

“Sufi-minded” or “Sufi-inclined,” and others not? How can one spot, say, “Sufi-minded philosophers” (70) or “juristically trained Sufis” (277)? Yilmaz’s conclusions are convincing, but here, too, he convinces more by sheer weight of evidence than by structured argument. His chapters tend to be diffuse, and readers may struggle to follow.

In short, *Caliphate Redefined* is not a book that yields quick insight or a book for novices. Yet most specialists, on patient study, should find it rewarding and thought provoking. It is a book that requires time. Yilmaz gives us much food for thought, best taken slowly. To paraphrase Paul Wittek, a great historian of the early Ottoman Empire, it is a book that should “be read as the worm eats the apple.”

ETHAN L. MENCHINGER
University of Manchester

DANIEL A. STOLZ. *The Lighthouse and the Observatory: Islam, Science, and Empire in Late Ottoman Egypt*. (Science in History.) New York: Cambridge University Press, 2018. Pp. xiv, 316. Cloth \$99.99.

Daniel A. Stolz’s *The Lighthouse and the Observatory: Islam, Science, and Empire in Late Ottoman Egypt* is a history of astronomy in nineteenth- and early twentieth-century Egypt. In the Islamic world, astronomy has a storied history. The significance of its calculations to matters of religious practice has lent the subject a particular importance, especially in the medieval and early modern periods. In *The Lighthouse and the Observatory*, Stolz traces the field’s trajectory in the modern period, arguing that the production and significance of astronomical knowledge can only be understood as contingent. In Egypt, that contingency stemmed from the roles played by scholars trained in different traditions, changing public expectations and practices, the construction of new Ottoman-Egyptian state institutions, and Egypt’s enmeshment in the circuits of empire. In his careful weaving of a wide array of sources and the interplay of nested and scalar historical forces, Stolz has produced a text that reflects—plainly speaking—what the history of science can be at its best. *The Lighthouse and the Observatory* should be required reading for historians of science of the long nineteenth century as well as for scholars of modern Egypt.

The book’s first section, “Geographies of Knowledge,” treats the different contexts within which astronomical knowledge was produced in nineteenth-century Egypt. Chapter 1 explores the life and work of the Egyptian scholar Muhammad al-Khudari, in particular his text *Commentary on the Brillancy*. The focus on al-Khudari reflects one of the book’s broader concerns, that of the roles played by scholars trained in the traditional fields of Islamic learning, astronomy among them, in the production and practice of “modern” science. Through an analysis of al-Khudari’s commentary,

Stolz explicates a complex practice of Islamic time-keeping, one that was in part related to translations among the multiple calendrical systems in use in Ottoman Egypt, the most prominent of which was the Coptic Christian calendar. Those interested in the meanings buried within the alignment of planets and stars—astrology—also relied on astronomical texts and methods. The book’s second chapter traces the history of astronomy among state technocrats, Mahmud Hamdi “al-Falaki” and Isma’il Mustafa “al-Falaki” in particular, as well as the influence of the educational institutions built by the Ottoman-Egyptian state in the first half of the nineteenth century. The exchange of knowledge in this period, especially between Ottoman Egypt and France, was facilitated by the travel of Ottoman-Egyptian technocrats to acquire additional training abroad. Through a focus on state astronomy, Stolz examines a new realm of astronomical practice that emerged in the interest of the state, which, among other ends, helped to define Egypt’s own territory and empire.

The book’s second section, “Objects of Translation,” illustrates the processes through which new technological forms were adopted and used, and the influence of scholars who were not affiliated with state scientific institutions in these processes. Chapter 3 treats the manuals that guided the use of new timepieces, many of these texts composed by scholars who had been trained in the tradition of Islamic learning. Chapter 4 follows a translation of an eighteenth-century astronomical text and table by the French astronomer Jérôme de Lalande, and its adoption and adaptation into the language and form of late Ottoman astronomy. As in the book’s second chapter, Ottoman Egypt functions as one site in a global practice of astronomy where ideas and tools were exchanged, adapted, developed, and propagated. Throughout, the story that Stolz tells underscores the interplay among the spread of technologies and methods, on the one hand, and, on the other, popular religious practice, cultural forms, an evolving realm of Islamic thought, and state science.

The chapters that compose the book’s third and final section detail the emergence of new state-sanctioned, official, and standardized astronomical practices and histories. Chapter 5 examines the debates that surrounded astronomy in the Arabic press. The sixth chapter describes the processes through which the Survey Department came to serve as the arbiter of daily prayer times. The book’s final chapter explores the debates that surrounded the methods used to determine the beginning of the holy month of Ramadan and their relationship to the challenges that confronted Muslim communities in an era in which many experienced the encroachments of European colonialism.

