

THE STUDY OF THE RESEARCH OF EASTERN THINKERS IN THE NATURAL SCIENCES IN 20TH-CENTURY TURKISH HISTORIOGRAPHY

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Abstract. This article examines the study of Eastern thinkers in the natural sciences within 20th-century Turkish historiography. It analyzes how Turkish scholars interpreted the contributions of medieval Islamic scientists such as Ibn Sina, Al-Biruni, and Al-Khwarizmi in different intellectual and ideological contexts. The research traces the evolution from early Republican modernization-oriented narratives to more critical and globally integrated approaches in later decades. Special attention is given to the influence of key historians, institutional developments, and international historiographical trends, including the works of George Sarton and Thomas Kuhn. The study highlights both the achievements and limitations of Turkish historiography, including tendencies toward Eurocentrism and cultural idealization. Overall, it demonstrates a gradual shift toward a more balanced and interdisciplinary understanding of Eastern contributions to the natural sciences.

Keywords: Turkish historiography, Eastern thinkers, natural sciences, Islamic science, Ibn Sina, Al-Biruni, Al-Khwarizmi, history of science, modernization, historiography evolution.

Introduction. The historiography of science in the modern Turkish intellectual tradition occupies a significant position in the broader study of how scientific knowledge has been constructed, interpreted, and re-evaluated in non-Western contexts. One of the most intriguing dimensions of this historiography is the study of Eastern thinkers' contributions to the natural sciences as reflected in 20th-century Turkish scholarly works. This intellectual field emerged at the intersection of modernization efforts, national identity formation, and the global reassessment of the history of science, particularly the recognition of non-European contributions to scientific development. The present study explores how 20th-century Turkish historiography has engaged with Eastern thinkers in the natural sciences, how these interpretations evolved over time, and what intellectual, ideological, and methodological frameworks shaped these narratives. During the early 20th century, the newly established Republic of Turkey underwent a profound transformation in its political, cultural, and educational institutions. In this context, historiography became a crucial instrument for redefining national identity and situating Turkey within both Western modernity and its Eastern intellectual heritage. The history of science, in particular, was mobilized as a means of demonstrating that scientific reasoning and inquiry were not exclusively Western achievements but had deep roots in the Islamic and broader Eastern intellectual traditions. Scholars began to revisit the works of medieval Muslim scientists, philosophers, and polymaths such as Ibn Sina (Avicenna), Al-Biruni, Al-Khwarizmi, and Ibn al-Haytham, emphasizing their contributions to mathematics, astronomy, medicine, and physics.

In 20th-century Turkish historiography, the interpretation of these Eastern thinkers was not merely a scholarly exercise but also an ideological project. The early Republican period, influenced by positivism and secular modernization, tended to frame scientific development as a universal and linear process culminating in Western modern science. Within this framework, Eastern thinkers were often acknowledged as important historical precursors whose contributions were valuable but ultimately surpassed by European scientific advancements. However, as Turkish historiography matured, especially from the mid-20th century onward, there was a gradual shift toward a more balanced and rehabilitative approach that sought to highlight the



originality and methodological sophistication of Eastern scientific thought. This shift was partly influenced by global developments in the history and philosophy of science, particularly the works of scholars such as George Sarton, who emphasized the continuity of scientific traditions across civilizations, and later Thomas Kuhn, whose paradigm theory encouraged more pluralistic interpretations of scientific progress. Turkish historians of science began to critically reassess earlier Eurocentric narratives and increasingly emphasized the role of the Islamic Golden Age as a foundational period in the development of modern science. In this context, Eastern thinkers were no longer seen merely as transmitters of Greek knowledge but as active contributors who expanded, systematized, and in some cases transformed scientific disciplines. Another important factor shaping 20th-century Turkish historiography was the institutional development of universities and research centers dedicated to the history of science and philosophy. Scholars such as Adnan Adıvar played a pioneering role in documenting the history of science in Islamic civilization and integrating it into Turkish academic discourse. Their works provided a foundation for subsequent generations of researchers who further explored the intellectual legacy of Eastern scientists within both regional and global frameworks. These academic efforts contributed to the establishment of a more nuanced understanding of scientific heritage that transcended simplistic East–West dichotomies.

Nevertheless, the historiography of Eastern thinkers in Turkish scholarship also reflects tensions between national pride, religious heritage, and scientific universalism. On one hand, emphasizing the achievements of Eastern scientists served to strengthen cultural identity and intellectual continuity with the Islamic past. On the other hand, it sometimes led to romanticized or selective interpretations that prioritized cultural affirmation over critical historical analysis. This duality remains a central theme in contemporary discussions on the history of science in Turkey. The study of Eastern thinkers in the natural sciences within 20th-century Turkish historiography represents a rich and complex field shaped by intellectual transformation, ideological shifts, and evolving methodological approaches. It reflects not only changing perceptions of scientific history but also broader debates about identity, modernity, and cultural heritage. By examining how Turkish scholars have interpreted the contributions of Eastern scientists, we gain deeper insight into the dynamics of historiographical production and the ongoing effort to integrate diverse scientific traditions into a more inclusive global history of science.

