

Views of Western Scholars on George Sarton's Introduction to the History of Science

Nabihah Liyana Salan

Roziyah Sidik @ Mat Sidek

Department of Arabic Studies and Islamic Civilization
Faculty of Islamic Studies
Universiti Kebangsaan Malaysia
Selangor, Malaysia.

Abstract

This article discusses an outstanding founder figure of the discipline of history of science, namely George Sarton who contributed many works, including books and articles. His most notable success is the three-volume Introduction to the History of Science. This work contains biographies of great scientists throughout time including scientists of the Islamic civilization. In fact, the writing of this work bears references to sources of authority in the Islamic civilization. This work has also been given a distinctive evaluation by Western scholars. Thus, the purpose of this article is to examine Western scholars' views on Sarton's work, Introduction to the History of Science. The research methodology used is a qualitative approach by content analysis as reference sources are document in form. Besides that, a hermeneutic approach is also used to make interpretations of the work. The scope of this research focuses on the work Introduction to the History of Science and Western scholars' views on it. Research results find that Introduction to the History of Science had received a positive response from Western scholars such as E.G.B. and Francis R.Johnson even though George Sarton had in fact referred to authoritative sources in Arabic language, particularly when discussing scientific figures in the Islamic civilization.

1.0 Introduction

According to Garfield (1985a: 241), Sarton, the renowned founder figure of the discipline of history of science, was named George Alfred Leon Sarton when he was born in Ghent, Flanders, Belgium on the 31st of August 1884. His full name was finally abbreviated as George Sarton. Sarton had married an English artiste, Eleanor Mabel Elwes on 22nd June 1911 at the age of 27 (Garfield 1985b: 248). The young couple began their married life in Wondelgem town at the edge of Ghent city. They were blessed with a cute daughter in May 1912 whom they named Eleanore Marie which was later abbreviated as May. The name was shorter and more cordial (Garfield 1985b: 248; Cohen 1957: 287).

Sarton's works began with the writing of a journal called *Isis*. It was discovered in the year 1912, but only the first volume appeared in the year 1913 (Cohen 1957: 292). According to Garfield (1985a: 241-242), Sarton also wrote 15 books and more than 300 articles. Some of the books written are *A History of Science: Ancient Science through the Golden Age of Greece*, *A History of Science: Hellenistic Science and Culture in the Last Three Centuries*, *Appreciation of Ancient and Medieval Science during the Renaissance (1450-1600)* and *The History of Science and The New Humanism*.

However, there is one leading work written by Sarton entitled *Introduction to the History of Science*. This work has been widely acclaimed by many scholars. Therefore, the purpose of this article is to examine the views submitted by Western scholars concerning *Introduction to the History of Science*.

1.1 Statement of Problem

The statement of problem begins from the opinion of Dorothea & Charles Singer (1957) who described Sarton's greatness as a leading compiler of knowledge and as an extraordinary man with a distinct vision in life. With such a view, this study attempts to discover the extent of Sarton's greatness in compiling the knowledge of history of science in his work *Introduction to the History of Science* according to the perspectives of Western scholars.

1.2 Research Questions

The research questions are as follows

1. What was the background of *Introduction to the History of Science*?
2. Did *Introduction to the History of Science* gain a positive response from Western scholars?

1.3 Research Objectives

The research objectives are as follows

1. To study the background of *Introduction to the History of Science*.
2. To analyse the views of Western scholars on *Introduction to the History of Science*.

1.4 Literature Review

This kind of study has been conducted previously by others, of which the researcher has found 7 writings on *Introduction to the History of Science* and Western scholars' views on it. These writings may be categorized as follows:

1.4.1 Literature survey on Work

The researcher has found only one study of Sarton's work. This research by Ead (2011) is a summary or abridgement of Sarton's *Introduction to the History of Science*. Ead divides his book according to time periods. Like Sarton, Ead also begins his book with the time of Jabir ibn Hayyan, time of al-Khawarizmi, time of al-Razi, time of al-Mas'udi, time of Abu al-Wafa', time of al-Biruni and time of Umar Khayyam. Each time period begins with a background of the period and followed by the field of science and the scientific figure of that time. As his book is an abridgement or summary of the main subject of this research, it is therefore similar to what the researcher wishes to study. However, the present research is wider because it includes the views of Western scholars on Sarton's work.

