scholars in these networks were influenced by their contacts with teachers and colleagues from other parts of the Islamic world.

Haykel's thorough analysis of Sunnī Traditionism in Yemen is a model study in its comprehensive utilization of local sources and the in-depth understanding of the debates of the era of al-Shawkānī and the continuing importance of the issues raised in those debates. Haykel makes a very important contribution to understanding movements of revival and reform in Islam both as they developed in the eighteenth century and as they continue to develop at the beginning of the twenty-first century.

John O. Voll


This edited volume consists of twenty-nine articles spread over 862 pages under four general headings: Mesopotamia (pp. 3–125); Classical and Medieval Europe (pp. 127–236); India and Iran (pp. 265–605); and Islam (pp. 607–862). It was published as “an expression of respect and gratitude” (xi) to David Pingree (1933–2005) by his students and colleagues at the Department of the History of Mathematics at Brown University and elsewhere a year before his death on November 11, 2005 and contains the most up-to-date bibliography (pp. 863–881) of that prolific scholar whose life was devoted to research and study.

Born on January 2, 1933 in New Haven, Connecticut, Pingree attended Phillips Academy, Andover, “where he was drawn to what became his lifelong study of Sanskrit texts through references to them in the works of New England transcendentalists such as Thoreau.”¹ His life is a series of academic achievements at some of the most prestigious institutions in the United States. The two most important influences on his academic life were those of Otto Neugebauer, the founder of Brown University's Department of the History of


The short “Preface” to the work under review contains a vivid portrait of Pingree’s academic life:

> Those who have worked with David in Wilbour Hall in the shadow of the University Library will remember how he would turn up every morning with his dog—for many years a gentle but intellectually challenged black mongrel called Junior—whom Neugebauer would reward with a titbit [sic]. Gerald Toomer would be working in the basement with his two corgis; Abe Sachs was quietly unraveling the secrets of his cuneiform tablets in a neighbouring office. Throughout the day one would read with him a text in one of David’s many languages, pulling books off the shelves which contained the most comprehensive collection of works on the history of mathematics that has ever been assembled in one place. Besides the books one might plunge one’s hand into a sea of microfilms of manuscripts, or consult one of the many immaculate transcriptions of unpublished texts that David made, or his card-file of datable horoscopes. Only rarely did one have to go to the Department’s big brother next door to supplement the resources of the unique library. Shortly before mid-day (incredibly early for most Europeans) one would accompany David and Neugebauer to the university cafeteria where one would pile a mixture of salads and sauces into one bowl and wash it down with juice or beer. The afternoon stint would continue until five or six o’clock, when David walked back home with his dog. But one knew that more work waited there for him: perhaps an edition of a Sanskrit text, or a set of astronomical tables (p. xii).

David Pingree had collected his impressive library during the first decade of his 32-year stay at Brown’s reputed Department of the History of Mathematics, “which in any case was not expected to outlast his projected retirement in 2006, has consequently ceased to exist.”³

There are five articles under each of the first two major sections “Mesopotamia” and “Classical and Medieval Europe,” eleven under “India and Iran,” and eight under “Islam” — a distribution which roughly represents Pingree’s own level of interest in these scientific traditions. Almost all articles bear the stamp of Pingree’s research and interpretive preferences, the so-called “Neugebauer school” of history of science, “with its emphasis on languages and on careful technical scrutiny of primary sources; the focus on what he

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³ Ibid., 5.
called the ‘kinematics’ of scientific development or its transmissions between cultures.”

The first five articles of the book dealing with Mesopotamia provide important data and insights gleaned from ancient sources. John Britton’s article, “An Early Observation Text for Mars: HSM 1899.2.112 (=HSM 1490),” (pp. 33–55) for instance, is based on a tablet acquired by Harvard in 1899 containing “a text which recorded observations and calculated phenomena of Mars, year by year, from around the beginning of the reign of Esarhaddon (-679) through the end of the reign of Nebuchadnezzar (-561)” (p. 33). “A Babylonian Rising-Times Scheme in Non-Tabular Astronomical Texts,” (pp. 55–94) the article by Francesca Rochberg is, likewise, a study on one specific aspect of Babylonian astronomy — the concept of the rising times of the twelve consecutive 30° signs of the zodiac — which was adopted in Greco-Roman astronomy and astrology before the first century CE. Lis Brack-Bernsen and John M. Steele’s article, “Babylonian Mathemagics: Two Mathematical Astronomical-Astrological Texts” (pp. 95–125) is based on tablets from Babylon from the times of Nebuchadnezzar to Artaxerxes.

