



Prof. Dr. Fuat Sezgin (1924-2018) and His Contributions to the History of Medical Sciences

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Prof. Dr. Fuat Sezgin (1924–2018), a renowned Turkish orientalist and historian of science, was the founder and long-term director of the Institute of the History of the Arab-Islamic Sciences at J.W. Goethe University in Frankfurt, Germany since 1982. With respect to medical sciences, he outlined the historical development of medical literature in Islamic civilizations by introducing the works and contributions of many medical authors of the Islamic Golden Age. Among them, the third (1970) and fourth (1971) volumes of his voluminous work *Geschichte des arabischen Schrifttums* (History of Arabic Writings), a systematically organized bio-bibliographical reference on the history of science and technology in the Islamic world, are of particular importance. He also established Frankfurt's (1983) and Istanbul's (2008) Museum for the History of Science and Technology in Islam, bringing together nearly 800 ingenious replicas of historical scientific instruments and medical tools.

Keywords: History of medicine, Turkey, biography, anniversaries and special events

INTRODUCTION

Prof. Dr. Fuat Sezgin (1924–2018), a renowned Turkish orientalist and historian of science, passed away on June 30, 2018 in Istanbul at the age of 94. He was the founder and long-term director of the *Institut für Geschichte der Arabisch-Islamischen Wissenschaften* (Institute of the History of the Arab-Islamic Sciences) at Johann Wolfgang Goethe University in Frankfurt, Germany since 1982 (Fig. 1). He made significant contributions to the documentation of the Arabic scientific writings preceding 430 AH/1038 AD in particular (1, 2).

Amid all the tributes to his scientific contributions to promote the history of science, 2019 has been marked as the “Year of Prof. Dr. Fuat Sezgin,” which will be commemorated with many events across Turkey. To pay homage to his scientific legacy, this narrative review presents his life and contributions to the history of medical sciences. In the preparation of this paper, biographical sources, bibliographies, and catalogs, as well as primary documentation, about his life and scientific works have been reviewed from a historical perspective.

His Biography

Mehmet Fuat Sezgin was born in Bitlis, Turkey on October 24, 1924. After graduating from the Istanbul University Faculty of Letters, he received his PhD degree in 1951 at the same faculty under the supervision of Hellmut Ritter (1892–1971), a leading German orientalist. Although Fuat Sezgin began a successful career in Turkey—he became an associate professor in 1954 with a good scientific reputation—he settled in Germany in 1961. In fact, this was a consequence of the negative climate following the Turkish military coup on May 27, 1960, which forced 147 academics, including Fuat Sezgin, to leave their positions at Turkish universities. In his new homeland, he initially taught as a guest lecturer at the University of Frankfurt and the Philipps University of Marburg. During this period, the history of the natural sciences in Arab-Islamic culture became the focus of his scientific works and the subject that qualified him to teach as a professor in 1965 (2, 3).

The following years proved fruitful for him as he embarked on international scientific travels (1). Interestingly, in 1968, he discovered in a review of manuscripts in the Library of the Imam-Reza Shrine in Mashhad, Iran four of the seven lost books of arithmetic by Diophantus of Alexandria, a third-century mathematician, in their Arabic translations (4).

As a fervent scholar and talented polyglot who could read in 27 languages, ancient and modern, he spent most of his life among prodigious amount of manuscripts in the public and private libraries of more than 60 countries (1). He authored, co-authored, edited, or translated hundreds of papers, reviews, and books mostly in German, among which his best-known and most voluminous publication was the 17-volume *Geschichte des arabischen Schrifttums* (GAS; History of Arabic Writings), a systematically organized bio-bibliographical reference on the history of science

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Figure 1. Prof. Dr. Fuat Sezgin at the Institute of the History of the Arab-Islamic Sciences in Frankfurt, Germany, 1990s. (Courtesy of the Timaş Publishing Group, Istanbul.)

and technology in the Islamic world until around 430 AH/1038 AD (2). This comprehensive work threatened to replace eminent German orientalist Carl Brockelmann's (1868–1956) *Geschichte der arabischen Litteratur* (History of Arabic Literature) (5).

