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LOGOS, NUMBER, AND NATURE: THE PHILOSOPHICAL AND THEOLOGICAL ORIGINS OF EARLY MODERN SCIENCE

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Abstract. The article is devoted to the analysis of the philosophical and worldview foundations underlying the rise of early modern science. The problem of the genesis of modern natural science is analyzed within the context of the debate between the technoscientific interpretation of the origin of science and approaches that associate the Scientific Revolution of the sixteenth and seventeenth centuries with profound intellectual and spiritual transformations in European culture. Particular attention is paid to the mathematization of nature as a defining feature of the new form of scientific rationality. It is argued that the application of mathematics to the description of physical processes was not a self-evident consequence of practical activity or empirical development, but rather resulted from break with the ancient natural-philosophical tradition grounded in the conception of a heterogeneous cosmos and the fundamental distinction between the celestial and terrestrial spheres.

The paper analyses the interpretations proposed by A. Koyré and P. P. Gaidenko, which emphasize the importance of philosophical and theological preconditions of the Scientific Revolution. The study substantiates the thesis concerning the significant role of Christian Platonism, particularly the doctrines of Creation and Incarnation, in shaping the conception of nature as rationally ordered and cognitively accessible. The influence of the Hermetic tradition of the Renaissance is also considered, as it simultaneously stimulated interest in nature while preserving elements of cosmological dualism. The article concludes that the formation of early modern science was the result of a complex interaction between ancient philosophical heritage, Christian theology, and new methodological orientations that ultimately led to the establishment of a mathematised conception of the world.

Keywords: Scientific Revolution, genesis of science, mathematization of nature, Christian Platonism, Galileo Galilei, philosophy of science, Hermeticism.

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Introduction

One of the interpretations of the genesis of science widely represented in the philosophy of science literature is the conception according to which the emergence of early modern science was conditioned by the development of craftmanship practices, construction, and military technology, initially oriented towards solving practical problems and improving the efficiency of applied activity. Within this approach, it is argued that «early modern science grew out of craftsmanship, construction, and warfare and initially served the purposes of the direct improvement of practice» [1, p. 20]. Such an interpretation, however, creates methodological contradiction with the understanding of science as a specific form of intellectual activity primarily aimed at the attainment of objective and theoretically grounded knowledge. From this perspective, science is viewed as having «never been a purely disinterested search for truth motivated solely by cognitive interest, but rather as having developed from the outset as technoscience» [1, p. 20].

The problem of the origin of science rightly belongs among the most complex and conceptually debated issues in the philosophy of science and the history of scientific knowledge. Contemporary tradition offers a wide range of interpretations that differ in their methodological foundations and explanatory frameworks. Among the most influential approaches are the Marxist conception, the positivist interpretation, the sociological perspective of M. Weber, as well as a number of other theoretical models proposing alternative explanations of the emergence and institutionalisation of scientific knowledge.

Modern science is traditionally understood as a system of knowledge based on the interaction of two complementary methods - empirical and theoretical. The latter presupposes the extensive use of mathematical tools in the description and explanation of natural processes. However, this assumption is far from self-evident and has long remained a subject of philosophical and methodological debate. The present study therefore focuses primarily on the theoretical method of scientific cognition and advances the thesis that the genesis of modern natural science is connected with the formation of a specific intellectual tradition shaped by the interaction of Christian theology and Hermetic-philosophical doctrines, particularly Pythagoreanism and Platonism.

Research Methodology

The methodological foundation of this study is based on a historical-philosophical and conceptual analysis of the rise of early modern science, aimed at identifying the worldview and metaphysical preconditions underlying the mathematization of nature. The research employs an integrated approach combining methods from the history of science, philosophical hermeneutics, and comparative analysis of intellectual traditions. The analysis relies on the interpretation of key texts produced during the Scientific Revolution and their philosophical reconstructions presented in the works of A. Koyré, P. P. Gaidenko, and other scientists of the history of scientific thought. Particular attention is devoted to tracing the transformation of fundamental ontological

conceptions of nature, space, and matter, as well as to examining the interaction between ancient philosophy, Christian theology, and the Hermetic tradition in the formation of a new type of scientific rationality. Such a methodological approach makes it possible to interpret the emergence of early modern natural science not merely as a consequence of empirical or technological development, but as the result of a profound intellectual and worldview reconfiguration of European culture.