The five articles in the second section, “Classical and Medieval Europe,” contain important studies dealing with various aspects of history of mathematics. Charles Burnett’s article, “Arabic and Latin Astrology Compared in the Twelfth Century: Firmicus, Adelard of Bath and ‘Doctor Elmirethi’ (‘Aristoteles Milesius’)” (pp. 247–263) attempts to prove on the basis of textual analysis of an eleventh-century manuscript the falsity of the notion that Latin translations of Arabic astrological texts completely replaced the Latin astrological tradition in the Middle Ages.

One of the eleven articles in the section devoted to India and Iran, “Sanskirt Scientific Texts in Indo-Persian Sources, with Special Emphasis on Siddántas and Karanas,” (pp. 587–605) brings to light a rare Arabic manuscript consisting of Abū Rayḥān Muḥammad b. Ahmad al-Bīrūnī’s (362–440/973–1048) translation of Vijayanad’s Karanatila (done in 966 CE). Takanori Kusuba discusses Indian rules for the decomposition of fractions and Takao Hayashi’s article, “Two Benares manuscripts of Nārāyana Pandita’s Bijagāṇitāvatsamṣa” (pp. 386–496) provides an edition of the available portion of Part II of the Bijagāṇitāvatsamṣa, together with an English translation of its verses and a mathematical commentary.

The eight articles dealing with Islamic scientific tradition are the work of nine highly respected historians of science, most of whom have chosen to write on their areas of specialization. J. L. Berggren, for instance, has focused his research on Abū Sahl Wījan ibn Rustam al-Kūhī (d. ca. 390/1000) for the

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4 Ibid., 4.
last twenty years; his contribution to this volume, “The Fragments of Abū Sahl al-Kūhi’s Lost Geometrical Works in the Writings of al-Sījzī,” (pp. 609–665) is on the same subject; Jan P. Hogendijk is the co-author of this article. Likewise for David King, Jacques Sesiano, Bernard R. Goldstein, Godefroid de Callataj, Jamil Ragerp, George Saliba, and Benno van Dalen, who have spent a lifetime in their chosen fields. These highly specialized studies are a treasure house of data and ideas, which simultaneously lead to many intriguing questions about the history of Islamic scientific tradition as well as its interpretation by orientalists.

For instance, one of the oft-repeated hypotheses prevalent among many orientalists and sociologists is that Islamic scientific tradition was nothing but the work of a few brilliant individuals who worked in isolation from each other, under the patronage of enlightened rulers. Berggren and Hogendijk’s article, which also contains Arabic text and translation of selected problems from al-Kūhi, provides evidence pointing in the opposite direction. They place the research of Abū Sahl Wijan ibn Rustam al-Kūhi, who flourished in the second half of the tenth century under the patronage of “three kings of the Buyid Dynasty, ‘Abdud al-Daula, Šamsām al-Daula and Sharaf al-Daula, whose combined reigns over much of Iraq and Western Iran extended over twenty-seven years from 962 and 989,” in the broader scientific milieu of his times—the fourth/tenth century, which was a time of intense geometrical research, they tell us, occupying

most of the working lives of such geometers as Ibrāhīm ibn Sinān (909–946), Ahmad al-Šaghāni (fl. ca. 970), Abū Sā’d al-Ašrī ibn Sahl, Ahmad ibn Muhammad ibn ‘Abd al-Jalîl al-Sījzī (fl. 970), Abū Naṣr ibn ‘Īraq (died between 1018 and 1036), and Abū al-Wafā’ al-Būzjānī (940–997/8). Both Ibrāhīm and al-Sījzī are directly connected with the work of al-Kūhi on solar observations during the reign of Sharaf al-Daula in 988. In short, al-Kūhi was an active member (and arguably the best geometer) in a community of tenth-century mathematicians who knew not only each other’s work but, in many cases each other as well. (p. 609)

Another favourite claim of certain influential orientalists is the one that pitches science against religious orthodoxy. This is typically based on the premise that Islamic scientific tradition was a mere shadow or a dim reflection of Greek science. It then constructs an imaginary Islamic orthodoxy, which

