of what he terms 'journalistic malpractice' (page 87). As a case study in how scientists should, and should not, interact with the public, this book is most valuable.

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***Medieval Comets European and Middle Eastern Perspective*, by Piero Sicoli, Roberto Gorelli, Maria José Martinez and Francisco J. Marco. (Valencia, Universitat Politècnica de València, 2023). Pp. xx + 143. ISBN 978-84-1396-153-8 (ebook), 170 × 240 mm, open access at https://doi.org/10.4995/SCCIE.2023.666301**

***Catalog of Unconfirmed Comets – Volume 1, 1600–1899*, by Gary W. Kronk and Maik Meyer. (Cham, Springer, 2023). Pp. xvii + 289. ISBN 978-3-031-23170-4 (hardback), 160 × 240 mm, €189.89.**

***Catalog of Unconfirmed Comets – Volume 2, 1900 to the Present*, by Gary W. Kronk and Maik Meyer. (Cham, Springer, 2024). Pp. xxii + 414. ISBN 978-3-031-56690-5 (hardback), 160 × 240 mm, €242.64.**

If you are an aficionado of detective stories, these books are for you! The case for each comet is the topic of a chapter, or rather, an investigation, which can be read independently.

These books can be considered as sequels to the monumental compendium *Cometography* series in six volumes initiated by Gary W. Kronk and completed with the participation of Maik Meyer and David Seargent (Kronk, 1999; 2003; 2007; 2009; Kronk and Meyer, 2010; Kronk, Meyer and Seargent, 2017). Indeed, since the publication of the first volume on ancient comets 25 years ago, much new information has appeared. This calls for a revision, which indeed has been announced in the blog of Maik Meyer (see https://astrodon.social/@skymorph; accessed 11 July 2024).

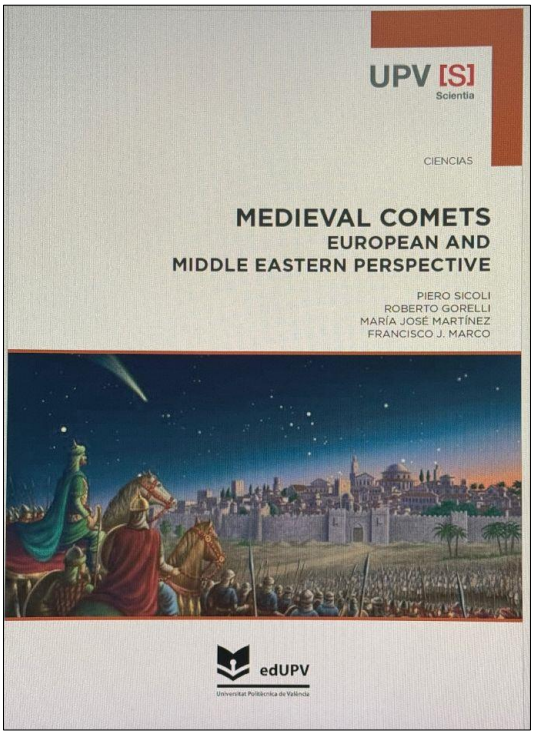
Medieval Comets

Although this is not explicit from its title, *Medieval Comets, European and Middle Eastern Perspective* is the first of a series of volumes to be published. The present volume lists 23 comets which appeared in the fourth to seventh centuries. The final publication should extend to the fifteenth century.

The authors Piero Sicoli and Roberto Gorelli are from Italy. Maria José Martinez and Francisco J. Marco are from Spain. They combine expertise in celestial mechanics and in the analysis of old texts.

There is no index nor detailed table of content, only a succinct list of chapters titled *index* (page V). The 442 comet is either called C/442 V1 or improperly X/442 V1 in the text (pages V and 24–28).

The book begins with a foreword by G.B. Valsecchi telling us the story of Lexell's Comet, discovered in 1770, which, although interesting, has little to do with Medieval comets (pages VII–IX).