In sum, *The Lighthouse and the Observatory* is painstakingly crafted, carefully argued, and rooted in a thoughtful treatment of a wide variety of sources. Its engagement with questions of contingency means that

worlds that are often treated as distinct—historically and historiographically—come together in dialogue. Refreshingly, the book avoids the simple dichotomies that sometimes divide what is understood as colonial versus indigenous forms of knowledge. Its discussion of standardization is one such example. While the formulation of scientific standards was central to the objectives of modern states and colonial projects alike, standards could have multiple and other roots, some of which can be traced to popular culture and evolving notions of community. Notable also is the author's treatment of sources. Historians of science in the Islamic world often hew to close readings of primary texts. Stoltz pairs this particular skill with a robust accounting for the broader dynamics of historical change. Finally, one word of criticism: many of us in the history of science continue to produce stories that are histories of men, and this work no exception. Future work on science in modern Egypt might probe the matter of gender more deeply in the complex network of influences that Stoltz has drawn. In conclusion, *The Lighthouse and the Observatory* is a clear-eyed demonstration of the fact that while scientific ideas, practices, and technologies might circulate throughout different regions of the globe, histories of science are made through their articulations in specific geographies, knowledge practices, politics, and broader cultural concerns.

JENNIFER L. DERR

University of California, Santa Cruz

KHALED FAHMY. *In Quest of Justice: Islamic Law and Forensic Medicine in Modern Egypt*. Oakland: University of California Press, 2018. Pp. xiii, 377. Cloth \$39.95, e-book \$39.95.

In Quest of Justice: Islamic Law and Forensic Medicine in Modern Egypt provides a fascinating account of the rise of a state apparatus in Egypt during the nineteenth century. The book expands on Khaled Fahmy's prolific scholarship, which has addressed various aspects of the development of new state institutions in nineteenth-century Egypt, from the creation of a conscript army to the formation of a new police force. Over the last two decades, this body of work has inspired numerous scholars. It is therefore not surprising that *In Quest of Justice* can be read as being in conversation with several recent studies of nineteenth-century Egypt by scholars like Liat Kozma (on the policing of women), Adam Mestyan (on late Ottoman Egypt), or Daniel Stoltz (on religion and scientific practice).

Each of the book's five chapters uses an abundance of records from the Egyptian National Archives, many of which Fahmy has unearthed for the first time. In the first chapter, readers learn about the creation of a medical establishment that was rooted in a concern for the health of the army. Fahmy discusses quarantines and dissections as two activities through which the medical

establishment gradually began to affect larger parts of the Egyptian population. The archival record counters arguments about a popular or religious rejection of these new medical practices. The author rather shows that Egyptians started to navigate the medical institutions and sometimes even mobilized them to their own ends, as illustrated by the example of autopsies in criminal cases.

Chapter 2 looks at changes in legal practice, by drawing on the oft-overlooked institution of the *siyāsa* councils. Fahmy counters a narrative that sees legal change in nineteenth-century Egypt as a linear development from shari'a courts to a European legal system, which culminated in the introduction of the Mixed Courts in 1876. He demonstrates that the earlier *siyāsa* councils drew both on longer traditions in Islamic law as well as on innovations of the nineteenth century. In contrast to the shari'a courts, *siyāsa* councils accepted, for instance, circumstantial evidence in criminal cases. In this way, they made use of other recently introduced tools of state power, such as forensic medicine or the novel police force.

Urban planning and hygiene in Cairo take center stage, in chapter 3. Fahmy criticizes that the historiography of the Egyptian capital has for a long time preferred sight over smell, thereby reproducing an elite perspective on urban change. A focus on olfaction, he suggests, allows historians to rewrite the history of the city from below. With this approach, the chapter provides an alternative to established narratives about the Egyptian capital, such as the tale that changes in Paris were the main motivating factor behind the remodeling of Cairo in the middle of the nineteenth century. In Fahmy's account, hygienic concerns of the state appear as the driving force of much of Cairo's transformation in this period.

The book's many interventions in different strands of scholarship can also be a challenge, and at times the narrative thread risks running thin. An example for this is an excursus on *hisba* in chapter 4. *Hisba* denotes an Islamic concept of moral criticism. By examining foundational texts on *hisba* in Islamic thought, Fahmy delves deep into a critique of scholarship by Talal Asad and Hussein Agrama. Instead of considering *hisba* as a practice aimed at the self, Fahmy looks at it as relating to the power of the state. He contends that *hisba* materialized historically in market inspections, which were violent and coercive. The chapter then details the bureaucracy that took over from the older institution of the market inspector, the *muhtasib*, during the nineteenth century, like the Department of Health Inspection of Cairo. Fahmy argues that this new bureaucracy allowed the state to reduce the open violence that had been constitutive of *hisba*. Yet, precisely the argument about violence being at the core of the abolition of *hisba*, which ties the different parts of the chapter together, remains in the end somewhat tenuous. The fifth chapter devel-