1.4.2 Literature Review of Western Scholars' Views

Western scholars' views on Sarton's *Introduction to the History of Science* have been the research subject of Johnson, MacDonald, E.G.B, Haskins, Thorndike and Barnes. Johnson's article (1953) discussed Sarton's personality, his systematic compilation of chapters in *Introduction to the History of Science* as well as his personal view that the work is an invaluable contribution to the world community.

MacDonald's article (1929) gave a high appreciation of *Introduction to the History of Science* in praising its authority and greatness, and understanding the difficulties Sarton went through to produce his work which could only be accomplished with the utmost attention and commitment. In spite of his opinion about Sarton's personality that he lacked the confidence to venture into another field which he basically felt that Sarton had the ability to do, this opinion was not intended to influence Sarton to give his attention to another field.

E.G.B (1928) in his article published in *The American Journal of Psychology* gave a positive view of Sarton's *Introduction to the History of Science* that this work is a tool for research in the field of history of science. This view is based on particular reasons.

Haskins's article (1928) revealed his view that Sarton's emphasis between history of science and history of civilization is the key excellence in his works. Barnes' article (1927) published in *Oxford Journal* gave a positive view which inclined towards the work as a contribution which may be used as reference for research for the present society, particularly for use by students and researchers of history of science. This article is quite brief and gives only its view on the contributory aspect of Sarton's work, which is quite similar to other scholars' views.

The next article is by Thorndike (1928) which is seen as giving a negative view of Sarton's work. He did not seem interested in Sarton's way of writing topics in his work and viewed the basis of chronological compilation in this work as unclear.

The researcher focused on the studies of the above six scholars as they had evidently given positive reviews of Sarton's work, *Introduction to the History of Science*. However, a few of them had also given their personal views of Sarton's personality.

2.0 Analysis of Literature Review

The researcher has analysed based on the literature review listed above. The analysis is divided into two parts, first concerning the background to *Introduction to the History of Science*, and second concerning the views of Western scholars on it.

2.1 Background to Introduction to the History of Science

The main material in this research is George Sarton's work entitled *Introduction to the History of Science*. It was published three times, i.e., the first volume in the year 1927, the second volume in the year 1931 and the last or third volume in the year 1947. This work was published by two different publishers, the first volume by The Williams & Wilkins Company in Baltimore while the second and third volumes by Robert E. Krieger Publishing Company in Florida. Generally, this work is about the background of science according to the time periods of different scientific figures and includes their biographies for the respective time periods.

This work has three volumes. The first volume covers the time periods of Greece, Thales, Iran and Pythagoras, Hippocrates, Plato, Aristotle, Euclid, Archimedes, Cato the Censor, Hipparchos, Lucretius, Virgil, Celcus, Pliny, Ptolemy, Galen, Alexander Aphrodisias, Diophantos, Iamblichos, Oribasios, Fa-hsien, Proclous, Philoponos, Alexander Trallars, Hsuan Tsang, I-Ching, Bede, Jabir Ibn Hayan, al-Khwarizmi, al-Razi, al-Mas'udi, Abu I-Wafa', al-Biruni and finally of Omar Khayyam (Sarton 1927 : v-xi). It specifically covers the periods of ancient Greece to the end of the 11th Century AD (E.G.B 1928: 150).

The second volume consists of two books. The first book contains two parts. The first part narrates the time periods of William of Conches, Abraham Ibn Ezra and Ibn Zuhr. And the second part is about the time periods of Gerard of Cremona, Ibn Rushd and Maimonides. The second book also contains two parts. The naming of this part is as a continuation from the first book. The third part covers the time periods of Robert Grosseteste, Ibn al-Baitar and Jacob Anatoli while the fourth part covers the time periods of Roger Bacon, Jacob Ben Mahir ibn Tibbon and Qutb al-Din al-Shirazi (Sarton 1931: xvi-xxxv).

