

**Bioethics Between the Ambition of Science and the Paradox of Ethical Values**

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**Abstract:**

This article addresses the enormous scientific development in the modern era, especially in the field of biology, and the impact of this development on ethical and human values. The article begins by presenting an overview of the major scientific revolutions that the modern era has witnessed, namely the information revolution, the revolution of matter, and the biological revolution. It focuses particularly on the biological revolution that led to astonishing discoveries in understanding living beings, especially humans, such as the discovery of the genetic code (DNA) and the ability to intervene in the genetic structure.

The article concludes that contemporary scientific and biological development has achieved many positive accomplishments for human well-being, but at the same time it represents a danger to human dignity and the sanctity of human life if it is not dealt with with ethical responsibility. Therefore, philosophy and human values must remain present and active in guiding scientific and biological research.

**Keywords:** Bioethics, scientific development, biological revolution, ethical values, human dignity.

**Introduction:**

There is no doubt that the scientific development that we are witnessing now in the contemporary era is due to the great discoveries of humanity and to the scientific method that pushed human beings toward that dream they seek, which is the domination of nature and its subjugation. Humanity has succeeded in this and has become the center of the universe, starting from research and discovery that enabled it to achieve this. Research in nature did not stop; rather, it went beyond that to reveal the hidden aspects of the human being, this sacred being that contains a world within itself and holds secrets and mysteries. However, due to scientific and technological development, it has become easy to delve into the inner aspects of this being.

Since scientific and philosophical theories are built and developed through debate, paradox, and criticism, research—especially biological research—has achieved a great scientific revolution when it discovered the human organism and became capable of intervening in the most precise part of the human body. This has warned of danger for the future and value of humanity. Now we are faced with a great paradox: should science continue to intervene in the human organism and change its unique and sacred nature? Or should this science be framed by ethical values that constitute the essence of the human being and of the living being? How can we resolve this paradox that represents the re-raising of the question of ethics in the contemporary era, or what is now called bioethics?

## **First: Revolutions of Contemporary Science and the Emergence of Biology**

The tremendous development of science that the contemporary world is witnessing has led to a major revolution of rapid discoveries in many diverse fields. However, these can be summarized in three major scientific revolutions as follows:

### **1. The Information Revolution:**

This revolution appeared in the mid-twentieth century when the Bell Company succeeded in discovering the transistor, which is considered the foundation of the computer in its modern form. The achievements of this revolution continued through the discovery of the internet and informatics, paving the way for the invention of microchips capable of distributing intelligent systems. This revolution is considered one of the achievements of contemporary scientific development.

### **2. The Revolution of Matter:**

This revolution appeared through the discovery achieved by the scientists Erwin Schrödinger and Werner Heisenberg, which consisted in uncovering the secret of matter and recognizing its components. This opened the way for scientists to gain a precise understanding of matter and control over it, and consequently the ability to reshape and design it in different and new forms. This revolution constituted one of the most important contemporary scientific revolutions and opened new horizons for this development.

### **3. The Biological Revolution:**

Perhaps the most important event in the development of this revolution goes back to the Darwinian theory in biology, but its actual appearance came when the genetic code was discovered and its structure identified. This made it easier to discover life closely by revealing and identifying this code. The credit for this discovery belongs to the scientists James Watson and Francis Crick through their experiments on DNA, deoxyribonucleic acid.

These revolutions were interconnected and paved the way for one another. This development represented a new entry for biology that enables us to discover life and understand its most precise components. Therefore, this interconnection between sciences and the continuation of their development will increase future understanding of the secrets of living beings. Every day we hear about the emergence of new scientific theories that contribute in one way or another to understanding this sacred being that contains great and mysterious secrets which science attempts to reach and understand in their finest details.

Thus, the biological revolution in the contemporary era represents an actual entry for understanding the inner components of the human body and becoming closely acquainted with

it and with its precise and complex characteristics. Therefore, what is the biological revolution? And what are its contemporary techniques?