The authors note that published

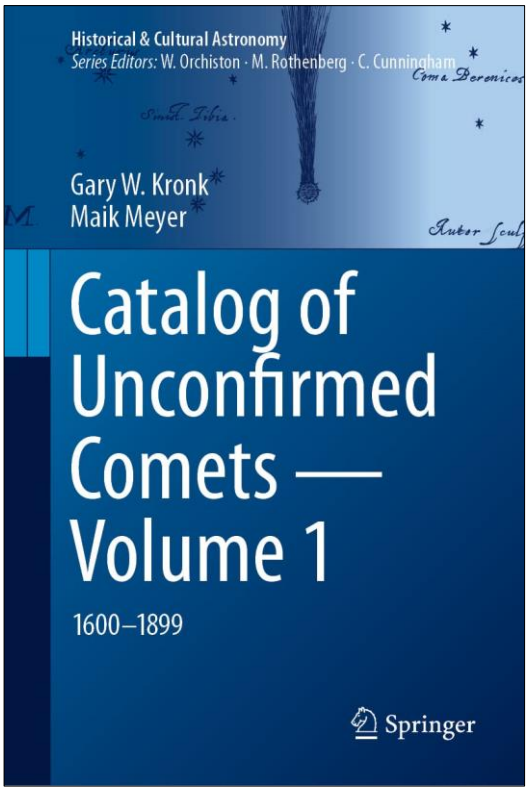
> … catalogs of ancient comets always presented a characteristic bias favourable to records from Asia, especially Chinese … [and that] there has been no research dedicated to exhaustively studying European literary sources. (page III).

Their work is intended to fill this gap. It is "… devoted to an in-depth study of medieval European and middle-east comet records." (page III). And indeed, it is based on an impressive bibliography (pages 123–137).

The highlight of this publication is the exhaustive reproduction, *in extenso,* of all quoted passages. They are given in their original language or authoritative translation (in

Greek, Latin, French, German, Italian …), followed by their English translation. However, most of the short quotations in Latin are not translated. (Perhaps this is an invitation for the reader to practise his/her Latin.)

Co-authors Martinez and Sicoli propose new orbital elements for 10 comets. The details of their derivations were already published (Martinez et al., 2022). From the recovered orbits (and for those of the four passages of Halley's Comet in the relevant period) sky maps showing the comets' paths and the comets' light curves are presented. The light curves are plotted with magnitudes increasing toward the top, i.e. the comet's brightness increasing towards the bottom.



This is an unusual presentation which may surprise the reader.

In the official nomenclature, comets preceded by the prefix X/ are those that, despite being well documented, do not have sufficient data to calculate an orbit. In the course of the present work, two additional comets have been identified that may deserve such a prefix: X/634 S1 and X/684 Y1.

Finally, I really enjoyed having at hand this very complete anthology of quotations, compiled from texts which are not so easy to obtain.

Too recent to be a Medieval comet and too ancient to be included in Volume 1 of *Unconfirmed Comets*, is the so-called *Ambroise Paré's Comet* of 1528, described in the book *On Monsters and Marvels* (A. Paré, Des *Monstres et Prodiges*, 1571), with information drawn from Pierre Boaistuau's (*Histoires Prodigieuses*, 1560) and from older chronicles. Although it was recognized to be an aurora since the eighteenth century, this phenomenon was consistently reported as a comet in many recent French textbooks, including Camille Flammarion's *Popular Astronomy* (1879 and subsequent editions).

Unconfirmed Comets

Along with *bona fide* comets, Kronk's *Cometography* already provided, in appendices, notes on "… uncertain objects and mistaken identities". But these notes were very brief. The *Catalog of Unconfirmed Comets* … presents a case-by-case detailed discussion for all these objects. For many of them, a conclusion could be reached on their reality and nature.

From the summaries given in the appendices (Volume 1, pages 259–262 and Volume 2, pages 369–373), I counted that 37% of the cases were elucidated in Volume 1. This increases to 71% in Volume 2, in which the cases are more documented. (I flagged as non-elucidated the objects for which no conclusion was given, or a conclusion with a question mark.) The doubt could be due to an instrumental artefact, an atmospheric phenomenon (meteor, aurora, 'STEVE' event), an already known comet, or another astronomical object.

