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## GEORGE SARTON'S CONTRIBUTION TO THE FORMATION AND DEVELOPMENT OF THE HISTORY OF SCIENCE

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### Abstract

This article delineates the entry into the history of science and broader scholarship of George Sarton, who is widely recognized as the foundational father of the discipline. It provides comprehensive details regarding George Sarton's completion of secondary and higher education, how he developed an interest in the history of science, and the profound impact of his personal life on the evolution of the field. The central objective of this research is to uncover George Sarton's role in the formation of the history of science and demonstrate how his personal trajectory influenced this scholarly process. By addressing these dimensions, the study aims to foster a heightened interest in the history of science among society and the broader academic community.

**Keywords:** George Sarton, Isis, Osiris, History of Science, May Sarton, source, university, philosophy, library, scholarly activity, Ghent, Harvard, university, source.

### Introduction

Until the early twentieth century, the concept of the "History of Science" did not exist as an independent branch of academic knowledge. While physicists superficially examined the past of their own discipline and mathematicians traced the chronology of their field, there was no integrated, global system or science designed to investigate the evolution of human scientific thought as a unified process. The individual who filled this vacuum and elevated the study of science to an academic discipline endowed with its own specific methodology was



## *Modern American Journal of Social Sciences and Humanities*

ISSN (E): 3067-8153

Volume 2, Issue 5, May, 2026

Website: [usajournals.org](http://usajournals.org)

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George Sarton (Garfield, 1985). Sarton approached science not merely as a collection of historical facts, but as the highest and most continuously evolving movement of human civilization. He dedicated his entire life to a single objective: rendering the history of science precise, deep, and all-encompassing (Garfield, 1985).

Numerous perspectives exist regarding how the history of science was formed, its development, its scope, and its interdisciplinary integration with other fields. The primary subject of research across these discourses remains George Sarton and his monumental contributions. One of the foundational texts in this area is Sarton's own Introduction to the History of Science, which serves not only as a reflection of Sarton's intellect but as the bedrock literature for the entire discipline (Gillispie, 1957). His work *Une Vie de Poète* ("A Poet's Life") is also well-known among historians of science, offering expansive data regarding his personal philosophy and inner reflections. The most detail-rich and factually robust accounts of George Sarton's private life are found in the memoirs of his daughter, the celebrated American writer and poet May Sarton (M. Sarton, 1959). The poet's works, *I Knew a Phoenix: Sketches for an Autobiography* (1959) and the subsequently published *A World of Light: Portraits and Celebrations* (1976), represent exceptionally reliable historiographical sources providing a unique window into the Sarton household, detailing his scientific and social activities. Furthermore, P. Van Oye composed extensive articles and memorials analyzing Sarton's personal and academic legacy (Van Oye, 1965), while F. Vandamme provided key insights into Sarton's scholarly milieu in the journal *Communication & Cognition* (Vandamme, 1984). Scholar H. Elkhadem has also conducted vital studies exploring the historical contexts surrounding Sarton's life and achievements.

### **Research Methodology**

To achieve the primary objectives of this study, the article employs historical principles, comparative analysis, systematization, classification, and problem-chronological methods to clarify the essence of the research question.



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### **Analysis and Results**

George Alfred Léon Sarton was born on August 31, 1884, in the city of Ghent, located in the East Flanders region of Belgium (Van Oye, 1965). His family belonged to the affluent upper echelons of contemporary Belgian society. His father, Alfred Sarton (1845–1909), served for many years as the chief engineer and director of the Belgian State Railways. In May Sarton's memoirs—a primary source for this topic—Alfred Sarton is described as a highly sensitive, ironic man with deeply expressive eyes (M. Sarton, 1959). Conversely, very little information has been preserved regarding George Sarton's mother; surviving records indicate her name was Léonie Van Halme and that she passed away before George reached his first birthday.

In 1902, after completing his secondary education, Sarton enrolled in the Faculty of Humanities and Philosophy at Ghent University (Vandamme, 1984). However, dissatisfied with the curriculum, he suspended his studies. In 1904, following a year of independent reading, he returned to Ghent University, but this time he elected to join the Faculty of Natural Sciences. He immersed himself in chemistry, physics, mathematics, and crystallography. The precision and empirical nature of the natural sciences greatly stimulated his academic passions.