The Problem of the Genesis of Early Modern Science and the Critique of the Technoscientific Interpretation

Historical and philosophical analysis demonstrates that the development of scientific knowledge has always been inseparably connected with philosophy: scientific thought has never existed in isolation, and major scientific revolutions have been conditioned by transformations in philosophical conceptions and have unfolded within broader worldview principles traditionally belonging to the domain of philosophy [2]. The fundamental foundations of early modern natural science cannot be interpreted as the direct outcome of practical experience or empirical generalisation, since the key principles underlying the scientific worldview possess a relative autonomy from everyday experience and often contradict immediate sensory perception. The emergence of modern science marked a transition from a descriptive and empirically oriented understanding of nature to the construction of theoretical models grounded in rational and mathematical principles. A clear example is the principle of relativity, first formulated by Galileo Galilei and closely connected with the principle of inertial motion, according to which a body maintains uniform motion in the absence of external forces - a proposition that runs counter to ordinary experience. Thus, already in its early stages, classical science relied not on empirical self-evidence but on theoretically constructed foundations of scientific knowledge.

A similar situation can be observed in the acceptance of the heliocentric model of the world, which contradicted the immediate observation of the Sun’s apparent motion around the Earth and required recognition of the priority of theoretical explanation over sensory experience. Notably, its definitive empirical confirmation was obtained only two and a half centuries after the publication of N. Copernicus’s work, through measurements of stellar parallax carried out by V. Struve (1837) and independently by F. W. Bessel (1838).

These circumstances call into question the view that science originated solely from craft and technical practice. A. Koyré interpreted the Scientific Revolution of the seventeenth century primarily as a philosophical and intellectual transformation, emphasising that early modern science emerged mainly within the sphere of theoretical thought rather than from the practical activity of craftsmen and engineers [2].

Thus, the emergence of classical natural science should be understood not as the gradual accumulation of practical skills, but as a profound transformation of the cognitive foundations of European culture, associated with the establishment of a mathematized mode of describing nature, the priority of theoretical reasoning, and the formation of a new type of rationality in which theory determines the direction and meaning of empirical research.

From this perspective, the concept of technoscience, which explains the rise of early modern science primarily through the development of technical practice, appears methodologically insufficient and limited in explanatory power. Such an interpretation seeks to attribute the remarkable growth of seventeenth-century science mainly to technological progress; however, historical analysis reveals a clear disproportion between the level of scientific achievements and the actual state of technological development at the time. As has been noted, the striking advancement of seventeenth-century science cannot be adequately explained by technological progress alone, since technological development itself remained significantly less advanced and such an approach overlooks both the technical achievements of the Middle Ages and the intellectual motivations that shaped early scientific inquiry [2, pp. 128-129].

The reduction of the Scientific Revolution to the evolution of productive or engineering practices is insufficient for understanding the deeper causes of the transformation of European knowledge. The scientific changes of the sixteenth and seventeenth centuries should rather be viewed as the result of a profound intellectual and spiritual reconfiguration of European culture that reshaped fundamental conceptions of the structure of the world, the nature of space, and the status of scientific knowledge. According to A. Koyré, this transformation was driven by two interconnected processes: the collapse of the ancient cosmological order - namely the rejection of the Aristotelian and medieval idea of a finite and hierarchically organised Cosmos - and its replacement by the conception of an infinite universe unified by the homogeneity of its elements and the universality of natural laws. At the same time, a radical transformation of the concept of space occurred through its geometrization, whereby qualitatively defined Aristotelian space, understood as a system of natural places, was replaced by the abstract and homogeneous space of Euclidean geometry, now regarded as the actual structure of physical reality rather than a merely intellectual construct [2].

The Mathematization of Nature and the break with the Ancient Physical Worldview

These developments may be interpreted as a transition to a fundamentally new type of scientific thinking in which nature came to be understood in mathematical terms. At the turn of the sixteenth and seventeenth centuries, a decisive process of the mathematization, or geometrization, of nature took place, simultaneously transforming natural science itself. Scientific research gradually moved beyond the qualitative and descriptive frameworks characteristic of ancient physics and became oriented toward the discovery of quantitative regularities capable of precise formalization and mathematical expression.