## Second: The Biological Revolution

The contemporary era has witnessed a major scientific revolution in various fields, and the credit for this largely goes to the development of technology. For this reason, the contemporary era is par excellence the era of biology, because biology has experienced developments that it had never experienced before. Consequently, the life sciences have developed and achieved a great leap in discovering the human organism and in discovering contemporary and advanced scientific techniques. So what is biology?

### 1. The Concept of Biology:

The first credit for formulating this term goes to the French biologist Jean-Baptiste Lamarck, because he was the first to classify animals. André Lalande states in his philosophical encyclopedia about biology: “A term invented by Lamarck to denote in general the science of living beings, that is, botany and zoology in terms of their subject.” Thus Lamarck is considered the first to use this term that we use today. This concept is concerned with the classification of living beings, and the subject of this science is botany and zoology. It is also concerned with the structure of living beings, their characteristics, and their functions.

Biology is also defined as: “the science that studies the properties, structure, and functions of living beings in general.” This means that biology is the science specialized in studying the characteristics present in living organisms and in researching and studying the structure and composition of the bodies of living beings.

Thus, the biological revolution refers to that revolution that manifested itself in the life sciences. It appears in our world today as a biological revolution that manifests itself in influencing hereditary factors in humans, in biochemical research on the brain and the mind, especially in research related to female infertility—making a woman originally infertile then fertile when she wishes—determining the characteristics and sex of the newborn, creating artificial births, and research on extending life; even studies that hope to reach the preservation of a human being through tissue transplantation or restoring life to a person after death.

This statement clarifies and summarizes the real features that biology is witnessing today, as science has become capable of intervening in the genetic composition of humans in order to understand it in detail and then attempt to modify and change it, whether for treatment or for modification. Therefore, this revolution is considered a major scientific revolution that humanity had not witnessed before. Biology directed and focused its attention on the human being in his structure and in attempting to understand the way it functions, such as the brain and all organs of the body. It also addressed issues such as infertility, reproduction, sensory enhancement, and genetic modification, among other important discoveries that enabled biology to understand the full characteristics of the human organism. Consequently, it became easy to intervene in it through contemporary biological techniques such as artificial fertilization and cloning and others.

Faced with this scientific intervention into the privacy and composition of the sacred human being, a new tendency appeared that calls for protecting humanity from the excesses of the biological revolution and for re-raising the relationship between ethics and science and the

necessity of protecting humans, because in the end humans are a distinct, unique, sacred, and moral being. These researches must therefore be framed by ethical values. This concern represented the beginning of protecting humanity from scientific intervention in its organism, because the human being represents the center of the universe. Such irresponsible interventions in his organism should not continue, and he must be protected and his ethical nature understood. Thus what is called **bioethics** appeared, which is the ethics of life that calls for reconsidering the relationship between science and human ethics. What is bioethics? And how did it attempt to revive the relationship between biological techniques and ethical values?

### Third: Bioethics as the Ethical Entry to Science

The development reached by humanity and the contemporary world, especially in the biological field, genetic engineering, and all techniques of biotechnology, has placed philosophy at the forefront of the sciences that sound the alarm and warn of a dangerous human future if these techniques continue to intervene in the human being and the living being in general. This paradox between science and values constitutes a major problem in the contemporary world and is a call for renewing ethical philosophical thought, especially in light of the discourse of endings that appeared in the contemporary era and predicted by many scientists and philosophers who spoke of the death of philosophy after the great scientific development and the high levels of progress achieved by science. What then is bioethics? And how did it attempt to bring closer the biological and scientific development on the one hand and the ethical and value dimension on the other?

#### 1. Bioethics: Concept and Origin

There is no doubt that the concept of bioethics is a contemporary concept that emerged from modern scientific challenges, especially with contemporary biological and medical development. In fact, the American biologist specialized in cancer **Van Rensselaer Potter** was the first to use this word in 1970 in an article titled “Bioethics: The Science of Survival.”

