomyces cerevisiae into 1 or 2, respectively. The successful synthesis of Saccharomyces cerevisiae marks the shift from synthetic life technologies from viruses and prokaryotes to eukaryotes, and is a major breakthrough in synthetic genome technology and life synthesis technology. In fact, since 1965, when Chinese scientists first synthesized the protein-bovine insulin, humans have embarked on the road of synthetic life. This technical means breaks the natural boundaries of life and realizes the transcendence of life on the basis of nature. It is foreseeable that with the continuous development of biotechnology, the artificial synthesis of multicellular, animal bodies and humanoids may enter the real world in the near future.

2. The Natural Tendency of Life Evolution

Peter Singer argues that "Human beings are part of a continuum of life and have no special status in his avowedly Darwinian worldview." [3] In nature, human beings are one of the most

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fragile, ordinary beings. Genome sequencing results show that "people have 23 pairs of chromosomes, a genome of 3 billion pairs of bases, and a total of about 22,000 genes". [4] At the genetic level, we have no advantage over other life on Earth. In natural reproduction, these uncontrollable mutated genes lead to the occurrence of many genetic diseases. Human beings, who claim to be advanced beings, have no superiority over everything in nature.

Under the influence of human activities, the earth's climate and environment have approached the "red line". On August 9, 2021, the IPCC issued the IPCC AR6 WGI, which warns all of humanity of serious climate change. Compared to the IPCC AR5 WGI, the climate impacts facing humanity are more extreme. Earth has existed for 4.6 billion years, has gone through five periods of mass extinction, and humans are only very young inhabitants of the earth. However, since the industrial revolution, humans have been pushing closer to the bottom line of natural carrying capacity. Researchers in the United States also pointed out that "the extinction rate of vertebrates on earth is accelerating rapidly, and has now reached 114 times the normal level, and we are entering the sixth mass extinction period of life on earth".[5]

In order to actively cope with the defects of human talents, as well as the drastic changes in the natural environment and various potential risks, biotechnology may actively accelerate to achieve the highest purpose of human civilization and racial continuation, and achieve the leap of life from replenishment to perfection and even construction. In the near future, there may be more crops that can resist extreme conditions, more biosynthetic proteins that can replace traditional meat, and more babies who are born immune to various diseases. Biofacts with human characteristics created through technological means may become the best bearers of human civilization, taking the human genome sequence as the blueprint for life. It is undeniable that once biofacts enter human society, it is very likely to trigger a deep reflection on established morality and law, and even subvert the traditional cognition of human nature and human value. However, the transformation of science and technology from export-oriented material development to introverted human exploration is the inevitable nature of humans, and the pursuit of human beings for their own completeness and happy life is the basic driving force for the development of biotechnology. At present, biotechnology has brought the gospel to patients with genetic diseases and greatly improved the overall health level of human beings. Aside from the extreme conservatives, what reason do we have to deny the biological homology of biofacts and humans? What reason is there not to see technological development and human well-being as proportional?

3. Policy Orientation of Biotechnology

Since 2017, the World Health Organization (WTO) and national scientific regulators have issued reports on regulating gene-editing technologies. While these reports propose strict regulatory policies for gene-editing technology, they unanimously indicate that the use of gene-editing technology for germ cells must be cautious and must be carried out under supervision. On the positive side, however, various authorities have allowed the development of gene-editing for the purpose of treating major diseases, but it is clear that it can only be applied clinically if it is safe and effective, and the future well-being of gene-edited babies must be further ensured. It can be seen that human society has not completely denied the development of gene-editing technology, but the legal and ethical supervision has gradually increased.

At the same time, China government have also issued policies to support the development of gene therapy, cell therapy and gene-editing technologies during the "14th Five-Year Plan" period. According to incomplete statistics, in 2021 alone, including Beijing, Shanghai, Jiangsu, Zhejiang and other provinces, a total of about 20 relevant policies have been introduced. For example, on November 3, 2021, the Beijing Committee of the Communist Party of China and the people's Government of Beijing City jointly issued the "Beijing International Science and

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Technology Innovation Center Construction Plan for the 14th Five-Year Plan Period". The plan shows that in the next five years, China will comprehensively promote the layout of cutting-edge scientific fields, and focus on the key technologies with efficient genetic transformation, accurate gene editing, and synthetic biotechnology.[6] On November 29, 2021, the Zhongguancun Science and Technology Park Management Committee issued the "Development and Construction Plan for the Zhongguancun National Independent Innovation Demonstration Zone during the 14th Five-Year Plan Period". The plan points out that in the "14th Five-Year Plan" period, accelerate the layout of future industries, and "support the development of brain science and brain-like research, gene-editing, stem cells and regenerative medicine, single-cell multi-omics, synthetic biotechnology, biological breeding and other life science and technology research.". [7]

Biotechnology is poised for future development. Although we can't be sure when biofacts will really arrive, the rapid development of biotechnology has shown us that post-human society is probably already a necessary stage in the long journey of human beings, which is a fact that cannot be escaped or ignored; the arrival of biofacts is no longer a question of whether it can be or not, but a question of whether it should be or not.

