

audience and the differentiation of strata of culture (philosophers and *savants* who wrote for their peers in new communicative media or to free the ‘public’ from superstitious beliefs). These later editions also reflect a growing disintegration of the ‘integrated theory’ that had generated a cultural object shared by the whole of the society and for which the *Flugschriften* served as a discursive genre. Thus, the abrupt disappearance of the cometary *Flugschrift* after 1700, when cometary phenomena witnessed a widening variety of expressive forms and a plurality of approaches and interests.

The book closes with a fifth part (pp. 493–529) of conclusions and a rich bibliography (pp. 530–580), especially valuable for its primary sources, which the author skillfully identifies by indicating their registration in the general bibliographical repertoires VD 16 and VD 17 (where the interested reader may find rapid access to digitalized reproductions). In sum, this is a fundamental and already indispensable work for all interested in the transformation of social and scientific representation of comets in the framework of the cultural and scientific revolution of the sixteenth and seventeenth centuries. It is also worth saying that the reading of the nearly 600 pages of this study is alleviated and facilitated by its clear and transparent German. The only regrettable oversight is the absence of an index of names.

## Notes

1. C. D. Hellman, *The Comet of 1577: Its Place in the History of Astronomy* (New York, 1944).
2. J.L. Jervis, *Cometary Theory in Fifteenth-Century Europe* (Dordrecht, 1985); T. van Nouhuys, *The Age of Two-Faced Janus: The Comets of 1577 and 1618 and the Decline of the Aristotelian View in the Netherlands* (Leiden: Brill, 1998); S.J. Schechner, *Comets, Popular Culture, and the Birth of Modern Cosmology* (Princeton: Princeton University Press, 1999); T. Heidarzadeh, *A History of Physical Theories of Comets, From Aristotle to Whipple* (Berlin: Springer, 2008).
3. G.W. Kronk, *Cometography. A Catalog of Comets, vol. I: Ancient-1799* (Cambridge: Cambridge University Press, 1999).

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## Early Modern Comets and Printing

*Frühneuzeitlicher Wissenswandel: Kometerscheinungen in der Druckpublizistik des Heiligen Römischen Reiches.* Doris Gruber (edition lumière, Bremen, 2020). Pp. 860. 50 €. ISBN 9783943245943.

Doris Gruber’s study on the transformation of cometary knowledge in the early modern period is a slightly revised version of her 2018 doctoral thesis submitted to the University of Graz. The book consists of five parts. An introduction (pp. 15–58) and a preliminary chapter on the materiality of early modern printed works (pp. 59–110) are followed by the analytical centerpiece of the publication, presenting case studies on the literary output in the Holy Roman Empire prompted by comet sightings in the years 1577/78,

1680/81, and 1743/44 (pp. 111–447). A summary (pp. 449–463) condenses the ascertained changes in knowledge over these nearly 200 years and a vast appendix (pp. 465–856) offers – besides statistical diagrams, colored plates, and an index – several bibliographies including comprehensive lists of the cometary literature related to the analyzed periods.

After convincingly defining her methodological framework (drawing e.g. on media history, material/textual culture, and sociology of knowledge), the author quite critically reviews earlier studies concerning cometary history. This is legitimate, but her emphasis on the – in her eyes – almost ubiquitous deficiencies of the previous scholarship is too excessive and her characterization of some of the criticized works remarkably unbalanced in regard to their targets and achievements. Furthermore, some of Gruber's claims, for example, on the ways of imparting knowledge or interdiscursive dynamics in early modern cometary literature, are not new and one might wish for a more intensive perception of some of the earlier studies (also with regard to antiquity).

Based on her concise introduction to the material dimensions of printing formats (also used for imparting and (trans)forming cometary knowledge the three synchronic case studies are presented, each structured according to the epistemic goals of the book. Every section offers a short list of the relevant formats (with total numbers, including reprints); a detailed analysis of the “Bestseller of the Year”; and, based on this, a survey of the contemporaneous approaches to comets, epistemic practices (i.e. ways of creating evidence), processes of production and reception, and the relation of these categories to specific formats.

This promising program raises high expectations. But these are already lessened, to some extent, by reading the interpretation of the “bestseller” of 1577/78 (pp. 114–135) which reveals some inaccuracies with respect to astronomy and astrology and a certain lack of familiarity with Latin. Also, the handling of Early Modern High German regarding historical semantics and syntax is not convincing, and some of Gruber's concepts (e.g. “Wunderzeichenallegorie”) remain opaque. These aspects especially affect the chapters on the sixteenth/seventeenth-century publications. The author's strength clearly lies in the eighteenth century, where she profoundly breaks new ground, and in her methodological approaches to the material. Illuminating, too, is her systematic analysis on the making of cometary literature including statistical evaluations. Also impressive are the aforementioned bibliographical lists which show the enormous effort of her data acquisition and research (but, again, a number of lapses in Latin and normalization).

All in all, the case studies and their summaries give useful insights into the particular status quo, the dynamics and synergetic effects of cometary concepts. But concerning the evaluation of developments and changes we might worry that the author rests her findings exclusively on the three selected periods without considering the time in between (cf., e.g. the quite intensely studied cometary literature of 1618/19). The early seventeenth-century debates on the *materia cometarum* or the struggle between Aristotelici and Mathematici, concerning, i.a., the epistemic relevance of astronomical observations and mathematical operations, are not brought up. Gruber only emphasizes that in comparison to 1577/78, empirical observations were widely accepted in 1680/81, that there

were no traces of criticism (p. 281) and that the physical knowledge of comets had changed most (p. 327).

In sum, based on a systematic view on myriads of printed texts and images from three different periods, the book gives instructive impressions of the fascinating history of early modern cometary knowledge and its (trans)formations. It profits from the author's structured approach and her strengths in media and cultural history, although some other disciplines essential for the study of early modern cometary literature are wielded less felicitously. Gruber productively deals with images, but occasionally one would have appreciated a more precise analysis of this gripping and well-chosen material, especially regarding astronomical/astrological depictions. Yet the study is a useful introduction to early modern media history and its interplay with cometary knowledge (albeit with shortcomings regarding Latin texts and formats like disputations). Especially valuable are the systematic overviews, statistical evaluations and diagrams as well as the expansive bibliographies which give manifold stimuli for further research.

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## Stars and Constellations in Medieval Manuscripts

*The Stars in the Classical and Medieval Traditions*. Edited by Alena Hadravová, Petr Hadrava, Kristen Lippincott (Institute of Contemporary History of the Czech Academy of Sciences, Prague, 2019). Pp. 483. CZK 352. ISBN 9788072852161.

Free on-line access to the manuscript collections of many libraries has, in recent years, substantially increased the scholarly research in ancient Greek and Latin texts on constellations. This prompted the *Certissima signa* project at the Scuola Normale Superiore in Pisa (<http://certissimasigna.sns.it>). The present volume is a reflection of this research project. The papers are divided into two groups. The first five focus on topics in mathematical astronomy, the second series of eight articles discuss literary writings on the stars and their constellations.

The book opens with Victor Gysembergh's study of the list of star totals of the constellations, compiled by Hipparchus in the second century BCE, now known from nine manuscripts. Its numbers point to an archetype that may have been the source of the star totals recorded in the *Catasterisms* tradition. Irina Tupikova and Klaus Geus examine whether Ptolemy's data for the latitudes of Alexandria, Syene and Meroë are based on his own observations or on a mathematical assessment of existing sources. Fabio Guidetti considers the thesis that revisions of Ptolemy's *Handy Tables*, supposedly made by the sixth-century Alexandrian astronomer Heliodorus, may have prompted the revisions