Elected as an honorary member of the Academies of the Arabic Language in Baghdad, Cairo, and Damascus, as well as the Turkish Academy of Sciences, Fuat Sezgin received the King Faisal International Prize (1978), Goethe Plaque of the City of Frankfurt am Main (1980), Great Cross of Merit of the Federal Republic of Germany (2001), and Great Award for Culture and Art of the Presidency of the Republic of Turkey (2013), among many others. He was also awarded honorary doctoral degrees from Atatürk University (Erzurum), Erciyes University (Kayseri), Süleyman Demirel University (Isparta), and Istanbul University (2).

Remembered by his colleagues and students not only as a dedicated scholar with a sensitive and gentle soul but also as a well-disciplined teacher, he married Dr. Ursula Sezgin, a German orientalist, in 1965 and is survived by his only daughter Hilal Sezgin (1). In recognition of his extraordinary service to the history of science, he was laid to rest in Gülhane Park in Istanbul, marked by a specially designed tombstone engraved with a historical astrolabe drawing, only a few steps away from the Museum and Library of the History of Science and Technology, which he established (Fig. 2).

His Contributions to the History of Medical Sciences

In addition to his broad interest in many fields of the history of sciences, spanning from astronomy to geography, Fuat Sezgin also contributed to the fields of the history of medical sciences in a variety of ways.

He meticulously documented the scientific writings and advances achieved by Muslim savants. Among them, his voluminous GAS is of utmost importance since Arabic was, for many centuries, the language of the learned in Islamic civilizations. The third (1970) and fourth (1971) volumes of GAS cover the historical resources of Islamic medicine, pharmacy, zoology, veterinary medicine,



Figure 2. The Istanbul Museum of the History of Science and Technology in Islam, 2018. (Courtesy of The Prof. Dr. Fuat Sezgin Research Foundation for the History of Science and Technology in Islam, Istanbul.)

alchemy, chemistry, and botany (Fig. 3, Table 1) (6, 7). Manfred Ullmann, a respected medical historian, praises Fuat Sezgin's hard work in bringing together an enormous amount of manuscripts with the following statement: "Never before have the medicine and the natural sciences of Islam been presented in such an abundantly documented form." (8).

With respect to medical sciences in particular, Fuat Sezgin outlined the historical development of medical literature in Islamic civilizations by introducing the works of many medical authors of the Islamic Golden Age in detail with a special focus on the reception and assimilation of Greek and Indian science in Islam. He referred to an Arabic manuscript of Galen's otherwise lost commentary on the Hippocratic treatise on bioclimatology, *De Aere, Aquis et Locis* (On Air, Waters, and Places) (8). He published facsimile editions of many Arab-Islamic historical works in the field of medicine and made them available for future studies. Some examples include al-Ṭabarī's (838–923) *Kitāb al-Mu'alaĵa al-Buqratiya* (The Book of Hippocratic Treatments), al-Ruhāwī's (fl. 9th century) *Adab al-Ṭabīb* (Practical Ethics of the Physician), and al-Kaskarī's (fl. 10th century) *Kunnās fī al-Ṭibb* (The Compendium on Medicine). In a series of

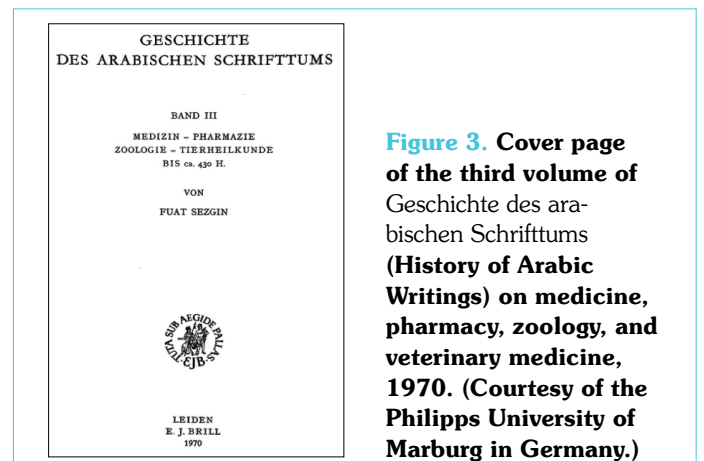


Figure 3. Cover page of the third volume of *Geschichte des Arabischen Schrifttums* (History of Arabic Writings) on medicine, pharmacy, zoology, and veterinary medicine, 1970. (Courtesy of the Philipps University of Marburg in Germany.)