4. The Powerless Defence of Bioconservatives

The ethical debate in the academic community about whether biofacts should be created can be roughly divided into two camps, namely biological conservatism and biological progressivism. Bioconservatives argue that we should draw red lines to limit the development of science and technology, which could have incalculable and dire consequences for humanity in the future. For example, the unprecedented subversion of human characteristics (including cognition, judgment, analysis, learning, emotion, reasoning and other abilities), the new form of "eugenics" may once again bring tragic disasters to human society, and species beyond humans may lead to the complete extinction of natural human populations. Biological progressives believe that the use of new technologies to improve or enhance human beings themselves, and even the creation of biofacts, is an inevitable trend of human evolution, and the only chance for humans not to be surpassed by machines. In addition, the purpose of scientific and technological development is to improve the quality of human life, improve human living conditions, and enhance the level of human happiness. New technologies can not only effectively cure human diseases, but also may create more perfect human beings. No one would object to advances in medicine, and no one would not want to run faster and live longer.

Every technological revolution in humanity has moved forward in controversy. Just as we cannot stand in the way of history, we cannot completely limit the pace of technological progress. Arguing about the fate of technology when it is uncertain whether it will have a positive or negative impact on mankind is nothing more than subjective speculation about the future, and it is bound to fall into the endless debate. For scientists, those technologies that have the hope of being realized may eventually be realized, and it is not advisable to fear technological risks. We should devote our efforts to how to make the development of science and technology more in line with human needs, how to make the products of science and technology promote human happiness, rather than affirming or denying a certain technology itself.

Bioconservative Francis Fukuyama argues, "biotechnology will cause us in some way to lose our humanity". [8] The development of biotechnology may subvert human dignity and make humans lose the typical characteristics of self. But what exactly is human dignity, Fukuyama did not give a definite answer, only called it the "X factor". Shannon Vallor hypothesized technical means that might reduce human dignity, and tried to refute Fukuyama's view that human life

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was transcended through biotechnology, with some ability beyond the average human being. [9]

For the "new humans" synthesized through technological means, although their genes are different from naturally reproducing human life, which originated in technology, we cannot conclude that they will lose their human dignity. First, through selective gene synthesis, some of the abilities of "new humans" have been greatly enhanced, not only to pay attention to situations that ordinary people cannot experience, but also to obtain a wider range of moral phenomena and more information related to the core interests of human beings; second, their basic human traits have not been eliminated, and they have more potential means to achieve happiness, and can use this advantage to better promote the well-being of all mankind.

It can be seen that the purposeful synthesis of new life or the enhancement of human capabilities through technological means does not reduce Fukuyama's opinion on human dignity, on the contrary, such technologies will effectively enhance human well-being. Kass Leon argues that human dignity is the attainment of prosperity under the essence of our biological form, as well as the excellence of our innate abilities, which depend on human effort or outstanding activity. [10] If human dignity is something that preserves human uniqueness and superiority, then only morality is the basis for human beings to maintain their self-dignity, and moral cultivation is the source of human dignity. We cannot assert that human beings who have been promoted by technology or the biofacts who have been created by technology lack human dignity, and they also have the ability to cultivate morality and the willingness to attain a higher moral level. On the contrary, due to the improvement of body and intelligence, these biofacts, who benefit from technology, may be able to understand everything in the universe and obtain higher human dignity than natural people.

5. Science Fiction Works Reasonably Foresee the Future

The future world is transcendent, but the future has come. The development of science and technology has created all possibilities for mankind, and post-human society has long been ready to come out. How can we grasp the applicability of science and technology, or how can we correctly understand the impact of the current development of science and technology on the future society of mankind? We can find the answer in science fiction.

The future situation constructed by science fiction works is another world rooted in the real world, building a bridge between reality and the future, scientists and the general public. Chinese science fiction writer Wang Jinkang believes that "artificial life will become a reality in the next few hundred years, fully developed technology can become magic." [11] In the future, humanity will completely unveil the mystery of life. Wang Jinkang's new human series of science fiction novels are based on this background to build a future world. These works focus on the changes in the definition of human beings by the development of science and technology, and also express the changes in human nature and moral entanglements between scientists, regulators, the public and biofacts, in an attempt to trigger people's reflection on technology and ethics.

Today's technological scene has already been taken care of by science fiction writers as early as the 20th century. Aldous Leonard Huxley's "Brave New World" may be revealed in the near future. Excellent science fiction works are not only popular science works, but also the direction of scientific and technological workers, and they are also the "navigators" of value judgments. Science fiction works will present a certain technology to the public in a popular way, and scientific researchers will also get inspiration and insight into the future from science fiction works. It can also be said that science fiction works to describe what human beings need to create in the future, and how to achieve it has become the direction of scientists' efforts. More

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importantly, science fiction will also show the ethical issues and social contradictions of the future world and try to guide us toward a happier future.

6. Conclusion

With the rapid development of biotechnology, human beings will open the door to the unknown world, biofacts may become one of the social subjects with moral attributes.

IVF, surrogate mothers, and prenatal screening are all technical means for humans to try to conceive life or improve the quality of offspring through technical means, and human offspring are constantly surpassing their own "fathers". Science and technology are transforming human life. Humans worry that human beings will eliminate themselves through technology while creating a life beyond themselves. Francis Fukuyama notes, "the most significant threat posed by contemporary biotechnology is the possibility that it will alter human nature and thereby move us into a posthuman stage of history". So, emerging technologies are not only transforming human lives and making the world more efficient, convenient, and comfortable. The fears and hazes that stem from technology, and those that may subvert traditional human cognition and moral concepts, are also worth pondering.

In the future, human beings will completely unveil the mystery of life. If artificial intelligence, consciousness uploading, brain-computer interface and other science and technology fields can move forward with great fanfare. If those "silicon-based beings"(AlphaGo & Deep Blue) that are about to reach their singularity will one day gain legitimacy. What reason do we have for the biofacts that are homologous to humans to be ignored? Therefore, biofacts should be regarded as one of the main subjects of post-human society, or become a stage in the course of human civilization.

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