Significantly, this commitment to the mathematical comprehension of the world found symbolic expression at the very beginning of the Scientific Revolution. It was not accidental that Nicolaus Copernicus chose as an epigraph to *De revolutionibus orbium coelestium* the famous maxim «Let no one ignorant of geometry enter» (ἀγεωμέτρητος μηδεὶς εἰσίτω), traditionally associated with the entrance to Plato's Academy. This reference affirmed a central idea of the Platonic–Pythagorean intellectual tradition,

according to which genuine understanding of the cosmic order is attainable only through mathematical knowledge.

In this context, the Scientific Revolution of the early modern period appears not so much as a consequence of technological progress as the result of a profound transformation of the metaphysical and philosophical foundations of European thought, which led to the establishment of a mathematized conception of nature and a new form of rationality that shaped the subsequent development of the natural sciences.

According to A. Koyré's interpretation, Galileo's *Dialogue Concerning the Two Chief World Systems* should be understood not merely as a scientific treatise devoted to narrowly astronomical problems, but primarily as a philosophical work. In Koyré's view, it represents above all a «book of philosophy - or, more precisely, a book of natural philosophy» [2, p. 142], since the resolution of the astronomical question presupposed the creation of a new physics, which in turn required addressing a fundamental philosophical issue - namely, the status and role of mathematics in the construction of a science of nature.

In scientific literature, attempts are often made to criticise what is referred to as Galileo's Platonism, pointing to the considerable historical distance between Plato's ancient philosophy and the intellectual context of the early modern period. Indeed, a philosophical doctrine formed nearly two millennia prior to the Scientific Revolution and within a fundamentally different cultural and religious environment could not have been directly transferred into the European context of the sixteenth and seventeenth centuries. It is therefore more appropriate to speak not of a direct revival of ancient Platonism, but rather of its profound transformation and reinterpretation within the framework of the Christian intellectual tradition.

In this respect, the position of P. P. Gaidenko is of particular interest, as it largely synthesises the interpretative approaches of A. Koyré and A. Kojève. These scientists emphasise the decisive role of the Christian worldview in shaping the intellectual preconditions of early modern science. As Gaidenko notes, «Christianity introduced significant changes in the understanding of the human being - changes that subsequently influenced the development of scientific knowledge. The Scientific Revolution of the late sixteenth and seventeenth centuries would have been impossible had the radical worldview transformation that altered both humanity's relation to nature and its understanding of itself not occurred a thousand years earlier» [3, p. 480].

Within this interpretative framework, two key Christian doctrinal principles are usually identified as having exerted a decisive influence on the formation of scientific thought. The first is the doctrine of creation *ex nihilo* - creation out of nothing. This doctrine undermined the ancient conception of the eternity and inherent divinity of the cosmos, thereby making it possible to regard nature as a created reality open to investigation, observation, and rational explanation. In this sense, it provided the worldview foundations for the emergence of the empirical method in the study of nature.

The second fundamental principle is the Christian doctrine of the divine Incarnation, which attributes particular significance to the material world and human nature. According to this interpretation, the embodiment of the Divine in historical and corporeal reality revealed a profound source of scientific interest in the natural world,

since material reality ceased to be regarded as secondary or ontologically inferior. In this sense, it has been argued that «the principal source of early modern science lies in the idea of the Incarnation» [4, p. 55].

Thus, the genesis of early modern natural science was connected not only with the development of mathematical methods or changes in scientific techniques of investigation, but also with a profound transformation of the religious and philosophical foundations of European culture. The Scientific Revolution may therefore be understood as the result of a complex interaction between the heritage of ancient philosophy and the Christian worldview, which together shaped a new model of humanity's relationship to nature, knowledge, and the very process of cognition.

The Christian Logos and the Philosophical–Theological Foundations of Early Modern Science

Alongside the doctrine of creation, the Christian dogma of the Incarnation played a crucial role in the transformation of the ancient cosmological worldview. As emphasised by P. P. Gaidenko, it contributed significantly to overcoming the fundamental opposition between the celestial and the terrestrial spheres that was central to ancient philosophy. Within the Christian tradition, a fundamentally new ontological perspective emerges: Jesus Christ, as the Son of God, is simultaneously the Son of Man, thereby symbolically and metaphysically bridging the divide between the transcendent and the earthly. In this sense, «Heaven is brought down to Earth, or, conversely, Earth is raised to Heaven». For this reason, the doctrine of the God-man encountered strong resistance both within Jewish religious thought and within the pagan philosophical tradition, since it challenged prevailing conceptions of the relationship between God, the cosmos, and humanity. Nevertheless, despite the radical nature of this worldview transformation, the Aristotelian cosmological model continued to exert intellectual influence for nearly fifteen centuries, coexisting with the Christian belief in the Incarnation [4].

