uncle of King Juan. When Villena died in 1428, Bishop Lope de Barrientos burned 50 scientific books from Villena’s library at the order of the King, and

Whether a copy of the Alfonsine Tables was among those books is something we cannot confirm, but it seems plausible since Villena explicitly mentions them in his work. (page 35).

Several chapters offer an in-depth look at an individual manuscript. For example, authors Jean-Patrice Boudet and Laure Miolo offer Digby 176, a manuscript held by the Bodleian Library at Oxford. It offers a unique insight into a group of scholars at Merton College (the first College that would eventually form Oxford University). Digby 176 preserved “… the richest collection of predictions on the planetary conjunctions of the fourteenth century (for the conjunctions of 1325, 1345, 1357, 1365 and 1367).” (page 59). By studying the 19 different units within Digby 176 (including an exceptional list of meteorological observations) the two authors weave a story of the interaction of the contributors that is most illuminating. Among these figures is Simon Bredon, whose works “… focused mainly on the mathematical sciences, especially astronomy and arithmetic.” (page 71). Figure 2 in this chapter is a colour image showing his handwriting from another manuscript, Digby 179: a detailed analysis of his handwriting is among the exacting analysis in the chapter by Boudet and Miolo. Also excellent is a study by Glen van Brummelen of the fifteenth-century manuscripts dealing with the works of Giovanni Bianchini, Professor of Mathematics and Astronomy at the University of Ferrera.

This book also includes a complete translation of a work that exists in ten manuscripts by John of Ligneres, from the first half of the fourteenth century. With facing pages of Latin and its English translation, this is a most valuable contribution. Three chapters by John include

… calculations of mean motion of the planets, mean conjunctions and oppositions and apogees. The remaining six chapters are devoted to calculations of the true positions of the planets (including the Sun and Moon) and to the search for possible eclipses of the Sun and Moon. (page 259).

That chapter was done by Alena Hadrovova and Petr Hadrava; a second chapter dealing with John is by Chabás. It focuses on two short texts and their associated tables, both on mean conjunctions. His Tabulae magne was composed between 1320 and 1325. It was integrated into a larger set of his works with two treatises on instruments, the saphea and equatorium. In his dedication to the Dean of Glasgow, John said the purpose of the association of these texts with the Tabulae “… was to offer an autonomous and simple set of tools related to spherical and planetary astronomy.” (page 319).

On the downside the book has no Index, so searching an online version is the only option. Finding such obscure but intriguing people as Johannes de Wasia (page 320), who was “… not a first-rank Alfonsine astronomer …” but nonetheless competent in mathematical astronomy is thus virtually impossible otherwise. Another little-known figure, John of Genoa, is allotted an entire chapter in the book. In the 1330s, he “… produced three known works and a table, all dedicated to eclipse calculations.” (page 344). His last known work “… consists of the calculation of the full solar eclipse on 3 March 1337.” (page 371). As this eclipse was also calculated by other masters, it became “… the most detailed computation of a solar eclipse in Latin for that time.” (page 371).

Keeping in mind the caveat mentioned earlier, this is quite a useful reference book on medieval astronomy, well-illustrated with colour illustrations that are nicely reproduced even though they do not appear on glossy plates.

References


Dr Clifford Cunningham
University of Southern Queensland
3915 Cordova Drive
Austin, TX 78759, USA.
Cliff.Cunningham@unisq.edu.au


In this second book by Dr Nothaft, reviewed here, he offers a detailed study and translation of an anonymous manuscript known as the Tractatus. In the second chapter, he provides convincing evidence the author was
Heinrich Selder, who completed a master’s degree at the University of Paris in 1378. Casting a wider net, Nothaft writes “… it is possible to assign to him at least five different astronomical works in addition to the Tractacus.” (page ix). The full title of the manuscript is Treatise on the Time of the Lord’s Annunciation, Nativity, and Passion.

The main interest for modern scholars is that half the Tractacus has nothing to do with the title; Selder tears down “… any defence astrologers might use to protect their discipline,” (page 3), making this an early and strident attack on astrology. It is not without its own non-scientific approach, however:

His rejoinders [against astrology] depict the discipline not just as deeply irrational and ineffectual, but as a tool the Devil invented to seduce mankind. (page 3).

He came to this demonic conclusion “… as the only plausible explanation for why its predictions came true as often as they apparently did.” (page 120).

In addition to his anti-astrological stance, Selder wrote about a project involving the fixed stars in his Canones of 1365. He announced a book which would contain the coordinates of all 1,022 stars (from Ptolemy’s Almagest). Nothaft suggests “… some of the material he collected for the book made its way in to the drawn-out digression on fixed stars that interrupts the anti-astrological excursus of his Tractacus.” (page 52).

