

facing the challenge of explaining natural entities that did not reach the natural philosopher's aesthetic standards. The imperfect natural things are similar to architectural ruins; they do not show their full excellence, but their original design can be recovered. Chapter 4 rethinks the relationships between image and text, particularly through the work of Ray. Despite the use of image being an important part in the representation of nature, including pictures in a book was sometimes practically infeasible, and the primary qualities of natural things that can be pictorially depicted may not always be sufficient for identification. Thus, description was still the predominant means of communication, and rhetorical devices such as vivid description enabled the natural philosophers to verbally picture their empirical studies. The last chapter further argues that by applying rhetorical strategies, the plain language that is heavily associated with the Royal Society is a communication style that does not exclude affective states in their knowledge production. The author then analyzes how natural philosophers utilized the plain style to evoke the feeling of and cultivate a taste for pleasure for their readers.

Despite not explicitly claiming so, the book is remarkably interdisciplinary. Wragge-Morley traverses a wealth of sources that often can be regarded as materials of different disciplines or history fields, including architectural debates and natural history. Careful consideration is also seen in how the author brings concepts or discourses from different disciplines together, always providing a brief definition or summary of ideas to orient readers before his arguments. This makes the book not only easily digestible for a wide range of readers, but also particularly useful for students who are at the beginning of grasping the various ways of thinking in the early modern period.

Among the increasing literature on scientific images, Wragge-Morley delivers a solid case study that engages words and pictures with nuance. While the images are discussed in the service of natural philosophers, the importance of image makers or collaborators is not dismissed. The author's approach presents a lively contrast to a recent project, *Making Visible*, led by Sachiko Kusakawa. While *Making Visible* focuses strongly on images and has brought forward ample visual examples from the early Royal Society, Wragge-Morley presents a mere dozen figures. However, this limited number underscores his position that description was the major mode of representing nature within the Royal Society.

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Natural Knowledge and Aristotelianism at Early Modern Protestant Universities.
Pietro Daniel Omodeo and Volkhard Wels, eds.
Episteme in Bewegung 14. Wiesbaden: Harrassowitz Verlag, 2019. 342 pp. €72.

Based in Berlin, the research center "Episteme in Motion: Transfer of Knowledge from the Ancient World to the Early Modern Period" brought together international

scholarship to counter a narrative that continues to present the Scientific Revolution as a victory over outdated models of knowledge rooted in Aristotelian natural philosophy. To that effect, the authors of this volume provide a multitude of case studies showing how—under the theological and epistemological authority of Philipp Melanchthon—Protestant universities, from the Renaissance to the early Enlightenment, transformed traditional knowledge by reconciling Aristotelian concepts with Copernican cosmology, Ramism, Neoplatonism, and Cartesianism. Focused mainly on German scholars and their European knowledge networks, the thirteen articles of this collection range from analysis of Melanchthon's theologically informed and anthropocentric natural philosophy and its influence on medicine, mathematics, chemistry, and astronomy (a key chapter by Pietro Omodeo and Jonathan Régier) to the reception of heliocentrism and the debate about the nature of comets (Stefano Gulizia, Anna Jerratsch, Miguel Ángel Grenada).

After Günter Frank's engaging discussion of Philippist Lutheranism, which superimposed Platonic and Stoic ideas on Aristotelian natural philosophy to define nature as the mirror of divine revelation, there are two interesting excursions into religious heterodoxy. Fulfilling the editorial team's promise to pay attention to the confessional impetus behind science, Sascha Salatowsky and Barbara Mahlmann-Bauer analyze European anti-Trinitarian (Socinian) networks, whose materialism made their movement more receptive to heliocentric ideas. Socinians debunked not only the notion of comets being "messengers of evil" (173), but also geocentrism, together with belief in miracles, prodigies, and astrology. Contextualizing the reactions to the comet of 1577 among the circles around the Hungarian humanist Andreas Dudith, a convert from Catholicism with anti-Trinitarian sympathies, Mahlmann-Bauer concludes that the influence of Aristotelian cosmology significantly diminished in Dudith's work, yet did not completely vanish. Most notably, however, radical Protestants combined their defense of religious toleration with anti-astrological arguments and a call for the strict separation of science and theology, throwing the Enlightenment's later progress narrative into confusion.

Other contributions are dedicated to the debates between followers of Galenic medicine and Paracelsianism, including three articles on the alchemist Andreas Libavius (ca. 1555–1616), whose 1597 textbook on chemistry relied on sober empiricism, cleansed of theological speculation (Volkhard Wels). Bruce Moran showcases Libavius's efforts to define chemistry on the basis of the technical skills it requires and its epistemological character as an art, while Elisabeth Moreau vividly presents the alchemist's defense of medicine against Paracelsian ideas. Libavius's reliance on Aristotle, Galen, Melanchthon, and Ramus helped to give chemistry and medicine the necessary didactic foundations to shape them into respectable disciplines without discarding the authority of scripture and providential theology.

In all of this, Aristotelianism remains a fixed point of reference. Rarely, as in Salatowsky's excursion on Francisco Suárez, however, is its impact clearly explained

in action. Instead we get to know what Libavius, Erastus, the Socinians, and others—from a variety of different theological positions—could most agree on: their critique of Paracelsian and hermetic approaches to natural philosophy. Bernd Roling's exposition of works by the professor of medicine Johann Hannemann (1640–1724) and other followers of Paracelsus provides a comprehensive introduction to the Swiss humanist's ideas which remained attractive to seekers of the so-called philosopher's stone even 250 years after his death.

Despite its impact on institutional academic traditions, Aristotelianism finally started to wear thin. Toward the end of the sixteenth century, mathematicians increasingly rebelled against their low status, since the Stagirite had classified their discipline as a composite of allegedly auxiliary subjects, such as geometry, optics, and mechanics, considering it no match to physics or metaphysics. Grenada's presentation of the debate between Barthel Keckermann and the mathematician Christoph Hunichius about the novae of 1572 and 1600, as well as the comet of 1577, shows that the Scientific Revolution eventually elevated mathematicians' role. This complements Stefano Gulizia's focus on the university of Helmstedt and its Baltic connections, including Denmark's Tycho Brahe, whose geo-heliocentric model reflected the compromise between the ancients and the moderns. The last two chapters focus on learned academies, such as the Leopoldina in Schweinfurt, where the "polyphony of voices" (121) evoked less controversy than in universities (Simon Rebohm). Cartesianism in French universities was first championed by physicists, after entering scholarly debate through the academies' prize competitions (Martin Urmann).

With its nuanced case studies, this collection holds great appeal to specialists and general readers curious to learn about the origins of modern science. In the *longue durée*, ideas about the world and the universe did not change upon the intervention of a few lonely geniuses, but thanks to religious and institutional networks, and continuous exchange between the old and the new.

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Tycho Brahe and the Measure of the Heavens. John Robert Christianson.
Renaissance Lives. London: Reaktion Books, 2020. 288 pp. £15.95.

Over the course of his career, John R. Christianson has shaped and sharpened our view of Tycho Brahe as a champion of observational precision who channeled his powers to promote a more collaborative and collective form of science. Among the few to master the many technical achievements of Tycho, Christianson has never lost sight of social context in his close attention to early modern court culture and Tycho's bold decisions to build his island observatory and revolving team of researchers. Given such breadth