The third volume has two parts. The first part narrates the time periods of Abu-I-Fida', Levi ben Gerson, and William of Occam whereas the second part is about Geoffrey Chaucer, Ibn Khaldun and Hasdai Crescas.

Each chapter begins with a survey of the science for each time period and there are parts below the chapters which state the religious, philosophical and cultural background and so on. Each part contains a biography of the esteemed scientific personality of that time period and a concise and accurate description of his achievements. Each biography ends with a very detailed bibliography as useful and exact references for readers (MacDonald 1929: 491).

2.2 Western scholars' views on the work Introduction to the History of Science

Generally, many scholars have expressed their views of Sarton's *Introduction to the History of Science* by George Sarton. The views are mostly positive on its literary excellence and on the author himself as well as respect for him.

Johnson (1953: 270-271) expressed his view of Sarton's personality as a renowned figure among Science historians because of his works. Johnson praised the chapter arrangement in *Introduction to the History of Science* as proper and systematic based on division into parts for religious background, education, culture and so on. He also found Sarton as very consistent in emphasizing on the relationship between Science and other human activities. As proof, this was reflected through the main topics outlined in his work, for example, "The Time of Plato (first half of 4th Century BC), "The Time of Virgil (second half of 11th Century) and "The time of Chaucer (second half of 14th Century)". The title "The time of Chaucer" is given in the second part of volume 3. The chapter on the cultural and philosophical background of that time includes parts on figures such as Langland, Water Hilton, Gower, and Chaucer himself.

Johnson's positive view is seen in his statement that Sarton's work *Introduction to the History of Science* is very valuable to be used as reference for all scholars who are concerned with the relationship between Science and literature, and ought to be known by students majoring in old and modern languages and literature.

In addition, the scholar MacDonald (1929: 492) in his article also praised the authority of Sarton's work *Introduction to the History of Science*. But, however, he gave his view that Sarton lacked the self-confidence to venture into another field in spite of his ability.

Nevertheless, Sarton was a very confident person in what he wanted and wished to produce in his works. MacDonald also said that a major work such as this must have required the utmost attention and very high commitment for the knowledge to be effective on readers.

Another scholar, E.G.B. (1928:150) also had his own view on *Introduction to the History of Science*. According to his view presented in *The American Journal of Psychology*, this work is not for continuous reading, but as a ‘tool’, as expressed by Sarton himself, it is a ‘machine tool’. Others have said that it is so called because the work was large and complex in the process of writing it.

E.G.B’s view seems positive and does not confuse readers on the literary excellence of this ‘tool’ which can be used for research in the field of history of Science. Moreover, E.G.B also stated that this work is an introduction to history of Science and is not brief. He explained that it is an introduction to great figures based on primary and secondary sources for different time periods.

The next view was expressed by Haskins (1928: 89) in his article published by *Isis*. Haskins found that in the field of Science, Sarton did not forget to include philology, applied Science and philosophy in addition to giving attention to history of religion as an evolution parallel with the above interests. He also viewed the emphasis between history of Science and history of civilization as the key excellence in Sarton’s works.

The scholar Barnes (1927: 305) expressed his brief view about this work. According to him, the work *Introduction to the History of Science* is considered invaluable because it gives information in the discipline of history of science and is available for use by knowledgeable readers and students.

For Barnes, this work is not mere narration or textbook concerning a certain development, but it is a complete and comprehensive work on anything related to the history of Science in the middle ages. It includes history of the branches of science in each time period, summary of the main writers and their contributions, their main works, and it serves as reference to the majority of writers in this modern age.