The use of this term goes back to the great disparity between the scientific progress in the fields of medicine and biology and the great delay suffered by the ethical dimension. The aim of establishing this field was to bridge the paradox and gap between medical and biological sciences and the ethical dimension and to establish an alliance between them in order to serve the sacred human being and preserve his dignity. This can only happen through establishing an alliance between the scientific aspect and the philosophical aspect in ethical values and keeping pace with the great scientific progress.

The concept of bioethics refers to “a set of researches, discourses, and practices that are usually characterized by a multidisciplinary nature and that aim to answer ethical questions and issues raised by the progress of technological science in the fields of medicine and biology.”

Thus bioethics means the ethical discourse that accompanies scientific and biological development. It seeks to establish rapprochement between ethical values and what science accomplishes in living beings; or it is the moralization of science and its fields of application. For this reason, bioethics constitutes a new stake for reviving contemporary philosophical discourse and ensuring its continuity and the revival of philosophy so that it becomes a new stake and entry for the contemporary era.

Muhammad Jadidi confirms this when he says:

“It has been possible for bioethics, through the issues it has raised that essentially concern the sanctity of life as a whole, to return value studies in general and ethics in particular to the forefront of research and to make contemporary humans aware of the dangers surrounding them resulting from scientific and technological progress in the biological and medical fields in particular. It has even called on them to engage in strengthening their awareness effectively and efficiently in order to preserve their dignity, identity, and environment from the deviations and negativities produced by technological applications of the sciences.”

The emergence of bioethics in the contemporary era represented awareness of what is happening in the paradox between science and ethical values. Humanity became aware of these dangers that were initially presented as sources of well-being. This philosophical awareness represented by ethical values is in fact awareness of the reality of dangerous transgressions that must be recognized because they affect human dignity and the sanctity of life itself. Therefore, awareness of the matter has made contemporary humanity think in a conscious ethical way to reconsider the relationship between science and the human being. In the end, the human being is a sacred value-bearing being before being a mere tool or material for irresponsible biological experiments and interventions.

#### **Fourth: Philosophy and the Necessity of Ethical Awareness of the Paradox of Science**

Biology and its techniques have caused a major impact on the living being, especially the human being, as they have affected his dignity and the sanctity of his life. This revolution and technical progress still require philosophical and ethical awareness in order to understand their results and their future effects on the living being. Philosophy has always been associated with virtue and values that the human being must embody, and today we are in urgent need of it to frame scientific interventions on living beings and to preserve their dignity and the sanctity of their life, which has become threatened by an unknown danger.

Muhammad Jadidi says in this regard:

“To assert that bioethics has today become a stake for the philosophy of the future is due to its great importance and the attention it receives in current applied philosophy studies and research. Philosophy, which has repeatedly been subjected to violent shocks under several names such as ‘the end of philosophy,’ ‘the death of philosophy,’ and ‘the extinction of philosophy,’ has each time found a way to assert itself and justify its existence. From this perspective, I expect bioethics to represent philosophy in one of its most prominent and fertile fields in this new century.”

Philosophy today faces a new challenge far from the discourse of endings that called for its disappearance. Philosophy is renewed and fully aware of the matters of life, foremost among them scientific development. Jadidi presents a general vision of philosophy and that it is today capable of framing the capacities of science, as it returns strongly to defend the sacred human being. Contemporary philosophy faces major challenges and stakes that make it the legitimate defender of human beings, their values, and their ethics. Bioethics is therefore a new field of applied philosophy that accompanies human values and their place in the progress witnessed in the present era.

The matter did not stop there. A group of contemporary philosophers appeared who predicted the danger of the scientific situation and its impact on human values and dignity. They called

for the necessity of framing scientific practices applied to living beings and becoming aware of them, as well as understanding their value and their future effects on humans, society, and the environment. Among the philosophers who predicted the danger of the biological revolution and its negative effects on human nature and identity is **Alvin Toffler**, the American scholar and philosopher. In his book published in 1970 titled *Future Shock*, he predicted that the biological revolution would transform the human organism into a commodity subject to exchange and manipulation in the composition of the human body, whereas previously the human being was sacred and a value-bearing being. He says:

“The human body, like geography, has until now represented a fixed point in human experience... but today we are rapidly approaching the day when the human body will be regarded as something by no means fixed.”