This circumstance points to a prolonged interaction between ancient philosophy and Christian theology, during which Christian thought did not directly reject ancient cosmology but gradually transformed its ontological foundations. As a result, the traditional Aristotelian opposition between the perfect celestial realm and the mutable terrestrial world was progressively weakened.

Developing this argument, P. P. Gaidenko refers to A. Kojève's interpretation, which highlights the epistemological consequences of the Christian doctrine of the divine Incarnation for the rise of early modern science. According to this view, if, within Christian belief, the human body could simultaneously be the body of God, material reality could no longer be regarded as an ontologically inferior sphere of being. Combined with the ancient scientific idea that celestial bodies expressed eternal mathematical relations, this produced a fundamentally new cognitive perspective. As Kojève observes, «if, as Christians believed, earthly (human) bodies could at the same time be divine bodies, and if, as Greek scientists maintained, heavenly bodies correctly reflected eternal relations between mathematical entities, then nothing any

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longer prevented the investigation of these relations in the earthly world just as in the celestial one» [4, p. 55].

Thus, the ancient conception that associated true knowledge primarily with the celestial realm was overcome, and the terrestrial world came to be regarded as a legitimate object of rational and mathematical investigation. In a broader philosophical and historical perspective, the Scientific Revolution of the sixteenth and seventeenth centuries may be understood as the result of a long process of reinterpreting the status of nature and humanity within European culture, shaped by the synthesis of the ancient mathematical tradition and the Christian worldview that affirmed the intelligibility of the world.

The application of mathematics to the description of natural reality was therefore the outcome of a profound intellectual transformation. Ancient cosmology had been based on a heterogeneous structure of the cosmos, divided between the perfect supralunar realm, amenable to mathematical description, and the mutable sublunar sphere, regarded as the domain of qualitative processes resistant to strict formalization. Consequently, mathematics occupied a limited role in ancient science and was applied primarily within astronomy.

The turning point occurred in the works of Galileo, who challenged this traditional division and extended the mathematical method to the study of terrestrial physical phenomena. In doing so, he eliminated the opposition between celestial and terrestrial physics, transforming mathematics into a universal principle for the construction of a science of nature - one of the central achievements of the seventeenth-century Scientific Revolution.

In contemporary scientific culture, the mathematization of natural science is largely taken for granted as a fundamental basis of scientific knowledge. The dominance of mathematical physics and the widespread use of formalized methods for describing natural processes have become so deeply embedded in scientific thinking that the very idea of the mathematical expressibility of the world no longer appears problematic. Consequently, Galileo Galilei's claim regarding the mathematical character of scientific knowledge no longer seems surprising today, although in its historical context it represented a radical break with the preceding intellectual tradition.

Galileo's programme, however, represented not merely a methodological refinement of scientific inquiry but a fundamental transformation in the understanding of knowledge about the world itself. Galileo maintained that genuine comprehension of reality is possible only through mastery of the specific language in which the structure of the universe is expressed and revealed. In his well-known statement, he emphasised that «philosophy is written in that great book which continually lies open before our eyes - I mean the universe - but it cannot be understood unless one first learns to understand the language and interpret the characters in which it is written. It is written in the language of mathematics, and its characters are triangles, circles, and other geometrical figures, without which it is humanly impossible to understand a single word of it» [5, p. 41].

This proposition possesses fundamental philosophical significance. Galileo effectively asserted that mathematical structures are not merely convenient instruments

for describing natural phenomena but express the objective order of reality itself. Mathematics thus acquires the status of a universal means for revealing the laws of nature, while scientific knowledge comes to be understood as the discovery of quantitative and geometrical relations underlying physical processes.