Also, the temptation is great to fabricate the discovery of a comet to gain celebrity status or to be awarded a prize which is occasionally offered to discoverers. However, among the 108 objects documented in Volume 1 of *Unconfirmed Comets* …, only four are noted as 'fabricated'. And only one among the 151 ones listed in Volume 2. The most famous case is object KM1784-3 presented as a comet by Jean-Auguste Dangos (1744–1833, *aka* 'le chevalier d'Angos'); the hoax was exposed through an analysis of the in-consistent positions reported by Dangos.

All objects are designated as, for example, KM1625-1. That is, KM followed by the year of apparition followed by an order number. We assume that 'KM' is for 'Kronk–Meyer'. However, we wonder what the Working Group for Small Bodies Nomenclature of the International Astronomical Union will think about such designations.

The evolution of the investigation methods is instructive. Unlike entries in *Volume 1* which are testimonies of visual observations, most of those in *Volume 2* rely on photographs which provide more sound clues. In many cases, the authors could access copies of the original documents, which are reproduced.

Rapid communication is instrumental for the study of these transient phenomena. Over time, slow mail was supplemented by the successive emergence of the telegraph, telex, and now the internet. The subtitle of *Volume 2, 1900 to the Present*, may perhaps appear a little bit exaggerated since the last two entries are for 1994 and 2004. Perhaps we can see here the overwhelming role of the internet and the social networks which now enable a confirmation (or not) in almost real time before an official report is issued.

A notable spin-off from this work is the upgrade of a forgotten comet, KM1808-2, for which a reliable orbit is now available (*Volume 1*, pages 62–65). This comet was officially named C/1808 R1 (Pons) after the publication of *Volume 1* (Green, 2023). This makes it the 27th comet named after Jean-Louis Pons.

Some of the reports are pathetic. For instance, Honoré Flaugergues, a very experienced amateur astronomer and previous discoverer of the Great Comets of 1807 and 1811, failed to associate KM1826-1 with 3D/Biela because he misidentified the star fields. He was then 71, and had declining eyesight.

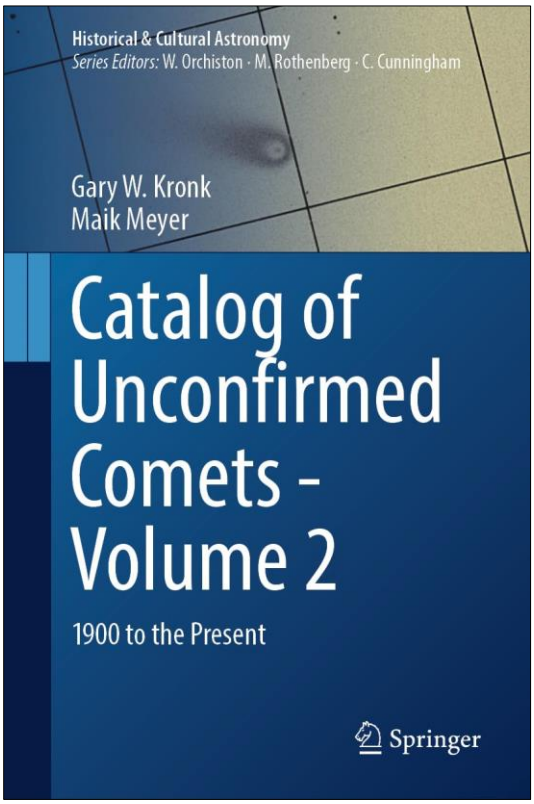
A funny story is reported about KM1890-2. On the night of 8 December 1890, two observers were independently using the two refractors on the roof of the Observatoire de Paris building. Dorothea Klumpke was specifically observing comet 113P/Spitaler with the 38-cm refractor of the eastern dome while Guillaume Bigourdan was engaged in a survey of nebula with the refractor of the western dome, and

> Unknowingly, the two astronomers were observing the same object – comet 113P/Spitaler – about 1.5 hours apart from the same observatory with different telescopes. One knew what they were looking at, while the other took it for a nebula. (*Volume 1*, page 229).