Toffler explains the tremendous development that biology has reached in the contemporary era and predicts a frightening future for science if we are not aware of it. Science has now begun to intervene in the most precise details and in the biological structure of living beings. In the past, human value was fixed and a red line regarding intervention in its structure and the sanctity of life. Today we face a major challenge to become aware of these unethical practices that affect humans and their organism and change their composition and original nature.

Toffler did not stop there but also predicted the danger of the future of biology in genetics, genetic modification, and genetic enhancement, clarifying its danger. He says:

“With the rapidly accumulating knowledge we have about genetics, we will be able to breed new races of human beings with blue skin, or if we wish, green, crimson, or orange.”

Reaching genetic modification and improvement without awareness will produce in the future a human whose characteristics and values we do not know. If genetic engineering techniques continue without ethical framing and awareness of the sanctity of the human being—this being who represents the axis and center of the universe—the future will be disastrous and dangerous, especially if it is connected with humanity’s impulse toward discovery, profit, and commodification.

This random intervention in human privacy is extremely dangerous and makes humanity think about a future it does not understand. Therefore it is necessary to approach these practices with ethical and philosophical awareness in order to address the paradox between science and values. The matter did not stop with the American philosopher Alvin Toffler. The American philosopher **Francis Fukuyama** also presents a similar position through his strong rejection of contemporary biotechnologies and their danger to humanity, because they may change the essential characteristics of humans, especially in applications of genetic enhancement, reproduction, and cloning. He says:

“The same is true with biotechnology. It is logical to worry about unintended consequences and unexpected costs, but the deeper fear people have about technology is not utilitarian at all. Rather, it is the fear that biotechnology may ultimately cause us to lose, in some way, our humanity.”

The contemporary philosophical elite predicted the dangers of science when it began to lose control by interfering in human nature. The issue here is not merely material concern; rather, the consequences feared by philosophers in the contemporary era are that contemporary biotechnological progress may cause humans to lose their humanity, and at that point it may be

too late to realize that this sacred being has lost its essential and unique characteristics and may no longer be human but could become another being different from the human.

## The Consequences of the Contemporary Biotechnological Revolution

The consequences of the contemporary biotechnological revolution have stripped the human being of everything sacred and of all his values, and the time has come for philosophy to adopt this problem and frame it according to ethics and values that restore the understanding of the human being as that value-bearing, ethical, sacred and honored being. It is also time for science to understand that the future of these applications is unknown and dangerous. We do not know what kind of human we will see in the future if biotechnology continues to intervene in human nature, because in doing so it harms the human being, his society, and his environment.

The German philosopher **Jürgen Habermas** also predicted the danger of the contemporary scientific situation and the positivist tendencies that do not take into account the specificity of the human being, who is placed at the forefront of other beings because of the characteristics that distinguish him. Habermas had a clear position in his book *The Future of Human Nature: Toward a Liberal Eugenics*, where he diagnosed the danger that science plays in the contemporary era, calling for the protection of the human being and his values.

He believes that manipulation of human nature is manipulation of the identity of the human species and the human race, especially in research on cloning and pre-implantation diagnosis. He says:

“Genetic manipulation is linked to issues of species identity, through which the understanding that the human being forms about himself as a being with a sexual nature constitutes the context within which our legal and moral similarities are organized... Consumer research on embryos and pre-implantation diagnosis provoke strong reactions, as they are considered a representation of the looming danger of the liberal eugenics that has come to our doors.”

