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Gökmen, Mehmed Fatin

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Born **1877**

Died **Istanbul, (Turkey), 6 December, 1955**

Fatin Gökmen is known for his reinvigoration of astronomical education in 20th-century Turkey. He was the founder and first director of the Kandilli Observatory in Istanbul, and his contributions include astronomical work on observation, the calendar, and instruments.

Fatin - "Gökmen" was added in 1936, after the foundation of the Turkish state - came from the district of Akseki in Antalya. His father, Qadi Abdulgaffar Efendi, was a traditional Islamic scholar, and Fatin Gökmen's early schooling was in the *madrassa* of his native town. He then moved to Istanbul where he learned classical astronomy and the methods of calendar preparation from the last Ottoman head-astronomer, Hüseyin Hilmi Efendi. He also worked in the famous Sultan Selim time-keeping Institute (*muvakkithane*). Fatin Gökmen, encouraged by the Turkish mathematician **Salih Zeki**, pursued his higher education in the fields of astronomy and mathematics in the Ottoman University's Faculty of Sciences (Dârülfünûn), which opened on 31 August 1900. After 3 years, he graduated from that faculty with the first rank. Fatin subsequently taught mathematics in various high schools, and was eventually appointed in 1909 as a lecturer in astronomy and probability at the Faculty of Sciences of the Ottoman University. He continued to lecture there until he resigned in 1933, as a consequence of the ongoing reform movement.

Fatin Gökmen was a key figure in facilitating the emergence of the modern astronomical observatory in Turkey. The Imperial Observatory, established in Istanbul in 1867 under the directorship of A. Coumbary, was mainly a meteorological center. With the assistance of Salih Zeki, Fatin Gökmen was appointed director of this observatory, and he was also given the task of establishing a new observatory. On 4 September 1910 he began work on setting up such a facility, which was to become the Kandilli Observatory. Fatin Gökmen's initial work at the Kandilli Observatory was publishing meteorology bulletins in 1911/1912. His work later became more astronomically oriented and continued until his retirement in 1943.

Fatin Gökmen first wrote on astronomy for university lectures and was influenced by the analytical methods of the French astronomer **Henri Andoyer**. This revealed itself particularly in Fatin's work on positional astronomy entitled *Vaz'ıyyât ve vaz'ıyyâta 'âid mesâil-i umûmiyya*. In 1927, he published his work entitled *Mathematical Astronomy and the Double-false Theory*, compiled from his lectures at the university. His most important essay is on the determination and calculation of the total solar eclipse. Fatin approached the solar eclipse from an analytical perspective and, using

geometry, explained the difficulties he encountered with his calculations. Using Andoyer's methods, he analyzed the solar eclipse of 16 June 1936, and his results were published by the Kandilli Observatory as the *L'eclipse totale du soleil du 19 Juin 1936*.

Besides being an astronomer, Fatin Gökmen also did work in the history of astronomy, particularly regarding observational instruments. He pursued important research on the subjects of astronomy and the calendar among premodern Turks as a contribution to The Society for the Investigation of Turkish History. In his work entitled *L'astronomie et le calendrier chez les Turcs* (The astronomy and the calendar of the [early] Turks), he benefited from studying *Zij-i ilkhānī* of the great Islamic astronomer **Naşir al-Dīn al-Tūsī**. As a result of this study, Fatin concluded that the early Turks had made use of "Hellenic-Chaldean" astronomy, *i. e.*, the geocentric astronomy of **Ptolemy**; this was in contrast to the conventional view that they had followed Chinese astronomy.

As for Fatin's historical work on observational instruments, he made original contributions in his studies of the quadrant, which he published in his *Rubu'tahtası nazariyatı ve tersimi* (The quadrant: its theory and design; Istanbul, 1948). In addition to explaining the function of this instrument, he also shed light on the Turkish contribution to it and its transmission to modern times. At the end of the work, Fatin included a glossary of astronomical terms in Turkish and French. In this way he contributed to building a bridge between the old and the new astronomy.

Fatin Gökmen also conceived of using a particular quadrant (the *Rub' al-muqanṭarāt*) to make a table of the minimum and maximum values of the variations of the azimuth and the hour angle (up to $\pm 3^\circ$) for a certain latitude. He further used the quadrant for finding the precision level required in geomagnetism, maps, and other related items as well as for determining the amount of refraction of light and for solving trigonometric problems.

Finally, we should mention that Fatin Gökmen made important contributions to the establishment and development of modern meteorology, geophysics, and seismology in Turkey.

Selected References

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