In 1911, he completed a massive scientific project at the intersection of celestial mechanics and the history of mathematics. His doctoral dissertation, dedicated to Isaac Newton's principles of mechanics, was titled *Les Principes de mécanique de Newton* ("Newton's Principles of Mechanics"). In May 1911, he was formally awarded his Doctor of Philosophy (Ph.D.) degree in mathematics and physics (Van Oye, 1965).

Shortly after the outbreak of World War I in 1914, the German army invaded neutral Belgium. The city of Ghent and its surrounding areas, including Wondelgem, were occupied by German troops. Operating under such oppressive conditions proved impossible for the budding historian of science; consequently, under the pretext of traveling to the Netherlands, the Sarton family escaped to England (M. Sarton, 1959).

In London, Sarton subsisted on temporary, extremely low-paying positions at the War Office and St. Hilda's College (Garfield, 1985). He quickly realized that he could not revive his grand history of science project in England while the entire



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European continent was consumed by total war. He understood that his only viable path lay in the rapidly developing United States of America, far removed from the physical theaters of war (Sarton, 1917). In September 1915, leaving his family temporarily behind in England, he boarded a ship bound for New York with a single suitcase and immense aspirations.

The first three years in America represented a genuine struggle for survival for Sarton. He found himself in an entirely new country without professional connections or financial resources. Despite these hardships, his unwavering commitment to his academic mission was vividly manifested when he famously declined a stable, well-paid position as a librarian at Rice University simply because the institution could not guarantee the publication of his journal *Isis* (Sarton, 1913). This decision highlights his profound devotion to the emerging discipline over his personal financial security. He relentlessly pitched his vision to various university administrators. In the summer of 1915, he managed to deliver lectures on the history of science at the University of Illinois (Sarton, 1917). Between 1916 and 1918, he secured temporary lecturing appointments at Columbia University and Harvard University; however, the remuneration from these lectures was insufficient to summon his family or revive *Isis*.

By 1918, Robert S. Woodward, the President of the Carnegie Institution of Washington, recognized the immense value of Sarton's grand scholarly project and his unique vision for the history of science. The Institution appointed Sarton as a full-time research associate, providing him with a permanent, substantial salary alongside complete academic freedom to pursue his investigations (Woodward, 1919).

Although Sarton was rapidly elevating Harvard's global reputation by generating unprecedented scholarly outputs within its libraries, the university administration resisted granting him a formal chair or professorial status for many years. The primary reason for this hesitation was the skepticism of university leaders regarding the academic legitimacy and future of the "History of Science" as an independent field, compounded by the fact that his salary was already covered by the Carnegie Institution (Rosenberg, 1997). It was only in 1940, after Sarton had achieved towering international renown, that Harvard University officially



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appointed him as Professor of the History of Science (Cohen, 1957). He remained in this chair until his retirement in 1951.

A paramount achievement of his pedagogical career at Harvard was his supervision of the first two Doctor of Philosophy students in the history of science program in America: Aydin M. Sayili (who received his Ph.D. in 1942) and I. Bernard Cohen (who received his Ph.D. in 1947). Cohen later succeeded Sarton as the editor of *Isis* and became the President of the History of Science Society, serving as a vital institutional successor (History of Science Society, 2026). The protracted delays and initial informality surrounding Sarton's Harvard appointments, despite his monumental outputs, vividly illustrate the initial academic skepticism the history of science faced before being recognized as a legitimate discipline (Rosenberg, 1997).

The defining characteristic that distinguished George Sarton from traditional Western historians was his extraordinary linguistic aptitude coupled with his profound respect for Eastern cultures. He recognized that to construct a genuinely universal history of science, a mastery of Latin, Greek, or modern European languages was fundamentally inadequate, given that the most brilliant epochs of human intellectual evolution occurred in the East, particularly within the Islamic world. Over the course of his life, Sarton mastered a total of 14 languages (Garfield, 1985). These included European languages: French, Dutch, English, German, Italian, Spanish, Latin, and Ancient Greek; as well as Eastern and Semitic languages: Arabic, Hebrew, Chinese, Sanskrit, Syriac, and Ancient Egyptian hieroglyphs. When he was well into his forties, he took advanced instruction in Arabic and Hebrew grammar from prominent orientologists at Harvard. He mastered Arabic grammar so flawlessly that he could not only read medieval Islamic scholarly manuscripts in their original forms but could effortlessly extract and analyze direct quotations from them (Sarton, 1951; Suter, 1900).