Habermas tries to make us aware of the consequences of technical intervention in the human being and in his nature, as psychology has begun to manipulate the identity of the human being and his species through irresponsible interventions in his organism. Thus the danger still exists because these technologies have begun to threaten the human species and its society, and they warn of an unknown future. Therefore, ethical and legal intervention is necessary to protect this sacred species from these dangerous and irresponsible technologies that do not realize the essence of this being.

The interest of philosophers in what contemporary science offers in terms of biotechnological and biological techniques clearly appears, as well as a wave of awareness of the scientific and technical conditions that scientific development has reached. This interest and awareness of the circumstances is in fact another awareness of the value of philosophy and the extent of its accompaniment of the human being and the necessity of protecting this human being, because the human being in reality is a value-bearing, unique, and ethical being before he is matter; he is spirit. Therefore, bioethics constitutes another entry point for reviving philosophy and bringing it closer to scientific practices in order to understand them and limit them. There is no doubt that the paradox of science and philosophy is not a completely separate paradox; rather contemporary philosophy that seeks values may be the solution to limit scientific and technological practices and to enlighten the individual and society about this danger whose

future effect on living beings we do not know. Therefore the ambition of science, which never ends, must be framed by values and ethics that accompany and support it in order to protect this sacred being.

## **Conclusion:**

Finally, it can be said that contemporary scientific and biological development was the result of several factors, and that it achieved many positive things for the welfare and happiness of human beings. However, its intervention in the human organism has become a threat to human dignity and the sanctity of his life. Therefore philosophy has always been present and defending human values, since the human being is the unique being around whom everything revolves. Bioethics, or the ethics of biology, has also been the initiative to revive the concept of philosophy and values in the contemporary era, in line with scientific development on the one hand and in order to protect the value of the human being on the other.

Bioethics represents the paradox that brings science and philosophy together and attempts to bring them closer within the framework of protecting the human being, and warning about his future and the future of his values in an age that recognizes only materiality and science and gives little importance to its values, society, and environment.

Bioethics is considered the philosophical and ethical discourse of the scientific and biological developments that have affected living beings, as it seeks to find mechanisms to protect the human being, protect his dignity, limit technical interventions in the human body, and prevent altering its structure. From here lies the stake of bioethics in that value-based discourse of scientific development in order to preserve the future of humanity and its destiny.

## **References :**

### **I. References :**

- Alvin Toffler: *Future Shock; Changes in the World of Tomorrow*, trans. Muhammad Ali Nasif, Egyptian Society for Global Knowledge and Culture, Nahdet Misr Press, 2nd ed., 1990.
- Al-Sadiq Al-Hilali and Sufyan Muhammad Al-Asouli: *Dictionary of Genetics and Biological and Molecular Sciences*, World Health Organization, Regional Office for the Eastern Mediterranean, n.d., 2007.
- Omar Bouftas: *Bioethics: The New Ethics in the Face of the Excesses of Biotechnology*, Afrique Orient, Morocco, 2011.
- Francis Fukuyama: *The End of Man: Consequences of the Biotechnological Revolution*, trans. Ahmad Mustajir, Sutour, n.p., 1st ed., 2002.
- Mohammed Jadidi: *Bioethics and the Stakes of the Coming Philosophy*, Believers Without Borders, Rabat, Morocco, 2016.
- Mohammed Saeed Al-Haffar: *Biology and the Fate of Man*, National Council for Culture, Arts and Letters, Kuwait, 1984.
- Mustafa Al-Nashar: *Therapy through Philosophy: Research and Articles in Applied Philosophy and the Philosophy of Work*, Egyptian House for Printing, Publishing and Distribution, Cairo, 1st ed., 2010.
- Jürgen Habermas: *The Future of Human Nature: Toward a Liberal Eugenics*, trans. George Katoura, Oriental Library, Lebanon, 1st ed., 2006.

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### **II. Encyclopedias and Dictionaries:**

André Lalande: *Lalande Philosophical Encyclopedia*, Vol. 1, trans. Khalil Ahmad Khalil, Oweidat Publications, Beirut, 2nd ed., 2007.