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**TRANSFORMATIONS IN UNDERSTANDING OF HUMAN NATURE:
PHYLOSOPHICAL AND ETHICAL ASPECTS**

Natalia Volovchuk

*Ukrainian Engineering and Pedagogical Academy,
Department of Philosophy, Ukrainian Studies and Political Science
Universitetska str., 16, 61000, Kharkiv, Ukraine*

The article analyzes the main directions of changing moral standards and ethical attitudes throughout the twentieth and twenty first century in the sphere of philosophical ontology under the influence of the development of life sciences.

Key words: moral norms, human nature, genetic engineering, gene pool, aesthetic medicine.

Modern life sciences create new moral issues addressed to scientists, politicians and society. Science and ethics of genome engineering are widely discussing in scientific articles [1; 2; 3]. New challenges such as genetic and cellular engineering, the problems of populations actualize the possibility of philosophy to respond to emerging problems. In the context of this study, the main directions of changing moral norms and attitudes in the sphere of understanding of human nature are analyzed under the influence of the development of life sciences.

In the twentieth century, Genetics occupied the central position among the natural sciences; and managed to solve many fundamental and applied problems of natural science. Genetic research reveals the role of the biological component in revealing the uniqueness of each person; it appeared that the human genetic program lies at the basis of human health and predisposition to diseases (cardiovascular, oncological, etc.). In the field of genetic research there are negative phenomena of scientific and technical revolution development, for example, the degree of environmental pollution by mutagens. Radiation and Environmental genetics assess the impact of chemical mutagens on environmental pollution, local or general increase in the level of radiation on the hereditary program, both human and all biological species of the Earth; show the biological consequences of nuclear war.

Molecular structures that determine heredity are studied by Molecular Genetics and all other levels of life are studied by Genetics. N. Vavilov wrote that the biological phenomena are too complex to be reduced to simple physical and chemical processes of Molecular Genetics. Outstanding geneticist of the twentieth century N. Dubinin opposed direct intervention in the human gene structure, emphasizing that Molecular Genetics does not replace General Genetics. It has its own subject of study. For science and practice, Genetics in general is needed [1, p. 272].

In the 80s years of the twentieth century, a group of scientists led by N. Dubinin presented a forecast of "Problems of General Genetics", in which ten main directions of future activity were proposed: mutagenesis and recombinogenesis; structure and functions of the genome; Genetics of ontogenesis; Human Genetics; Genetics of plants; Genetics of animals; Genetics of microorganisms; radiation mutagenesis (global problems); Genetics of adaptations; Genetics of populations [4, p. 272–273]. According to N. Dubinin the main areas of research should be the Genetics of adaptations and the Genetics of populations in which the Genetics of the norm, rather than the Genetics of pathologies, should become the main problem. This problem should be dealt with not only physicians in the meantime the support of everything progressive in Genetics should come from the state.

The scientific research and aspirations of Dubinin and his team were embodied in the image of a man of the present and future: the spiritual nature of man is formed by past and modern historical life; a person transmits personal experience to succeeding generations through upbringing, which is a powerful lever of evolution in the social form of the movement of matter; a unique human nature arises from the interaction of genetic and social programs; the whole aggregate of the genetic program of the species *Homo sapiens*, possessing a high degree of stability, can be preserved and used in the future of mankind; the term “modern man” at the genetic level covers the period of the existence of the species *Homo sapiens* from the past, through the present to the future; the biological nature of man will be preserved until a person interferes with his own gene structure; the existing physically and morally healthy person has unlimited potential of intellectual and spiritual development without establishing any Utopian standards; in connection with existing technogenic threats, the problem of the person’s spiritual and intellectual development passes into the category of moral problems; humanism, thanks to the development of medicine, expands to concern for the health of the population (adherence to sanitary and hygienic standards, vaccination of the population, diagnosis of diseases, etc.)

In the late twentieth and early twenty-first centuries, in the scientific consciousness of geneticists and physicians occurred some changes in the understanding of fundamental being problems. V. Rybin says about an “ontological shift”, in which the effect of “artificial” on “natural” takes a very dangerous form [5].

