Calendars in Antiquity
Sacha Stern

This book offers a study of the calendars of ancient Mesopotamia, Egypt, Persia, Greece, Rome, Gaul, and all other parts of the Mediterranean and the Near East, from the origins up to and including Jewish and Christian calendars in late Antiquity. Particular attention is given to the structure of calendars and their political context. Most ancient calendars were set and controlled by political rulers; they served as expressions of political power, as mechanisms of social control, and sometimes, on the contrary, as assertions of political independence and dissidence. Ancient calendars were very diverse, but they all shared a common history, evolving on the whole from flexible, lunar calendars to fixed, solar schemes. The Egyptian calendar played an important role in this process, most notably inspiring the institution of the Julian calendar in Rome, the forerunner of our modern Gregorian calendar. In this book it is argued that the rise of fixed calendars was not the result of scientific or technical progress, but of major political and social changes that transformed the ancient world under the great Near Eastern, Hellenistic, and Roman Empires. The institution of standard, fixed calendars served the administrative needs of these extensive empires, but also contributed to their cultural and political cohesion. This ultimately led, conversely, to late antique perceptions of calendar diversity as an expression of heresy and cause of social schism.

The Story of Saṃkarṣaṇa’s and Kṛṣṇa’s Births: A Drama Involving Embryos
André Couture

in Imagining the Fetus: The Unborn in Myth, Religion, and Culture
The Harivaṃśa (a long supplement to the Mahābhārata) contains the well-known Hindu story of the births of Saṃkarṣaṇa and Kṛṣṇa, which involves the killing of six fetuses, the miscarriage of a seventh, and, finally, the exchange of the newborn Kṛṣṇa for a newborn girl. The aim of this chapter is to reexamine the “fetus story,” comparing it to other stories from the same tradition and trying to discover its meaning in the context of the new religious devotion to Kṛṣṇa, which first appeared a few centuries before the common era. Ultimately, the chapter shows how the Brahmans carefully crafted this narrative using material drawn from their own Vedic tradition to address their audience’s concerns.

Life on the Moon

George Basalla

in Civilized Life in the Universe: Scientists on Intelligent Extraterrestrials

Published in print: 2006 Published Online: September 2007

Life on the Moon — an old notion — was revived by the astronomical work of Nicolaus Copernicus in the 16th century and the invention of the optical telescope in the early 17th century. Galileo Galilei reluctantly, and Johannes Kepler enthusiastically and in great detail, described lunar life and society using data collected by telescopic observation. Renewed interest in the Moon led to the making of the first detailed lunar maps.

Time-reckoning

Romila Thapar

in Time as a Metaphor of History: Early India: The Krishna Bharadwaj Memorial Lecture

Published in print: 1996 Published Online: October 2012

This chapter discusses different ideas about time in early India. It discusses how cyclical theories of time arise from the observance of rhythm based on the sequences in relation to the sun and the moon or the seasons. Time reckoning was generally based on a luni-solar calendar. The earliest sense of a calendar had to do with time-markers, both of the individual life cycle and involving the environment, which were gradually ritualized. The precision of the solar calendar was useful
in agricultural activities and also in horoscopy, and in either case it became an agency of social control. Time measurement was required by astrology in the making of horoscopes. Indian interest in astronomy is revealed in texts dating to the fifth century BC. The mingling of Indian and Graeco-Babylonian ideas enhanced activity in astronomy and mathematics in India. This took the form of extensive calculations relating to planets, orbits, eclipses and the like.

Solar and Lunar Calendars
Sacha Stern
in Calendar and Community: A History of the Jewish Calendar, 2nd Century BCE to 10th Century CE
Published in print: 2001 Published Online: November 2003
Item type: chapter

Ancient sources including the books of Enoch and Jubilees, Qumran and related literature, Philo, Josephus, Graeco-Roman, and early Christian sources, reveal that a variety of solar and lunar calendars were used by Jews in the second century b.c.—first century c.e. From the first century c.e., however, lunar calendars became the norm throughout the Jewish world. This stands in contrast with the development of non-Jewish calendars in the Roman Empire, and especially in the Roman Near East: after the arrival of the Romans, the lunar, Seleucid calendar was generally abandoned in favour of solar calendars modelled on the Julian. Thus the Jewish lunar calendar would appear to have become, in the context of the Roman Empire, a marker of Jewish identity and distinctiveness.