It is important to note that this approach marked the definitive overcoming of the ancient distinction between mathematics and physics. Whereas in the ancient tradition mathematics was largely confined to the domain of ideal objects and applied mainly within astronomy, in Galilean science it became the foundation for investigating terrestrial phenomena - the motion of bodies, mechanical processes, and natural dynamics as a whole. In this way, a new form of rationality was institutionalised, one in which the explanation of natural processes presupposes their prior mathematical reconstruction.

In a broader historical and philosophical context, Galileo's metaphor of the «book of nature» expresses a central principle of the seventeenth-century Scientific Revolution - the conviction that the world is rationally ordered and fundamentally intelligible through mathematical reasoning. This intellectual orientation made possible the emergence of classical mechanics and, subsequently, the entire framework of modern theoretical physics. The mathematization of nature thus appears not as a merely methodological device, but as a fundamental worldview foundation of early modern science that determined the дальнейшее development of European scientific knowledge.

Paradoxically, Galileo Galilei's defence of the mathematical intelligibility of nature was, in certain respects, closer to the inner logic of the Christian worldview than the position adopted by ecclesiastical institutions that opposed his teaching. Galileo's condemnation was largely connected with the persistence of cosmological conceptions rooted in the ancient, predominantly Aristotelian tradition, which continued to shape scholastic natural philosophy in the late Middle Ages and the early modern period. Consequently, the conflict surrounding Galilean science reveals not so much an opposition between science and religion as a clash between different philosophical interpretations of nature within the broader European intellectual tradition.

Aristotelian cosmology was based on a qualitatively hierarchical structure of the world and a fundamental distinction between the celestial and terrestrial realms, whereas Galileo's programme of the mathematization of nature presupposed the universality of natural laws and their quantitative expression. This perspective was largely consistent with the biblical conception of the world as a rationally ordered creation of God. In the Old Testament tradition, it is affirmed that the Creator «ordered all things by measure, number, and weight» (Wisdom of Solomon 11:21), a statement that may be interpreted as providing a theological foundation for the idea of cosmic order and regularity.

A similar idea receives further development in the New Testament, particularly in the Prologue to the Gospel of John: «In the beginning was the Word, and the Word was with God, and the Word was God… All things were made through Him, and without Him nothing was made that has been made.» The concept of the Logos underlying this passage unites biblical revelation with the Greek philosophical tradition of rationality and points to the intelligible and meaningful structure of the universe. In the context of the emergence of early modern science, this idea acquires particular significance,

as it implies the fundamental knowability of nature by human reason. From this perspective, Galileo's commitment to the mathematical description of the world may be regarded as a philosophical and scientific expression of the idea of rational creation: nature is understood not as a chaotic collection of phenomena but as an ordered system governed by objective laws accessible to rational investigation. Consequently, the mathematization of nature appears not in opposition to the Christian worldview but largely compatible with its underlying metaphysical assumptions.

Thus, the historical conflict surrounding Galileo should be interpreted less as a fundamental confrontation between science and Christianity than as a crisis of the inherited ancient cosmological paradigm. In this perspective, the Scientific Revolution of the seventeenth century appears as a process through which natural science gradually freed itself from ancient ontological constraints while simultaneously preserving and reinterpreting deeper theological conceptions concerning the rational structure of the created world.

The concept of the evangelical Word - the Logos - through which, according to Christian doctrine, the world comes into being, represents an exceptionally rich and multifaceted category possessing both theological and philosophical significance. In ancient Greek, the term *logos* carried a wide semantic range and encompassed numerous meanings, including not only «word» or «speech», but also «reason», «meaning», «principle», «calculation», «number», «proportion», and relational order. Within the linguistic and philosophical context of antiquity, the Logos thus functioned as a principle of rational order and structural harmony underlying reality.

Within the Christian tradition, however, this concept undergoes a significant reinterpretation. Unlike pagan cosmological views, in which the order of the world is understood either as the shaping of pre-existing matter or as the establishment of harmony within an eternal cosmos, Christianity advances a more radical ontological position. The world is not merely organised through the Logos but comes into being through it and inherently possesses a logocentric structure. In other words, rationality and order are not externally imposed upon reality but belong to the very nature of created existence.

This understanding fundamentally distinguishes Christian cosmology from ancient conceptions of the cosmos, which generally preserved the idea of the co-eternity of matter and form or assumed an original state of chaos. In ancient Greek philosophy, one of the primary principles was either chaos or an indeterminate primordial matter (*mē on* - non-being or unformed being) requiring ordering. In the Christian worldview, by contrast, the order of the world derives not from matter itself but from the creative act of divine Reason.