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5 This idea is repeated in many works directly or tacitly. It is the most fundamental premise of general histories of science written in the West, including textbooks which devote a page or two to the eight hundred year long Islamic scientific tradition wedged in between their accounts of the Greek science and the emergence of modern science.
supposedly killed this budding enterprise in the sixth/twelfth century. This idea originated with Ignaz Goldziher (d. 1954), whose 1916 article, “The Attitude of Orthodox Islam Toward the Ancient Sciences,” has become axiomatic pedagogical practice in the works of numerous Western writers and some modernist Eastern writers as well. David King’s article in this volume tells us about a highly un-Islamic practice, derived from Greek texts, which prevailed in various lands of Islam despite the “Goldziherian Orthodoxy,” and this raises the question: if even a clearly un-Islamic text could make its rounds in places as far apart as al-Andalus and Egypt, then how could their imaginary “orthodoxy” have “killed” sciences which the same orthodoxy considered praiseworthy?

King’s article, “A Hellenistic Astrological Table Deemed Worthy of Being Penned in Gold Ink: The Arabic Tradition of Vettius Valens’s Auxiliary Function for Finding the Length of Life,” (pp. 666–714) is preceded by an epigram which displays his characteristic sense of humour: “To Abū Kayd from Abū Max, alas not in gold” (p. 666). Abū Kayd, “the father (or epitome) of the eminent scholar” was the honorific title given to David Pingree by his students and colleagues and Abū Max is David King himself. The article traces the history of transmission and translation of this astronomical text and describes some of its uses. King recognizes that, based on the Qur’an, ajal, the appointed term of one’s life, was considered an irrevocable period by Muslims and wonders how the “Table of Life” was received when it was first made available in Arabic, and points to a possible source where one may find a clue (p. 675).

With its extensive bibliography included in each article, Studies in the History of the Exact Sciences in Honour of David Pingree is a valuable addition to resources on the history of exact sciences. The compilation of David Pingree’s

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8 “It would not surprise me,” he says, in a footnote to this statement, “if a discussion was found in one or other of two works of al-Biruni entitled Kitāb al-Tanbih ‘alā šina‘at al-tamwih, ‘An Exposé of the Art of Deception,’ in which he criticizes astrologers who use the planets to determine the length of life, and Kitāb al-Shumās al-shafayy li-l-MAFIS, ‘The Suns which Heal the Soul,’ in which he presents ‘the best method.’ Alas neither of these works is extant. See further al-Biruni, Chronology, p. 79 (text) and p. 92 (trans.) and Sezgin, GAS, VII, p. 191, no. 9, and also n. 37 below.” The said note (p. 678) contains further bibliographical references.
bibliography was a timely decision and a very good tribute to his distinguished career in the history of science. Pingree published thirty-two books and monographs between 1968 and 2002. He contributed forty-eight chapters to edited works, wrote eighty-three articles in various journals, and, in addition, contributed several highly original articles in various encyclopaedias and book reviews. His mastery of Greek, Latin, Arabic, Akkadian, and Sanskrit was a rare accomplishment. Studies in the History of the Exact Sciences in Honour of David Pingree extends our understanding of the scientific traditions studied by the contributors as well as of the general intellectual currents in the civilizations in which these sciences flourish.

Muzaffar Iqbal


The author believes it is imperative that programs in Western studies be established in the Muslim world so that Muslims will have a better understanding of Western countries and be better able to influence public opinion in those countries. His book is meant to be, and is, a useful reference tool for such programmes.

The book’s subtitle gives a more accurate understanding of the subject matter: “The Rise of Christian Evangelists and Their Impact.” Readers will learn little about Catholicism or liberal Protestantism or other minority faiths in the United States. What strikes the author is that George W. Bush won presidential elections in 2000 and 2004 despite economic conditions that seemed to favour Democratic candidates. He ascribes Bush’s victories to the power of Christian fundamentalists.

The author briefly discusses the Protestant reformers, Martin Luther (d. 1546) and John Calvin (d. 1564), then the Puritans, who settled New England and who continue to be an inspiration for Christian fundamentalists, and then the conservative break with liberal Protestantism as the United States modernized at the end of the nineteenth century. A movement labelled