The medicine of warm climates
Mark Harrison
in Medicine in an age of Commerce and Empire: Britain and its Tropical Colonies 1660-1830
Published in print: 2010 Published Online: January 2011
Item type: chapter

In the mid-eighteenth century, a distinct body of medical knowledge began to form relating to the diseases of warm climates. Writers on the East and West Indies began to refer to each other's work and to that of practitioners in other parts of the ‘Torrid Zone’. This chapter shows how
the tropics and subtropics came to be regarded as a distinct disease zone, with different epidemiological features than temperate climates. Morbid anatomical investigations in military and naval hospitals also pointed to a distinct tropical pathology: the putrefaction of bile. However, on their return to Britain, many former colonial practitioners found that their observations were relevant to certain kinds of disease at home, particularly fevers and other ‘crowd diseases’. Some found work in fever hospitals, while others disseminated their work through connections with universities such as Edinburgh and groups of Dissenting natural philosophers and medical practitioners, such as the Lunar Society.

Unification and the Moon-Test: Critical Assessment
William L. Harper

in Isaac Newton's Scientific Method: Turning Data into Evidence about Gravity and Cosmology
Published in print: 2011 Published Online: May 2012
Item type: chapter

Part I argues that the precision of Newton’s moon-test calculation goes beyond what modern least squares assessment can support from his cited data and that his data afford no support for his precession correction to offset the action of the sun; but, that Newton is innocent of Westfall’s main accusation of data fudging in the moon-test. Part II argues that Newton’s inference does not depend on his precession correction or on his selection of which lunar distance estimates to include. It argues that a correction for syzygy distances can defend the larger lunar distance Newton assigns in his moon-test of corollary 7 of proposition 37. Appendix 1 discusses the details of Newton’s moon-test calculation from corollary 7 of proposition 37 of book 3. It shows that Newton’s moon-test inference continues to hold up when simplifying assumptions of his basic calculation are replaced by more realistic approximations.

Calendars of Ancient Greece
Sacha Stern

in Calendars in Antiquity: Empires, States, and Societies
Published in print: 2012 Published Online: September 2012
Item type: chapter
This chapter examines the calendars of the Greek peninsula, Ionia, and the Greek islands, with a focus on the city of Athens. Greek calendars were very diverse and fragmented, reflecting the political fragmentation of the Greek world. They were all lunar, except for the prytanic calendar, a calendar peculiar to Athens that was used alongside Athens' lunar, archontic calendar. The lunar character of Greek calendars was poorly defined and often disrupted as a result of political tampering, the legitimacy of which was not necessarily regarded as an issue. The chapter considers the controversial questions of whether Greek calendars were regular or erratic, and whether they became more regularized after the invention of astronomical lunar calendars (e.g., the Metonic and Callippic cycles), the use of parapegmata, or the introduction, in the Hellenistic period, of dating ‘according to the moon’.

The Babylonian Calendar
Sacha Stern

in Calendars in Antiquity: Empires, States, and Societies

Published in print: 2012 Published Online: September 2012
DOI: 10.1093/acprof:oso/9780199589449.003.0003
Item type: chapter

This chapter deals with the standard Babylonian calendar that was adopted, in the late second millennium BCE, as the official calendar of the empires that ruled the Near East from then until late Antiquity. This lunar calendar was remarkably regular. The first part of the chapter deals with how the new moon and month lengths were determined, mainly based on astrologers' observation of the new moon crescent and astronomical predictions. The second part deals with the practice of intercalation, i.e., the intermittent insertion of a thirteenth lunar month. It is argued that although various intercalation cycles were adopted during the Achaemenid and Seleucid periods, the Babylonian calendar was never formally fixed. These cycles were not the outcome of progress in Babylonian mathematical astronomy, but of political interference and royal policy.

The Egyptian Calendar
Sacha Stern

in Calendars in Antiquity: Empires, States, and Societies

Published in print: 2012 Published Online: September 2012
DOI: 10.1093/acprof:oso/9780199589449.003.0004
Item type: chapter
This chapter deals mainly with the Egyptian civil calendar, a fixed scheme of 365 days. Questions arise about its ancient origins, its gradual drift from the sun and seasons (e.g., whether it was compensated by an alternative, ‘Sothic’ calendar), and whether attempts were ever made to reform it (the decree of Canopus). The chapter also examines the lunar calendars that were used in temples, how these calendars were regulated, whether fixed lunar cycles were used (e.g., the Carlsberg papyrus), and how these calendars related on the one hand to the civil calendar, and on the other to the lunar, Macedonian calendars introduced by the Ptolemaic rulers. It considers the evidence of the Ebers papyrus and other key documents. It concludes with a discussion of the peculiarity of the Egyptian civil calendar, in the context of Egypt and in the ancient world.