Short biographies are provided for most quoted comet hunters or comet observers. This is quite appropriate since, along with famous astronomers, most of them are little-known characters who do not appear in usual biographic dictionaries. These inquiries are not final. For example, about the case for the unconfirmed comet KM1927-1, the authors note that

> Not much is known about the discoverer of this reported comet, as all published material simply refer to him or her as “Chaput”. (*Volume 2*, page 90).

I found out from my own investigation that André Chaput was born in Paris in 1899 and died in Savigny-sur-Orge in 1961. Initially an electrician, he became a chemist in the French national company for tobacco and matches



(SEITA). Chaput was an active member of the Société Astronomique de France, sponsoring many new members. In 1927 he was the recipient of the Maurice Ballot Prize, which rewarded regular users of the Society’s observatory (then located at rue Serpente in Paris). This indicates where Chaput obtained the photographs of the hypothetical comet.

I apologize for presenting mainly French examples, which are more familiar to me, but many others are included in the pages of *Unconfirmed Comets …* One could object that these reports are mainly based on anecdotes, which have little to do with cometary science.

But such anecdotes are part of the charm of comets (Véron, 1986)!

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Experimental Philosophy and the Origins of Empiricism, by Peter R. Anstey and Alberto Vanzo. (Cambridge, Cambridge University Press, 2023). Pp. xii + 366. ISBN 978-1-009-03023-6 (hardback), 160 × 235 mm, US$120.

To gauge the place of empiricism in modern astronomy, one only has to consider its engagement with computational astrophysics:

> Simulated results are often described as being empirical, a term usually reserved for natural phenomena rather than numerical mimicries of nature. Simulated data are referred to as data sets, seemingly placing them on an equal footing with observed natural phenomena. (Heng, 2014).

This highlights the importance of establishing a historical understanding of empiricism, which this book by Peter Anstey (Professor of Philosophy at the University of Sydney) and Alberto Vanzo (an independent scholar) sets out to do. In this, it largely succeeds. Their remit is set out in the Introduction: "… our focus in this history is on, for want of a better word, philosophical aspects of experimental philosophy." (page 5). This philological qualification can be consequential, as different scholars have differing views on such terms as 'experimental philosopher', 'natural philosopher', 'speculative philosopher', and other cognates. The experimental/ speculative distinction (ESD) is a key element of this book.

James Bradley, the third Astronomer Royal (whose research is related in a book that is also reviewed in this issue of *JAHH*), proudly held the title of 'Savilian Professor of Astronomer & Reader in Experimental Philosophy'. The terminology of 'experimental philosophy' retains its relevance in academia today. Just to give two examples. New Zealander, Professor Gerry Gilmore (the author of a book review in this issue of *JAHH*), headed the Institute of Astronomy at Cambridge, not as the Professor of Astronomy, but as the 'Professor of Experimental Philosophy', and currently he is 'Emeritus Professor of Experimental Philosophy'. Meanwhile, the late Professor Brian Warner also had a passion for this terminology. British-born Warner was appointed as the Foundation Professor of Astronomy at the University of Cape Town, but during his tenure he had the post officially changed to 'Professor of Experimental Philosophy', thereby mimicking the Cambridge post (even though he was not a Cambridge graduate).

In the seventeenth century, the prime way of practising experimental philosophy, the authors assert, was through Baconian or experimental natural history. Its rise and decline is covered in Chapter 3, to be replaced by the third decade of the eighteenth century by mathematical natural philosophy. Their detailed examination of this grand arc of philosophy, which saw its extension in the eighteenth century to moral philosophy as well, is the core of the book.

In the first chapter, the authors highlight the year 1543:

> … it is no coincidence that Andreas Vesalius' *De fabrica* and Copernicus' *De revolutionibis*, both of which appeared in 1543, are often regarded as the *terminus a quo* of the Scientific Revolution, for both works had significant ramifications for subsequent ob-