Literature review. The study of Eastern thinkers in the natural sciences within 20th-century Turkish historiography has been shaped by a diverse and evolving body of scholarly literature. This literature reflects not only historical inquiry into scientific development in the Islamic and broader Eastern world, but also intellectual, ideological, and institutional transformations in Turkey throughout the twentieth century. The available research can broadly be grouped into several interconnected strands: early Republican historiographical works, mid-century academic institutional contributions, post-1960s critical reassessments, and contemporary interdisciplinary approaches that integrate global history of science perspectives. One of the foundational figures in Turkish historiography of science is Adnan Adıvar, whose seminal work “La Science chez les Turcs Ottomans” (originally published in French in 1939 and later translated into Turkish) laid the groundwork for systematic studies of science in the Ottoman and Islamic intellectual traditions. Adıvar’s work is frequently cited in subsequent literature as one of the first attempts to critically document scientific activity in the Eastern world from a historical and analytical perspective. His approach was characterized by a combination of positivist methodology and cultural-historical analysis, aiming to demonstrate that scientific reasoning existed within Islamic civilization long before the rise of modern Europe. However, later scholars have noted that Adıvar’s framework still partially reflected Eurocentric assumptions, particularly in his tendency to measure Eastern scientific achievements against Western scientific standards.



Early Republican historiography, as reflected in educational and academic publications from the 1920s to the 1950s, generally adopted a modernization paradigm. In this paradigm, science was viewed as a universal and progressive system that reached its most advanced form in the West. Scholars such as Afet İnan and other intellectuals associated with the Turkish Historical Society contributed to the construction of a national historiography that emphasized both continuity with ancient Anatolian civilizations and selective recognition of Islamic scientific heritage. In this literature, Eastern thinkers such as Ibn Sina (Avicenna), Al-Biruni, and Al-Khwarizmi were acknowledged primarily as precursors to modern European science rather than as independent contributors to scientific epistemology. This interpretation aligned with the broader Kemalist vision of modernization, which sought to reconcile national identity with Western scientific rationality. From the mid-20th century onward, Turkish historiography of science began to diversify both methodologically and institutionally. The establishment of university departments and research institutes dedicated to the history of science played a crucial role in this transformation. Scholars such as Aydın Sayılı, who studied under George Sarton at Harvard University, introduced more rigorous historical methodologies into Turkish academic discourse. Sayılı's works on Islamic astronomy and scientific institutions in the medieval Islamic world significantly expanded the scope of research on Eastern thinkers. His emphasis on empirical documentation and cross-cultural transmission of knowledge marked a departure from earlier nationalist or purely descriptive approaches.

International scholarship also had a substantial influence on Turkish literature during this period. George Sarton's monumental "Introduction to the History of Science" provided a global framework that positioned Islamic civilization as a central component of the history of science. Sarton's work encouraged Turkish scholars to re-evaluate Eastern scientific traditions not as peripheral contributions but as integral to the development of global scientific knowledge. Similarly, the emergence of intellectual history and philosophy of science as disciplines—particularly through the works of Thomas Kuhn—contributed to a more pluralistic understanding of scientific progress. Kuhn's paradigm theory, although not directly focused on Islamic science, indirectly influenced Turkish historiography by challenging linear and Eurocentric models of scientific development. In addition to these global influences, Turkish scholars such as Ekmeleddin İhsanoğlu played a significant role in the late 20th century by promoting institutional and collaborative research on the history of science in Islamic civilization. His leadership in establishing the Research Centre for Islamic History, Art and Culture (IRCICA) facilitated the production of extensive bibliographic and historical studies. İhsanoğlu's edited volumes and collective research projects emphasized the continuity and diversity of scientific activity in the Islamic world, with particular attention to contributions in mathematics, medicine, astronomy, and natural philosophy. His work is frequently cited in contemporary literature as a turning point toward a more systematic and internationalized historiography. Another important strand of literature focuses on the reinterpretation of specific Eastern thinkers. Ibn Sina, for instance, has been extensively studied not only as a philosopher and physician but also as a contributor to early experimental methods in medicine and natural sciences. Al-Biruni's works on geodesy, mineralogy, and comparative scientific methodology have been re-examined in Turkish scholarship as examples of empirical observation and interdisciplinary inquiry. Similarly, Al-Khwarizmi's contributions to algebra and computational methods are frequently analyzed in the context of the development of mathematical thinking. These studies collectively challenge earlier narratives that positioned Eastern thinkers merely as transmitters of Greek knowledge. However, critical literature has also highlighted limitations within Turkish historiography. Some scholars argue that the emphasis on glorifying Eastern scientific achievements occasionally leads to a romanticized interpretation of the Islamic Golden Age. This tendency can obscure the complex historical realities of scientific production, including institutional constraints, patronage systems, and the discontinuities in knowledge transmission. Furthermore, debates persist



regarding methodological rigor, particularly in distinguishing between philosophical speculation and empirical scientific practice in medieval Eastern texts.