Dissidence and Subversion: Gallic, Jewish, and Other Lunar Calendars in the Roman Empire
Sacha Stern

in Calendars in Antiquity: Empires, States, and Societies
Published in print: 2012 Published Online: September 2012
Item type: chapter

This chapter examines how lunar calendars that survived unofficially within the Roman Empire could be used to express subtle political dissidence. These include the Gallic calendar of Coligny, luna dates in Italian inscriptions and parapegmata, emerging lunar calendar schemes in third–fourth-centuries Rome (e.g., in Christian Easter cycles and in the codex of Philocalus), and a variety of Jewish calendars in Palestine and the Diaspora. These calendars and dating schemes increasingly adopted elements of the dominant Julian calendar, whilst asserting their dissident identity by remaining lunar. They were reflections, in their hybridity, of complex political situations and processes involving subversion, dissidence, and common sub-cultures, which are best interpreted in the light of post-colonial theory.

The Genealogy of Design
Barry M. Katz

in Make It New: The History of Silicon Valley Design
Published in print: 2015 Published Online: May 2016
Item type: chapter
During the 1980s and ’90s consultancies including IDEO, frogdesign, and Lunar Design grew rapidly and had begun to turn the San Francisco Bay Area from a negligible presence in the design world into its global epicenter. Nourished by contracts from newly-established tech companies they extended their reach, formalized their methodologies, and ventured into a growing number of industries and disciplines. “Game Design” grew out of the anarchic culture of Atari; “Multimedia Design” took shape at Apple; and “Interaction Design” emerged out of the forced cohabitation of software engineers, computer scientists, graphic artists, and a growing coterie of people trained in the cognitive and behavioral sciences. This chapter examines the specific nature of design practice as it evolved to meet the challenges not just of new products, but whole new product categories.

The Women of the Moon
Daniel R. Altschuler and Fernando J. Ballesteros

Published in print: 2019 Published Online: July 2019
Item type: book

Of the 1586 lunar craters that have been named to honor scientists and philosophers, only 28 honor a woman. This book recounts briefly the story of lunar nomenclature, delves into a few misunderstood questions about the Moon, and then looks at the lives of the few women that were honored. Who were these women? This book recounts their lives, struggles, and achievements. One way or another these were remarkable women: some got a Nobel Prize, others just funded scientific projects, and yet others were female astronauts. Most readers will only know a few of them if at all, but their exemplary lives are inspiring, and will inspire some women to follow in their footsteps and encourage some men to mend their ways. Along the way it also explains some of the science related to their work, so that the book is also an attempt to enhance the public appreciation of science through these individual stories. At a time when there is still a significant gender inequality, and a loss of faith in science, the stories of the women of the moon must be evoked.

Many Moons Ago Traditional Calendars and Time-Reckoning
K. David Harrison

in When Languages Die: The Extinction of the World's Languages and the Erosion of Human Knowledge

Published in print: 2007 Published Online: January 2010
Publisher: Oxford University Press
This chapter investigates a range of languages which still retain some use of the traditional lunar month, mobile week, and ecological cycle. It considers the adaptability and effectiveness of these calendars, and the mindset which underlay them. It also examines the likelihood that they will disappear in the near future as languages vanish. It also tries to answer the question of what exactly will be lost as the language and the systems they contain are abandoned, and why the loss matters both to science and to humanity.

The Art of the Commander and the Emergence of Predictive Astronomy

Alan C. Bowen

in Science and Mathematics in Ancient Greek Culture

The one feature of Graeco-Latin astronomy that has been thought to qualify it as the paradigmatic science is its ability to predict where the heavenly bodies will be at any given time. Aristotle states his familiar, causal account of eclipses at numerous points in his writings but says nothing about predicting when they will occur. In Almagest, Ptolemy supplies his readers with the mathematical tools to compute when eclipses will occur, their magnitude, and their duration. This is the first technical work in ancient Graeco-Latin astronomy in which the idea of astronomical prediction is explicit. This chapter examines when, why, and under what circumstances ancient Graeco-Latin astronomy began to include making claims about what was actually going to happen in the heavens. The discussion focuses on solar and lunar eclipses as well as on Historiae, where Polybius discusses the art of the commander and asserts the value of knowing astronomy and geometry.