Table 1. Medical-related subjects in *Geschichte des arabischen Schrifttums* (GAS) (6, 7)

Volumes/chapters	Main subjects	Contents
Vol. III/I	Medicine, pharmacy	Introduction, sources, Arabian physicians and pharmacologists (up to about 430 AH/1038 AD)
Vol. III/II	Zoology, veterinary medicine	Introduction, sources, Arabian zoologists and veterinarians (up to about 430 AH/1038 AD)
Vol. III/supplement	Miscellaneous	Bibliography, libraries and collections of Arabic manuscripts, supplements, indices, corrections
Vol. IV/I	Alchemy, chemistry	Introduction, sources, Arabian alchemists and chemists (up to about 430 AH/1038 AD)
Vol. IV/II	Botany, agriculture	Introduction, sources, Arabian botanists and agronomists (up to about 430 AH/1038 AD)
Vol. IV/supplement	Miscellaneous	Bibliography, supplements, indices, corrections

the history of medical sciences in Islam, Fuat Sezgin also translated, edited, or reprinted 61 works published in a total of hundred volumes (e.g., *Galen in the Arabic Tradition: Texts and Studies*, 4 vols., 1996; *Text and Studies on Islamic Medicine*, 7 vols., 1996; and *Studies on the History of Islamic Medicine and Related Fields*, 3 vols., 1997) (1). Thus, he illuminated the formerly recondite era, swelling with the groundbreaking discoveries of Muslim savants who also achieved the following advances in medical sciences:

i. Medical literature and terminology: GAS mentioned a great number of reference books dealing with medical sciences, such as al-Ṭabarī's (838–923) *Firdaws al-Hikmah* (Paradise of Wisdom), al-Rāzī's (c. 865–925) *Kitāb al-Hāwī fī al-Ṭibb* (The Comprehensive Book on Medicine), and al-Zahrāwī's (936–1013) *Kitāb al-Taṣrīf* (Book of the Medical Arrangement), as well as many prominent treatises related to toxicology, antidotes, and theriacs (6). Pharmaceutical compendiums, namely *aqrābādhīn* (compilation of systematically arranged formulas or recipes for medications), were also introduced as a new genre of professional literature (9). In addition, the medical terminology of modern times owes many words to Arab-Islamic scholars of the past (e.g., alchemy, alcohol, alembic, camphor, julep, sugar, and syrup) (10).

ii. Medical knowledge and practice: Differential diagnoses for several diseases—for instance, differentiating between smallpox and measles—and new methods of treatment were established during this period (11). Pharmacy became a distinct profession, with the emergence of shops specializing in making and selling medicines and spices, especially around Baghdad, as well as specialized practitioners called *sayādīlah* (pharmacist) (9, 12).

iii. Medical settings: As a more elaborate institution with a wider range of functions, the earliest hospital of the Islamic world was built in Baghdad around late 9th century (13).

iv. Medical techniques: New medical instruments for surgical and ophthalmological operations together with apparatuses used in making medicines (e.g., catgut sutures; forceps; scalpels; surgical scissors, knives, and needles; and retractors), as well as new chemical processes (e.g., calcinations, distillation, and sublimation) and dosage forms (e.g., confections, conserves, electuaries, juleps, lohochs, and syrups), were introduced (11, 14).

v. Drugs: A great number of simples (crude, uncompounded drugs; e.g., ambergris and camphor) that had remained unknown to the *materia medica* of the ancient and classical worlds, medicinal plants (e.g., cassia, cloves, cubebs, rhubarb, musk, senna, and tamarind), and antiseptics for wound cleaning (e.g., alcohol, vinegar, and rose water) were introduced (9, 10, 12).