Recent literature has increasingly adopted interdisciplinary and global history approaches. Scholars now situate Eastern thinkers within broader networks of knowledge exchange that include the Byzantine, Indian, Chinese, and European scientific traditions. This approach moves beyond binary East–West frameworks and instead emphasizes interconnectedness and circulation of knowledge. Digital humanities projects and manuscript studies have further enriched the field by providing access to previously underexplored primary sources, allowing for more nuanced interpretations of scientific texts. The literature on Eastern thinkers in natural sciences within 20th-century Turkish historiography demonstrates a dynamic evolution from nationalist and positivist frameworks to more critical, comparative, and global perspectives. While early works focused on legitimizing Eastern contributions within a Western-dominated narrative of science, later scholarship has increasingly emphasized methodological diversity, intellectual autonomy, and transcivilizational exchange. Despite ongoing debates regarding interpretation and emphasis, the literature collectively contributes to a more comprehensive understanding of the role of Eastern thinkers in the history of natural sciences and their significance within both Turkish and global historiographical traditions.

Research discussion. The analysis of 20th-century Turkish historiography concerning Eastern thinkers in the natural sciences reveals a multi-layered intellectual evolution shaped by ideological transitions, institutional developments, and global academic influences. One of the central findings of this study is that Turkish historiography did not develop in isolation; rather, it was continuously influenced by broader epistemological debates in Europe and the Islamic world. Early Republican historiography adopted a modernization paradigm in which science was understood as a linear, progressive trajectory culminating in Western modernity. Within this framework, Eastern thinkers such as Ibn Sina, Al-Biruni, and Al-Khwarizmi were primarily positioned as historical precursors rather than autonomous scientific authorities. However, the mid-20th century marked a significant turning point. The works of scholars such as Aydın Sayılı introduced a more rigorous historiographical methodology that emphasized primary sources, historical context, and institutional analysis. Sayılı's contributions demonstrated that medieval Islamic science was not merely a transitional phase but a complex system of knowledge production with its own internal logic and methodological foundations. This shift indicates a gradual departure from Eurocentric historiographical models toward a more balanced interpretation of scientific history. Another important dimension in the discussion is the role of institutionalization. The establishment of universities and research centers dedicated to the history of science significantly expanded the scope of academic inquiry. Institutions such as IRCICA facilitated large-scale collaborative research projects that brought together scholars from different cultural and academic backgrounds. This institutional support not only increased the volume of publications but also improved the methodological diversity of studies on Eastern thinkers.

The influence of global historiographical trends is also evident. The works of George Sarton played a foundational role in legitimizing the study of Islamic science within global history of science frameworks. Later, Thomas Kuhn's paradigm theory indirectly contributed to Turkish scholarship by challenging linear narratives of scientific progress. These intellectual influences encouraged Turkish historians to reconsider the role of Eastern thinkers as active contributors to scientific paradigms rather than passive transmitters of Greek knowledge. Nevertheless, the analysis also reveals certain limitations and tensions within Turkish historiography. One recurring issue is the tendency toward cultural or civilizational essentialism, where Eastern scientific achievements are sometimes presented in overly idealized terms. While this approach serves to highlight neglected contributions, it may also obscure the discontinuities, institutional constraints, and historical complexities of scientific development. For instance, the transmission



of scientific knowledge in the Islamic world was not uniform but varied significantly across regions and historical periods. Another important discussion point is the methodological challenge of interpreting medieval scientific texts. Turkish scholars have often faced difficulties in distinguishing between philosophical discourse and empirical scientific practice. In some cases, natural philosophical writings were interpreted as scientific theories without sufficient contextual differentiation. This has led to debates regarding the criteria for defining “science” in pre-modern contexts and the risk of anachronistic interpretations.

In recent decades, however, Turkish historiography has increasingly embraced interdisciplinary and global approaches. Scholars now situate Eastern thinkers within broader transregional networks of knowledge exchange involving Byzantine, Indian, and Chinese traditions. This shift reflects a growing recognition that scientific development is a cumulative and interconnected process rather than a series of isolated civilizational achievements. Digital manuscript analysis and archival research have further strengthened this trend by enabling more precise textual interpretations. Overall, the discussion demonstrates that 20th-century Turkish historiography of Eastern thinkers in the natural sciences is characterized by a continuous tension between national identity formation, global scientific narratives, and methodological rigor. While early approaches emphasized cultural affirmation, later scholarship has moved toward analytical complexity and global integration. This evolution highlights the dynamic nature of historiographical production and its responsiveness to both internal intellectual developments and external academic influences.

Conclusion. The study demonstrates that 20th-century Turkish historiography of Eastern thinkers in the natural sciences evolved from a Eurocentric and modernization-oriented framework to a more critical and globally integrated scholarly approach. Early interpretations emphasized Eastern scientists as precursors to Western science, while later studies recognized their independent methodological and intellectual contributions. Institutional developments, international scholarly influences, and methodological advancements played a key role in this transformation. Despite persistent challenges such as idealization and interpretative ambiguity, Turkish historiography has significantly contributed to the reassessment of Eastern thinkers within the global history of science. This progression reflects a broader shift toward more inclusive and multidimensional understandings of scientific heritage.

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