



GENETIC AND EVOLUTIONARY TASKS OF THE DEVELOPMENT OF SCIENCE IN THE WEST

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ANNOTATION

The development of science in the West is a centuries - old process that reflects the formation of a unique scientific tradition. From ancient roots in ancient Greece and Rome to medieval universities in Europe, Western science gradually formed its distinctive features - rationalism, empiricism and faith in progress. A special role was played by the scientific revolution of the XV-XVII centuries, marked by the discoveries of Copernicus, Galileo, Newton and laid the foundations of the classical picture of the world. In subsequent centuries, Western science demonstrated impressive achievements in natural, technical and social disciplines, occupying leading positions in the world scientific community. This successive path of development and integration with other traditions, which is the main task in the genetic and evolutionary aspect, continues to determine its significance in the modern era.

Key words

science, antiquity, rationalism, interdisciplinary, continuity, integration, progress.

АННОТАЦИЯ

Развитие науки на Западе представляет собой многовековой процесс, отражающий становление уникальной научной традиции. От античных корней в Древней Греции и Риме до средневековых университетов Европы, западная наука постепенно формировала свои отличительные черты - рационализм, эмпиризм и веру в прогресс. Особую роль сыграла Научная революция XV-XVII веков, ознаменовавшаяся открытиями Коперника, Галилея, Ньютона и заложившая основы классической картины мира. В последующие столетия западная наука демонстрировала впечатляющие достижения в естественных, технических и социальных дисциплинах, заняв ведущие позиции в мировом научном сообществе. Этот преемственный путь развития и интеграция с другими традициями, который является главной задачей в генетико-эволюционном аспекте продолжает определять ее значимость в современную эпоху.

Ключевые слова

наука, античность, рационализм, междисциплинарность, преемственность, интеграция, прогресс.

Science is a key factor that determines the course of the development of modern civilization and has a fundamental impact on all spheres of human life. For centuries, accumulated scientific knowledge and technological achievements steadily transformed the world, fundamentally changing the conditions of human existence. From the oldest discoveries in the field of astronomy, mathematics and natural science to revolutionary breakthroughs in physics, chemistry and biology, science tirelessly expanded the boundaries of cognition, allowing a person to more deeply understand the nature of the universe, the laws of living systems and the properties of the material world.

The key role of science is that it not only enriches our intellectual and cultural heritage, but also

becomes an important tool for solving the global problems facing humanity. From environmental challenges and energy crisis to disease, hunger and other social disasters - scientific developments and technological innovations provide us with invaluable means to overcome them. In addition, science stimulates creative thinking, gives rise to new ideas and serves as a source of inspiration for further intellectual and cultural development.

It must be recognized that science, like any sphere of human activity, is not devoid of shortcomings and sometimes capable of generating ethical dilemmas. Therefore, it is important that scientific progress is always accompanied by a responsible and humane approach, subordinate to the highest goals of the well-being and prosperity of mankind. Only in this case, science will be able to fully reveal its colossal potential and continue to play a leading role in solving key challenges facing our civilization.

The rapid development of scientific knowledge in the modern world is inconceivable without productive interaction and synergy between different disciplines. Historically, science developed along the path of specialization and distinction between individual areas, which ensured an in-depth study of specific phenomena and processes. However, in the 21st century, it becomes more and more obvious that the solution of many complex problems requires an interdisciplinary approach based on the integration and mutual enrichment of various scientific paradigms.

Interdisciplinary dialogue allows scientists to go beyond narrow disciplinary frames and look at the phenomena studied from new, wider positions. This opens access to innovative methods, original concepts and fresh ideas, which often arise at the junction of different fields of knowledge. Such a synthesis of competencies, approaches and prospects contributes to a deep understanding of complex systems and processes, from solving environmental challenges to developing breakthrough technologies.

Moreover, interdisciplinaryity plays a key role in overcoming the limitations of individual scientific paradigms and disciplinary isolation. The fruitful dialogue between representatives of natural, technical, social and humanities allows us to identify new patterns, develop more balanced judgments and make balanced decisions. This is especially important in the context of the global problems of modernity, requiring a holistic, multidimensional understanding.

An interdisciplinary approach in science should be considered as a key factor in its further progress and adequate response to challenges of the 21st century. Only through the active interaction and interpenetration of various fields of scientific knowledge can mankind be able to fully reveal its intellectual and innovative potential.

The development of science in the West is a continuous process, characterized by the continuity of ideas and interdisciplinary, methods and achievements transmitted from generation to generation. Despite the revolutionary breakthroughs and paradigmatic shifts that have repeatedly occurred during this development, the Western scientific tradition demonstrates the amazing ability to accumulate and systematically increase the accumulated knowledge.

The origins of this continuity lie in the deep rooting of Western science in the ancient intellectual heritage, in particular, in the ideas of ancient Greek and ancient Roman thinkers. It was the ancient rationality, empiricism and the desire to know the world that laid the foundation on which science later developed in medieval Europe and the Renaissance.

An important role in maintaining continuity was also played by the activities of medieval universities who accumulated and systematized knowledge, as well as transmitted scientists to the new generations. This process was actively continued in the later centuries, when rapid scientific progress led to the emergence of specialized scientific communities, institutions and laboratories that became centers of attraction and development of knowledge.

Modern Western science undoubtedly has a more complex and multifaceted structure, but at the same time retains a deep genetic and evolutionary connection with its historical roots. Many key scientific concepts, methodologies and techniques developed in the past continue to be used and improved in the present, lying at the heart of subsequent discoveries and innovations.

The continuity of the development of science in the West can be considered as an important feature that ensures its integrity, stability and the ability to constant progress. Based on the strong foundation of past achievements, Western science continues to expand the boundaries of cognition, forming the appearance of modern civilization.

In subsequent centuries, Western science continued to demonstrate its power, achieving significant success in the natural, technical and social sciences, which largely determined the trajectory of the technological and economic development of world civilization. The indisputable authority of Western scientific centers, the spread of their ideas and methods around the world contributed to global integration and standardization of knowledge. At the same time, it is important to admit that Western science developed in the context of colonialism and cultural limitation, which sets the task of overcoming one-sidedness and the need to integrate with other scientific traditions. Despite the challenges arising, Western science retains its central role in solving the global problems of mankind and remains a key factor in the further progress of civilization.

In conclusion, we can say that the genetic and evolutionary tasks of the development of science in the West demonstrates pronounced continuity. Each subsequent stage of scientific and technological progress is based on the achievements of previous periods, accumulating and increasing scientific knowledge.

The classical science of the New Age, laying the fundamental principles and methods of research, has become a strong basis for subsequent scientific revolutions. In turn, the scientific and technical revolution of the XIX-XX centuries has opened a way for unprecedented acceleration of scientific and technical development in the modern era. At the same time, the institutes, traditions and values of Western scientific culture played a key role in ensuring continuity: scientific communities, a system of education and training, academic freedom, interdisciplinary interaction and international cooperation. It was thanks to this continuity of knowledge that the West was able to reach leading positions in modern science and technology, maintaining advanced places for several centuries.

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