In order to fully immerse himself in the Eastern cultures he was investigating, inspect ancient repositories holding rare Arabic manuscripts, and engage in collaborative dialogues with local scholars, Sarton undertook a massive scientific expedition to the Middle East and North Africa from late 1931 to mid-1932. He journeyed through major urban centers including Beirut (Lebanon), Damascus



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(Syria), Cairo (Egypt), Tunis, Algiers, and Morocco (Sarton, 1932). He spent weeks immersed in the ancient collections of Damascus and the library of Al-Azhar University in Cairo (Nasr, 1968).

In November 1950, his beloved lifelong companion, Eleanor, passed away. This represented a devastating blow for Sarton. Despite feeling completely desolated, he sought solace entirely within his books. In 1951, at the age of 67, George Sarton officially retired from his academic post at Harvard University. However, retirement did not signify the cessation of his scholarly output.

[22/06/2026 21:40] Arrow: He continued to work tirelessly in his designated rooms at the Carnegie Institution and the Harvard Library, while accepting invitations to deliver lectures worldwide. On March 22, 1956, George Sarton prepared for his next scheduled lecture at Harvard University at his home in Cambridge, Massachusetts. He departed his residence and hailed a taxi to travel to the university campus. En route, inside the vehicle, his heart suddenly failed. He passed away at the age of 71, while traveling to the very sanctuary of science he had cherished throughout his existence ("Dr. George Sarton...", 1956). His sudden demise plunged the global scientific community into profound mourning (Graubard, 1956).

### **Discussion**

Following Sarton's death, his foremost student and the recipient of the first Ph.D. in the history of science in the United States, I. Bernard Cohen, composed numerous essays designating Sarton as the "architect of science." Cohen emphasized that the massive indexing card catalogs personally compiled by Sarton had propelled global historiography forward by a century (Cohen, 1957). The celebrated British historian and theorist of civilizations, Arnold J. Toynbee, penned a review of Sarton's Introduction to the History of Science, characterizing it as "the only encyclopedia that preserved the common cultural heritage of humanity from fragmentation" (Toynbee, 1954).

Prior to the scholar's death, in 1955, the History of Science Society established the highest international accolade in the discipline—the George Sarton Medal—to immortalize the foundational services of its creator. Frequently regarded as the "Nobel Prize of the History of Science," this medal is awarded annually to a single



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scholar worldwide who has made unparalleled contributions to the advancement of the field (History of Science Society, 2026). Fittingly, the very first recipient of this prestigious medal was George Sarton himself.

Following his death, Sarton's scientific methodology faced a degree of criticism from a new generation of historians, most notably Thomas S. Kuhn and Robert K. Merton. Critics argued that Sarton portrayed science in an overly linear fashion, characterizing it almost exclusively as a successive chain of triumphs over errors (Kuhn, 1962). They asserted that he paid insufficient attention to the intricate connections between science and shifting social, economic, and political crises (Merton, 1938).

### **Conclusion**

Some critics also noted that Sarton focused excessively on gathering bibliographic data, names, dates, and page numbers at the expense of broader philosophical generalizations, which occasionally reduced certain chapters to mere reference manuals (Kuhn, 1962). Yet, despite these historiographical critiques, none could invalidate the monumental foundation Sarton constructed. Without the colossal corpus of data he systematized, contemporary research in the history of science would be virtually unimaginable.

George Sarton was not merely an isolated scholar; he was the master architect who conceptualized and constructed an entire academic discipline (Cohen, 1957). He proved to the world that science possesses no nationality, religion, or borders; he demonstrated that the algebraic formulas of Al-Khwarizmi, the medicine of Ibn Sina, the experiments of Galileo, and the laws of Newton constitute the collective property of a single, great human family (Garfield, 1985). Through his philosophy of "New Humanism," he left profound answers to questions that remain critically relevant today. He reminded the world that for science to bring genuine happiness to humanity, it must never sever itself from its historical and spiritual roots. The intellectual flame ignited by Sarton in Room 189 of the Widener Library continues to illuminate and foster the growth of Departments of the History of Science across hundreds of universities globally.



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***Modern American Journal of Social Sciences  
and Humanities***

**ISSN (E):** 3067-8153

Volume 2, Issue 5, May, 2026

**Website:** usajournals.org

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