As a consequence, nature comes to be understood as fundamentally rationally ordered. The world is conceived as an internally coherent system whose structure is grounded in proportion, numerical relations, and regularity. In this context, the «order» embedded in creation may be interpreted as possessing a logocentric - and therefore numerical and mathematical - character. It is precisely this conception that establishes the profound metaphysical foundations for the subsequent emergence of the idea of the mathematical intelligibility of the world, which became the basis of Early Modern science [6].

Accordingly, the mathematization of nature characteristic of early modern natural science may be regarded not merely as a methodological achievement of the seventeenth century, but as the outcome of a long intellectual development in which the biblical doctrine of the Logos contributed to the formation of the conception of the world as a rationally structured and law-governed reality accessible to scientific inquiry.

The ancient physical worldview possessed a fundamentally dualistic character. The cosmos was conceived as an ontologically heterogeneous structure divided into two qualitatively distinct domains - the sublunar and the supralunar spheres. In ancient natural philosophy, the sublunar world was dominated by matter understood not in the modern scientific sense, but rather as a principle of indeterminacy, changeability, and instability of being. This conception was closely related to the notion of *meon* (*mē on*) - a form of «non-being» lacking definite form and stable determination.

Such an understanding of matter differs substantially from its interpretation in early modern and contemporary science. In ancient philosophy, matter was not regarded as a fully legitimate object of knowledge; it was conceived as an entirely fluid and indeterminate principle devoid of intrinsic properties, while all determinacy belonged to form. Consequently, the sublunar realm was understood as a domain of continual becoming, change, and decay, in which stable and universal laws were thought to be absent.

By contrast, modern science is grounded in a fundamentally different ontological assumption. Material reality is understood as governed by objective and universal laws of nature, most clearly expressed in mathematical form and investigated within theoretical physics. For modern scientific consciousness, the idea that the structure of matter obeys quantitatively expressible laws appears self-evident and requires little further justification.

However, such an assumption was by no means self-evident during the formative period of early modern science. For Galileo Galilei's contemporaries, the very possibility of applying mathematical methods to the investigation of terrestrial physical processes constituted a profound intellectual problem that touched upon the foundations of natural philosophy. The issue concerned not merely the adoption of a more convenient research method, but a fundamental question: whether the mutable world of natural phenomena could be described mathematically at all [7].

It was precisely this aspect that was first clearly emphasised by Alexandre Koyré, who demonstrated that the true significance of Galileo's *Dialogue Concerning the Two Chief World Systems* lies not primarily in the opposition between geocentric and heliocentric astronomical models, but in a deeper philosophical conflict - namely, between the legitimacy of mathematical science and the mathematical explanation of nature, on the one hand, and its non-mathematical interpretation grounded in common sense and Aristotelian physics, on the other [2, p. 142].

Thus, the central problem of the seventeenth-century scientific revolution became the question of the applicability of mathematics to the description of natural phenomena. The resolution of this problem marked a radical break with the ancient tradition and the establishment of a new scientific paradigm in which nature was, for

the first time, conceived as a universally mathematisable reality. This transition laid the foundations of classical physics and determined the subsequent development of early modern scientific knowledge.

Conclusion

Sharing the interpretation proposed by P. P. Gaidenko and drawing upon the conceptual framework of Christian Platonism, it may be concluded that the rise of early modern science constituted a complex and multidimensional cultural and intellectual process. The genesis of early modern natural science developed through the interaction of diverse philosophical, religious, and intellectual traditions that reshaped conceptions of nature and the possibilities of its rational investigation.

An important role in the spiritual context of the Renaissance was played by the Hermetic tradition, whose significance has been emphasised by numerous historians of science. Hermeticism contributed to a growing interest in nature as an integral and unified reality and stimulated the search for hidden correspondences and laws of the world, thereby fostering a new attitude towards nature as an object of active inquiry.

At the same time, the Hermetic worldview preserved the notion of the internal duality and qualitative heterogeneity of the cosmos, bringing it closer to Aristotelian natural philosophy. For this reason, the decisive stage in the formation of early modern science was associated with overcoming this cosmological framework and affirming the idea of a unified, rationally ordered nature governed by universal mathematical laws - one of the central achievements of the seventeenth-century Scientific Revolution.