E. Gnatyk says that modern achievements in the field of genetic engineering, making the human gene structure the object of external intervention, contribute to the collapse of moral values and the decline of human life value. “The devaluation of the value of life manifests itself particularly clearly in technologies that ensure the reproduction of human life” [6, p. 116].

Sara Reardon reports that human embryos became a central concern over the ethics of gene editing in 2015. Using a technique called CRISPR/Cas9 Junjiu Huang, a gene-function researcher at Sun Yat-sen University in Guangzhou, China, and his team applied it to human embryos that did not result in a live birth. Such research in human embryos is arguable because any gene altering will be passed to future generation without knowing consequences [3]. Dr. Perry thinks that there is an element of a Pandora’s Box in the field of genetic engineering connected to human embryos. “We have to grow up, we have to say, “Look we have something potentially enabling, but it can be potentially misused, should we just cower in the corner?” [7].

In the 1960s, the term «gene pool» (genpool) entered the scientific lexicon. This concept revives the old eugenic projects for the improvement of man. Y. Hyun says: “Firstly, this is the idea of an information duplicate of humanity, which makes it possible (at least theoretically) to reproduce the exact genetic copies of individuals” [8, p. 61]. In the future, all the spiritual qualities of a person can be represented in the form of information copies that will be included in special libraries and it will be possible to reproduce any individual or the most “valuable” person. “Secondly, this is the idea of the discreteness of genetic information on which the (theoretical) possibility is based to create completely new individuals through the recombination of genes” [8, p. 62]. The ultimate perspective is the construction of a superman.

D. Dubrovsky expects improving the psychological properties of the individual using new nanotechnology, biotechnology, information technology and cognitive technologies in future. Biologizing the social in man, Dubrovsky reveals the “exciting” prospects for the future in improving (correcting) the psychological properties of the individual [9].

Geneticists are more restrained in their assessments and forecasts and yet the tendency to biologize the essence of man in their works is present. Academic K. Skryabin, Russian Academy of Agricultural Sciences, writes that scientists allocate more and more genes that determine

behavior that on the whole does not reduce to the predetermined genetically, but it largely depends on the genotype. As a confirmation of this point of view, the academician cites the results of works performed on mice: "With a certain mutation (change in gene), the mouse loses its ability to build a nest. When mice are born, it does not create nests, and mice die. This gene is transmitted through the male line and the male mouse determines whether its daughter is a good or bad mother. Recently, more and more genes determining behavior have been opened" [10, p. 57].

I. Vyshev offers another "tempting" perspective: "Cultivation of tissues and organs, revitalization of previously frozen people for the purpose of their treatment, prolongation of life, and the achieving the immortality" [11, p. 390]. The author of the article asserts that the achievement of real personal immortality should become the common property in the future. The fruits of progress will first be used by the authorities and the money-holders, and then they become the property of any person. "...the universality of practical immortality will undoubtedly become a powerful factor in the progress and improvement of human society" [11, p. 392–393]. The moral side of the issue attracts the attention of the author, and he suggests the following solution: "there are still many unresolved issues, all sorts of "blank spots" and, therefore, doubts and even categorical denials from conservative scientists and politicians, who are often under the influence of religion, but especially from the servants of the church" [11, p. 391]. The author concludes that these doubts and denials can not be taken seriously.

Geneticists, Russian and foreign physicians admit that at this stage of development of genetics and medicine gene therapy is a large-scale experimentation, "it is no accident that in the descriptions of gene therapy work the words "projects", "registered" are used instead of the words "methods of treatment" and "described" [12, p. 136]. In spite of this some optimistic claims are heard: "the shock of the first victims of gene therapy abroad will quickly pass. He will be replaced by the hard work of thousands of laboratories. The causes of failure will be established and new ways of "treating genes" will be found" [12, p. 138].

In 2002, it is reported that several patients who were treated with gene therapy had leukemia. Genetic experts from different countries have recognized the imperfection of medical technologies at this stage in the development of science. At the same time, as Y. Yeldyshev writes: "the experts of the NIH (National Institute of Health) agree that gene therapy for such severe hereditary diseases as congenital immunodeficiency should be continued, because there are simply no other ways to help patients" [13, p. 135].