Macrocosm to Microcosm

Yossef Rapoport and Emilie Savage-Smith

in Lost Maps of the Caliphs: Drawing the World in Eleventh-Century Cairo
The anonymous author of the Book of Curiosities provides an account of the origins of astronomy and astronomical tables, placing it in the Indian city of Kannauj. This tale merges the biography of Gautama Buddha with the origins of the Indian manual of astronomy known as the Sindhind. The author then records, and illustrates, four different ways of mapping portions of the sky, including schemes inherited from classical Greek astronomers such as Ptolemy that involved the forty-eight classical constellations of the sky, many of which are familiar to readers today. They include also mapping schemes derived from a Late-Antique tradition attributed to the legendary Egyptian-Greek sage known as Hermes Trismegistus, another reflecting pre-Islamic Bedouin customs, and yet another system (known as ‘lunar mansions’) ultimately derived from Central Asia or India. The author devotes illustrated chapters to comets and meteors (‘stars with tails’), again using different sources for his information, some ascribed to Ptolemy, others taken from the Hermetic tradition. Stars, planets and comets were all seen as indicative of future events on Earth. The final chapter of the first part of the Book of Curiosities is on winds, lightning, thunder, and earthquakes, and what they might portend.

Post text
Daniel R. Altschuler and Fernando J. Ballesteros
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Brief summary of some characteristics of the Women of the Moon

Pretext
Daniel R. Altschuler and Fernando J. Ballesteros
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The Moon is no longer the “in” thing. We see it as often as the Sun and give it little thought—we’ve become indifferent. However, the Moon does reflect more than just sunlight. The nomenclature of lunar craters holds up a mirror to an important aspect of human history. Of the 1586 lunar craters that have been named honoring philosophers and
scientists, only 28 honor a woman. These 28 women of the Moon present us with an opportunity to meditate about this gap, but perhaps more significantly, they offer us an opportunity to talk about their lives, mostly unknown today. The women of the moon tell us stories of love, sorrow, and courage, of remarkable scientific achievements realized through perseverance, and of tragedies triggered by circumstances.

Women of the Moon
Daniel R. Altschuler and Fernando J. Ballesteros

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For each of the “Women of the Moon”, a biography and the reason for receiving the honor are described. The women included are Hypatia of Alexandria, Catherine of Alexandria, Nicole-Reine de la Briere Lepaute, Caroline Lucretia Herschel, Mary Fairfax Greig Somerville, Anne Sheepshanks, Catherine Wolfe Bruce, Maria Mitchell, Agnes Mary Clerke, Sofia Vasilyevna Kovalévskaya, Annie Scott Dill Russell Maunder, Williamina Paton Fleming, Annie Jump Cannon, Antonia Caetana de Paiva Pereira Maury, Henrietta Swan Leavitt, Mary Adela Blagg, Mary Proctor, Marie Skłodowska-Curie, Lise Meitner, Amalie Emmy Noether, Louise Freeland Jenkins, Priscilla Fairfield Bok, Gerty Theresa Radnitz Cori, and the astronauts/cosmonauts Judith Arlene Resnik, Sharon Christa McAuliffe, Kalpana Chawla, Laurel Blair Salton Clark, and Valentina Vladimirovna Nikolayeva Tereshkova.

Afterlife and Epilogue
Paul E. Walker

in Caliph of Cairo: Al-Hakim bi-Amr Allah, 9961021
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Al-Hakim rode off on his last known excursion barely months beyond the 400th anniversary of the Prophet's death. Even though the Fatimid dynastic establishment, led by Sitt al-Mulk, had determined to carry on by elevating al-Zahir to the caliphate and vigorously suppressing all sentiment to the contrary, there are in the record too many reports, first of individuals who refused to acknowledge the succession pending
final news of al-Hakim, and then later of claims of his actually having reappeared. More significant was the year 400 of the Islamic era, which came ten lunar years later. The turn of a century raised hopes among the Muslims of the coming of a renewer, a person who could and would reform religious doctrine and observance, bringing it back once again to what it had been in the days of the Prophet.