Selder also showed he was beholden to Arabic astronomy in his Tractacus. He borrowed numerical data on the planets … from al-Farghānī’s Elements of Astronomy, a ninth-century Arabic treatise he accessed via a twelfth-century Latin translation by John of Seville. (page 56).

With those data, Selder wrote numerical values not only for the greatest distances of the planets from the cosmic centre, but the volumes of the planets relative to that of Earth. However, he did not accept the circumference of the Earth as given in the Elements, telling the reader that his finding was made by his own experiments, “… adding that he confirmed this through his own experience or observations.” (page 58). Nothaft writes that Selder had a list of five German cities that occupied nearly the same meridian. With a knowledge of their latitudes, Selder could have calculated the length of a degree along the meridian. That Selder did in fact make observations is made explicit in his account of the lunar eclipse of 24 October 1377. Selder wrote he had personally “… calculated, seen, and confirmed …” the eclipse. (page 61). Despite his observational skills, Selder alleged “… that the first and last visibility of the Moon could sometimes occur on the same day. This was, in fact, an impossibility.” (page 61). There is also evidence he observed Martian longitudes over an extended period.

On the subject of eclipses, it appears Selder was centuries ahead of his time in using “… dated eclipses of the Sun and Moon as a means by which historical events could be anchored in relation to the present.” (page 79). While such a method had been used by Giles of Lessines in the 1260s, it is usually credited to Paul Crusius and other chronologists in the sixteenth century. Selder developed the chronology of ancient Persian rulers, as well as the ancient kingdoms of Israel and Judah. He affixed the entirely spurious date of 17 February 3102 BCE as the date of the Flood. “Unbeknown to him and his contemporaries,” writes Nothaft, “this epoch traced its origins back to Hindu astronomy.” (page 95–96). Selder believed that the originators of this date to have been the ancient Egyptians.

In concluding his superb analysis, which consumes half of the book, Nothaft puts Selder’s work in context:

Though not as widely recognized today as he merits, Angelo Secchi was a true giant of 19th century science. Best known for his work in solar and stellar physics, he was also a talented lunar and planetary observer, and made significant contributions to geophysics, oceanography, and meteorology. One cannot help but wonder how as an ordained Jesuit priest and teacher, he also found time for any ecclesiastical duties.

This multi-authored book, edited by Ileana Chinnici, an astronomer at Palermo Observatory, and Brother Guy Consolmagno, Director of the Vatican Observatory, is a wide-ranging biography of Secchi’s multiple contributions to science, theology, and philosophy, all set against the chaotic socio-political backdrop in Italy at the time. In the wake of the country’s gradual unification as a monarchy under King Victor Emmanuel II, whereby the Vatican’s territorial holdings and political power were greatly reduced, the future of the Collegio Romano and its Observatory directed by Secchi were also in limbo. However, thanks to his outstanding reputation and broad support from other astronomers, the new Italian Government granted special status to Secchi and full access to the Observatory.

The book is nicely divided into four distinct parts, covering the historical context, scientific contributions, later issues, and current resources, respectively, relating to Secchi’s life and multiple careers. Given this format, mixed perspectives, and backdrops of the book’s many authors, there is considerable variation in style and content among chapters. This can be a bit distracting at times but is unavoidable in an all-encompassing effort of this nature. Overall, the book is most engaging not only regarding Secchi’s scientific and technical brilliance, but also providing valuable insight into astronomy and physics at the cusp of the twentieth century. For this review, I have selected four chapters illustrative of this remarkable priest and scholar’s range of interests and achievements.

As a veteran of the largely defunct art of visual Solar System astronomy, I found the chapter on Planetary Observations by Angelo Secchi, by two expert practitioners, Richard McKim and William Sheehan, illuminating. Secchi was an energetic planetary observer particularly of Mars at a time when the first reliable maps of the planet’s albedo feature were undertaken along with their nomenclature. As with many of his contemporaries, he shared the view that the dark features were seas and the light regions continents. His most extensive sequence of observations was during the planet’s favorable 1858 opposition, in collaboration with Father Enrico Cappelletti a skilled draftsman.

… we should see him as part of a vanguard of fourteenth-century thinkers who appreciated the value of mathematical astronomy while at the same developing new philosophical arguments against judicial astrology. (page 151).

Pages 162–375 contain the Latin and facing English pages of Selder’s text, which is an important contribution to our knowledge of medieval astronomy.

The book has a fine Index, 167 footnotes in the textual analysis, and 34 pages of References. The text contains one typo: conjunction on page 109.

Dr Clifford Cunningham
University of Southern Queensland
3915 Cordova Drive
Austin, TX 78759, USA.
Cliff.Cunningham@unisq.edu.au