There is one more controversial subject as agricultural biotechnology. The "Green Revolution" is perceived ambiguously by the world community. With the advent of new scientific techniques, it becomes possible to increase agricultural productivity; to abandon the plant protection chemicals; to make improvements in crops and livestock; to solve the problem of hunger on Earth.

On the other hand, it is possible to change the genetic program of plants, animals and humans. The main concern is to establish whether biotech food is as safe as its conventional copy. The specific safety issues include the knowledge of the biology of the plant or understanding the natural structure of nutritional components such as vitamins and minerals; toxicants; allergens and anti-nutrients.

Committee on Environmental Impacts reports that there is important evidence that contemporary farming practices using new scientific techniques have simplifying and destabilizing effects on the environment. "These effects are of concern because they appear to weaken or destroy ecosystems' capacity for resilience – that is, an ecosystem's ability to return to its initial state despite disturbance. Potential ecological effects of transgenic crops, and other crops bearing novel traits, may be heightened in this destabilized ecological milieu" [14, p. 4].

While genetic engineering improves individual varieties of plants, animal breeds and strains of microorganisms, makes it possible to use less toxic chemicals supporters of the biotechnology think that there are no special reasons for concern. But critics believe that “genetic engineering is not like traditional breeding. It creates crop and animal varieties that would not otherwise occur in nature, posing unpredictable risks to environment (and to human health). Because they are living organisms, GE crops are difficult to control, greatly increasing the potential for escaping into the environment, crossbreeding with and overtaking wild species, and generally disrupting the natural ecosystem” [15, p. 33].

The successes of the development of aesthetic medicine are another problem subject of molecular genetics. Patients suffering from burns, skin cancers and some congenital abnormalities are treated with revolutionary techniques of plastic and reconstructive surgery. Meanwhile doctors promise humanity to solve the problems of age-related skin changes due to the use of cellular technologies for substitution therapy. For this purpose, geneticists investigate the properties of dermal fibroblasts from various areas of the human body, which provide a good recovery effect when correcting age-related skin changes [16; 17].

Johan Junker, the author of the research “Human dermal fibroblasts in tissue engineering”, considering different cell sources in tissue engineering such as donor cells, autologous cells and adult and embryonic stem cells (ESC), writes that “many ethical issues exist when harvesting cell from human embryos, including the moral status of the embryo, the sanctity of life and the possible use of savior siblings as a source of ESC” [18, p. 3].

Looking several decades ahead in the development and popularization of genetic biotechnology, professor of Genetics H.T. Greely predicts that children will be conceived not in the sexual intercourse but in a laboratory. Created in laboratories women’s ova can be fertilized in vitro to give many embryos. That will allow parents to choose embryo with preferable qualities (physical, intellectual, artistic). H.T. Greely emphasizes that parents will not design babies they will just select them. The purpose of artificial reproduction is to create healthy embryos without alteration [19].

In the discussion about moral aspects of embryo engineering Prof. Peter Brauder says that scientists do not manipulate the genes they just “decide which of the embryos can be implanted into woman safely in the knowledge they will not carry on that genetic disorder” [7]. The question about human embryos that you are going to destroy is not mentioned by Prof. Peter Brauder.

Now we will formulate the image of a future person under the influence of the achievements of biology: a person loses the status of an individual and becomes the object of eugenic or medical manipulation; aesthetic ideal can be achieved through modern biotechnologies; a human-transformed habitat, interference in brain can lead to the transformation of the biological nature of man; using hereditary material of different species it is possible to create chimeras (human-animal); a person becomes an object of medical experimentation; a person gains immortality.

The ancient philosopher Parmenides endowed the concept of human being with the substantiality existing before and independently of human consciousness. The philosophy of modern times had not abandoned the ancient attempt to find the support of human existence. The place of the Absolute being, God, was occupied by the subjective human mind, to which philosophers attributed all the characteristics of the Logos: the comprehension of truth, the establishment of cause and effect regularities, the construction of true conclusions, the search for the essence of phenomena, etc. At the end of the twentieth century, a campaign against the mind was launched. The tendencies of irrationalism, anti-intellectualism, manifested in the philosophy of F. Nietzsche, became leading in non-classical, post-classical philosophy in the twentieth century. In all spheres of public life, there is a pluralism of assessments, opinions, understanding and vision of the world.