But however, there was one Western scholar, namely Thorndike (1928: 363-364) who gave a negative view of Sarton’s work. Thorndike did not seem interested in Sarton’s way of writing topics in his work, such as “Historiography Latin, Byzantine, Syria, Islam and Japan” or the topic “Medicine Latin, Syria, Islam, Hindu, Tibet, China and Japan”. He found it as leading to only a certain race. He suggested that Sarton change the sub-topics that is based on division into religion, philosophy, mathematics, and so on. This is for the purpose of giving space to readers to search for themselves the origin of the personality mentioned in a topic.

Besides that, he said that readers may from the pages make the criticism that the basis of chronological arrangement seems vague and unclear. For example, “The Time of Abu-I-Wafa” does not bring the reader to the time period of the years 950-1000 AD. In order to find the place where an event occurred, the reader has to revert to the contents of this work.

4.0 Conclusion

Based on the views of the above Western scholars, it can be said that many Western scholars gave a positive view of Sarton’s work, *Introduction to the History of Science*, in terms of its systematic arrangement of chapters divided into certain parts, consistent arrangement of topics, aside from the praises for the authority of this work which is considered as a tool that can be used by the general public when they wish to know about the history of Science. As a whole, they concluded that Sarton’s work is an invaluable contribution to the discipline of history of Science.

Nevertheless, there were also scholars who gave negative views of this work such as expressed by Thorndike (1928). He did not agree with the way of writing the topics because it leads towards a certain race and he found the chronological arrangement as unclear for the reader’s eyes.

After examining all the views of the above Western scholars, the researcher is of the opinion that a writer has the right of freedom to write in his own way in order to produce a good and quality work. Every writer has the freedom to state his opinions while readers have the right to evaluate the writer’s views. On the whole, Sarton’s work is positive because it can be the basis of reference in the discipline of history of Science.

5.0 References

- Barnes, H.E. 1927. Introduction to the History of Science. Volume 1: From Homer to Omar Khayyam by George Sarton. *Oxford Journals*. 6(2): 304-305
- Cohen, I.B. 1957. George Sarton. *Chicago Journal History of Science Society* 48(3) : 286-300
- Dorothea & Charles Singer. 1957. George Sarton and the History of Science Society. *Chicago Journal History of Science*. Chicago: The University of Chicago Press.
- E.G.B. 1928. Introduction to the History of Science: Vol 1, From Homer to Omar Khayyam by George Sarton. *The American Journal of Psychology*. 40 (1): 150
- Garfield, E. 1985a. George Sarton : The Father of the History of Science. *Information Scientist* 8 (25) : 241-247
- Garfield, E. 1985b. George Sarton : The Father of the History of Science. *Information Scientist* 8 (26) : 248-253
- Hamed A.Ead. 2011. History of Islamic Science.
http://www.teachislam.com/index.php?option=com_content&task=view&id=3707&Itemid=403. 12 Desember 2011
- Haskin, C.H. 1928. Introduction to the History of Science. Volume 1, From Homer to Omar Khayyam by George Sarton. *Isis Journal*. 10 (1): 88-92.
- Johnson, F.R. 1953. Introduction to the History of Science: Vol. I: From Homer to Omar Khayyam; Vol. II: From Rabbi ben Ezra to Roger Bacon; Vol. III: Science and Learning in the Fourteenth Century by George Sarton. *Modern Language Notes*. 68 (4): 270-271
- MacDonald, D.B. 1929. Introduction to the History of Science by George Sarton. *Speculum*. 4(4): 486-492.
- Sarton, G. 1927. Introduction to the History of Science. From Homer to Omar Khayyam. Vol 1. Baltimore : The Williams & Wilkins Company
- Sarton, G. 1931. Introduction to the History of Science. From Rabbi Ben Ezra to Roger Bacon. Vol II. Florida : Robert E. Krieger Publishing Company
- Sarton, G. 1947. Introduction to the History of Science. Science and Learning in the Fourteenth Century. Vol III. Florida : Robert E. Krieger Publishing Company.
- Thorndike, L. 1928. Introduction to the History of Science by George Sarton. *The American Historical Review*. 33(2): 363-366