Moreover, he produced some ingenious replicas of the medical tools, instruments, and apparatuses invented by Muslim scholars (15, 16). Among them, a set of surgical tools mentioned in al-Zahrāwī's (936–1013) famous work *Kitāb al-Taṣrīf* (Book of the Medical Arrangement), a 30-volume Arabic encyclopedia on medicine and surgery, is remarkable for its exact resemblance to the original depictions (Fig. 4) (14, 17). Similarly, in his five-volume work *Wissenschaft und Technik im Islam* (Science and Technology in Islam, 2003), he also introduced a pictorial reference on the medical instruments and tools (e.g., instruments for cauterization, general surgery, and dental treatment, as well as gynecological, ophthalmological, and urological instruments) exhibited in the Museum of the History of Science and Technology in Islam, which he founded in Frankfurt (15).

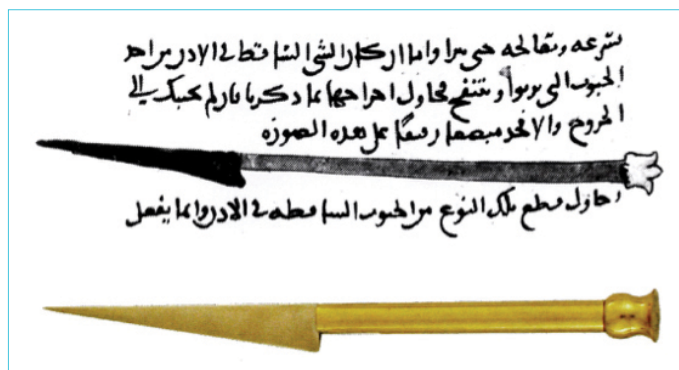


Figure 4. Above: Depiction of a scalpel for splitting corns or seeds that have fallen into the ear and have swollen up due to the moisture inside the ear, in al-Zahrāwī's (936–1013) *Kitāb al-Taṣrīf* (Book of the Medical Arrangement; Veliyeddin no: 2491, fol. 128a) (14, 16). Below: Replica of a brass scalpel with a steel blade, exhibited at the Istanbul Museum of the History of Science and Technology in Islam, 2018. (Courtesy of The Prof. Dr. Fuat Sezgin Research Foundation for the History of Science and Technology in Islam, Istanbul.)

CONCLUSION

Following the footsteps of Ibn al-Nadīm (c. 935–c. 990), the compiler of the bio-bibliographical Arabic encyclopedic catalog *Kitāb al-Fihrist* (The Book of Catalog), Fuat Sezgin was one of those few talents who spent virtually his whole life to study various branches of the history of science and technology, including medical sciences, in Islamic civilizations. Despite the difficulties he had faced in his early career, he succeeded in building himself from a guest lecturer to an award-winning director of a prestigious academic institute thanks to his hard work, perseverance, and well-defined, long-term scientific purpose.

In addition to his personal skills, experience, and scientific merits, what makes him distinct from his colleagues and achieve wide acclaim can be traced to two reasons. First, his successful strategy to use his international credibility and the wide network he gained throughout his long career made the History of Science and Technology in Islam a more established discipline. For instance, the foundation of the Institute in Frankfurt germinated thanks to the financial support he gained from receiving the King Faisal International Prize. Second, his creative approach in converting theoretical knowledge into practical value made it easier for larger populations, which also include non-professionals and young people, to grasp and take an interest in the field. His work in producing replicas of the scientific instruments and tools, which he created based on the information or depictions given in early scientific manuscripts, was particularly instrumental in this and eventually reached a number large enough to found two museums.

In conclusion, Fuat Sezgin deserves to be remembered as a distinguished academic and the “explorer of the lost treasure,” as he is coined by an epithet of one of his biographers. His life and works will without doubt continue to influence not only the historians of science for generations to come but also all those researchers wishing to surpass their goals and extend their limits.

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