Nowadays classical ethical categories (life, death, love, compassion, shame, conscience, honor, etc.) are undergoing changes and different interpretations are emerging; and everyone has the right to choose the one that he likes best. A person becomes a legislator, not a co-legislator (I. Kant) of moral values; he does not correlate them with the fundamental categories of being. Modern achievements of Biology, their application in practice demonstrate a break with the basic ethical values. The question is whether human needs are realized in the image of a person posed by modern Genetics?

In religion (Judaism, Christianity, Islam), God is recognized as the fundamental principle of being, establishing a natural and spiritual order. The idea of God as the supreme lawgiver of the world has an important meaning: divine laws act as something immutable, a person has no right to change them, adapt to their own interests. God created man, therefore, on manipulation with the human body, his gene structure is imposed a ban. This conclusion could be considered true.

At the same time, it is obvious that the religious vision of the world carries elements of mysticism and irrationalism. The history of mankind appears before us as a pre-established harmonious movement towards the ultimate goal. In a religious worldview there is no place for a rational study of nature and man, as a phenomenon of the natural world. The basis of religious reasoning is the recognition of the existence of God. For some researchers the basis is faith in God, for others is the free will of man, and for the third is the level of development of moral consciousness.

Modern scientific knowledge says that a person appears on earth in the process of evolution. From a cosmic point of view, a person is a monad that assimilates the whole world, before it is the task not to destroy life. The idea of the evolution of species first appears as a scientific theory in the Biology of the mid-nineteenth century. In the XXth century, due to the development of biological knowledge, enrichment with the research of other areas of scientific knowledge, the concept of global evolutionism appears (V. Vernadsky, K. Tsiolkovsky, N. Umov, I. Shklovsky). "The essence of this theoretical construction", M. Keligov writes, "can be characterized as follows: all known levels of the structural organization of matter: cosmic, physical, geological, biological and social represent "cosmogonic unity of the series of development of matter" (A. Tursunov) or types of evolutionary processes that have genetic continuity and a structural and functional relationship" [20, p. 35]. The main values of the concept of global evolutionism are the fight against disorder, the love of creativity, while the ethical ideals that are derived from life become leading in research.

Ethical research limits the claims of geneticists, physicians to manipulate the human genotype, the human embryo. From the point of view of ethics, life is the highest value. In ethical concepts of Russian religious thought, life is realized as a self-worth, as a fundamental category, filled with spiritual meaning. In the philosophy of the common cause launched by N. Fedorov we find the ideas of the resurrection of the fathers and victory over death. At the same time, the moral precondition for immortality is not love for oneself, but love for the fathers, awareness of the moral duty of the sons. The idea of universal kinship, in the opinion of the Russian philosopher, should reorient a person; change his emotional component, methods of thinking and morality. V. Soloviev saw the way of affirming Good in the moral spiritualization of nature. These concepts might seem to be naïve, but they support the idea of nature being before changeable world.

To conclude, it is shown that, on the one hand, science tries to answer the question of what is useful, what preserves a person, reveals essential aspects of human nature, responds to human needs. Spreading scientific knowledge, estimating people's actions on the basis of empirically based ideas lead to a scientific evaluation of the person's actions and new norms is being formed and traditional obsolete norms begin to have less and less importance.

On the other hand, scientific knowledge is the enemy of moral, in the sense that science transfers certain norms of morality (for example, the value of human life) into the rank of prejudice thus the negative role of science is traced. At the same time, moral has its own determining reasons for accepting or rejecting scientific recommendations.

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ТРАНСФОРМАЦІЇ РОЗУМІННЯ СУТНОСТІ ЛЮДИНИ: ФІЛОСОФСЬКІ ТА ЕТИЧНІ АСПЕКТИ

Наталія Воловчук

*Українська інженерно-педагогічна академія,
кафедра філософії, українознавства та політології
Університетська, 16, 61000, м. Харків, Україна*

У статті аналізуються основні напрями зміни моральних норм та етичних поглядів протягом XX та XXI століть у сфері дослідження сутності людини під впливом розвитку наук про життя.

Ключові слова: моральні норми, природа людини, генна інженерія, генофонд, естетична медицина.