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Логос, сан және табиғат: Жаңа дәуір ғылымының философиялық-теологиялық бастаулары

Аңдатпа. Мақала Жаңа дәуір ғылымының қалыптасуының философиялық және дүниетанымдық негіздерін талдауға арналған. Қазіргі жаратылыстану ғылымының генезисі мәселесі ғылымның пайда болуын техноғылыми тұрғыдан түсіндіретін көзқарас пен XVI–XVII ғасырлардағы ғылыми революцияны еуропалық мәдениеттің терең интеллектуалдық және рухани өзгерістерімен байланыстыратын тұжырымдамалар арасындағы ғылыми пікірталас контексінде қарастырылады. Зерттеуде жаңа ғылыми рационалдылықтың негізгі белгісі ретінде табиғатты математикаландыру мәселесіне ерекше назар аударылады. Физикалық құбылыстарды сипаттауда математиканы қолдану практикалық тәжірибе мен эмпирикалық дамудың тікелей әрі өздігінен туындайтын нәтижесі болмағаны, керісінше, космостың гетерогендігі және аспандық пен жерлік әлемдердің түбегейлі айырмашылығы туралы түсініктерге негізделген антикалық натурфилософиялық дәстүрді еңсеру нәтижесінде қалыптасқаны көрсетіледі.

Мақалада ғылыми революцияның философиялық және теологиялық алғышарттарының маңызын айқындайтын А.Койре мен П.П.Гайденко ұсынған интерпретациялар талданады. Әлемнің жаратылуы және Құдайдың тәнге енуі догматтарымен байланысты христиандық платонизмнің рационалды әрі танымға қолжетімді табиғат туралы түсініктің қалыптасуындағы шешуші рөлі негізделеді. Сонымен қатар Қайта өрлеу дәуіріндегі герметикалық дәстүрдің табиғатты зерттеуге деген қызығушылықты күшейте отырып, космологиялық дуализм элементтерін сақтап қалған ықпалы қарастырылады. Зерттеу нәтижесінде Жаңа дәуір ғылымының қалыптасуы антикалық философиялық мұраның, христиандық теологияның және жаңа әдіснамалық ұстанымдардың өзара ықпалының күрделі үдерісі ретінде түсіндіріліп, оның нәтижесінде әлемнің математикаланған ғылыми бейнесі орныққаны тұжырымдалады.

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Түйін сөздер: ғылыми революция, ғылым генезисі, табиғатты математикаландыру, христиандық платонизм, Галилео Галилей, ғылым философиясы, герметизм.

Севальников А.Ю.

Логос, число и природа: философско-теологические истоки науки Нового времени

Аннотация. Статья посвящена анализу философских и мировоззренческих оснований возникновения науки Нового времени. Рассматривается проблема генезиса современного естествознания в контексте дискуссии между технонаучной интерпретацией происхождения науки и подходами, связывающими научную революцию XVI–XVII вв. с глубокими интеллектуальными и духовными преобразованиями европейской культуры. Особое внимание уделяется роли математизации природы как ключевого признака новой научной рациональности. Показано, что применение математики к описанию физических процессов не являлось самоочевидным следствием развития практики или эмпирического опыта, а стало результатом преодоления античной натурфилософской традиции, основанной на представлении о гетерогенности космоса и принципиальном различии небесного и земного миров.

В работе анализируются интерпретации А.Койре и П.П.Гайденко, подчеркивающие значение философских и теологических предпосылок научной революции. Обосновывается тезис о важной роли христианского платонизма, прежде всего догматов творения мира и Боговоплощения, способствовавших формированию представления о рационально упорядоченной и познаваемой природе. Рассматривается также влияние герметической традиции эпохи Возрождения, одновременно стимулировавшей интерес к природе и сохранявшей элементы космологической двойственности. Делается вывод о том, что становление науки Нового времени явилось результатом сложного взаимодействия античного философского наследия, христианской теологии и новых методологических установок, приведших к утверждению математизированной картины мира.

Ключевые слова: научная революция, генезис науки, математизация природы, христианский платонизм, Галилео Галилей, философия науки, герметизм.

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