

Amedeo Avogadro. *Relazioni accademiche*. Edited by **Marco Ciardi** and **Mariachiara Di Matteo**. Introduction by **Alberto Conte**. (I Libri dell'Accademia, 12.) xl + 151 pp., figs., index. Florence: Olschki Editore, 2016. €25 (paper).

Amedeo Avogadro. *Lettere*. Edited by **Marco Ciardi** and **Mariachiara Di Matteo**. 112 pp., figs., app., index. Rome: Accademia Nazionale delle Scienze detta dei XL, 2016. €20 (paper).

Amedeo Avogadro (1776–1856) is famous for his contribution to molecular theory in the form of what is known today as Avogadro's law, a law that states that equal volumes of gases under the same conditions of temperature and pressure will contain equal numbers of molecules. Less known is that the laws of physics and chemistry were not the first laws he studied. Avogadro was born in Turin into a noble family of magistrates. At the age of twenty he became a Doctor of Canon and Civil Law and began to practice as an attorney for the poor. However, his true passion was the study of physics and mathematics—to such an extent that he preferred to end his career as a magistrate. In 1809 he began to teach these subjects at a high school in VerCELLI. Already in 1803, however, he published some scientific essays; the first of them, on the subject of voltaic electricity, was written together with his brother Felice. In the years 1805–1806 Amedeo proposed the polarization of dielectrics, and in 1811 he published the article containing his law on the number of molecules. In 1820 Avogadro became professor of physics, the “Fisica Sublime,” at the University of Turin. He lost this position as a result of the revolutionary movements of March 1821, but in 1833 he was recalled to the university, where he taught for another twenty years. During his lifetime Avogadro was a member of two academies: the Accademia delle Scienze in Turin, then the national academy of the Kingdom of Sardinia (from 1804 he was a corresponding member and from 1819 a resident member); and the Società Italiana delle Scienze detta dei XL (Italian Society of the Forty) in Verona (member from 1821).

The two books under review, edited by Marco Ciardi and Mariachiara Di Matteo, are linked to these two academies. These books are valuable tools for understanding the work of Avogadro more deeply, offering the opportunity to explore his relationship with the society of the period.

Relazioni accademiche contains some of the academic reports that Avogadro prepared for the Turin academy. Many of the reports in the book concern the “richieste di privilegio”—that is, the requests for exclusive rights granted by the king to inventors. These requests had to be evaluated by the academy. Indeed, the academy and its members, in particular Avogadro, played a very important role in the kingdom, because they were asked to decide about strategic choices concerning the use of new technologies for the improvement of civil society. For instance, Avogadro was involved in the evaluation of new systems for public illumination based on gas lighting. At the time, Turin was the town in Europe that had the best public illumination system, including the first café in Italy (Caffé San Carlo) to adopt gas lighting. In addition to the reports on this technology, this book also offers several reports concerning chemistry and engineering processes for the textile industry. We find a curiosity here, too: Turin is famous for the production of chocolate—in particular, the Gianduiotti—and the name Caffarel is particularly evocative for a Turin citizen. Therefore, it is a pleasure to find in the *Relazioni accademiche* a report concerning a request submitted by Paul Caffarel in 1838 that pertained to the production of chocolate. In it, we find that Avogadro was deeply concerned with the technological improvements and the royalties that could be obtained from them and that he properly applied his legal and scientific skills to the analyses of the “richieste di privilegio.” In this specific case, Avogadro and Tommaso Cisa Asinari di Gresy refused the requested “privilegio” because Caffarel wanted a patent for a new machine for the production of chocolate but failed to give a detailed description of its novelty.

The second book edited by Ciardi and Di Matteo, *Lettere*, presents some of Avogadro's letters. As explained in the preface by Emilia Chiancone, President of the Accademia dei XL, the many letters presented in the book—several of them published here for the first time—shed light on the life of the man Avogadro and enable us to witness the evolution of his scientific thought. Thanks to the detailed scientific introduc-

tion presented here, we can gain a closer understanding of his scientific and academic life, in particular his relationship with Michael Faraday. The letters that Avogadro wrote to his editor, Antonio Lombardi, give evidence of the care he applied in the publication of his manuscripts. Here, as in the book on the academic reports, Ciardi and Di Matteo are able to pinpoint specific material to show Avogadro's role in the society of the time. For instance, we find a letter that he wrote to the Secretary of Public Instruction that sheds light on his commitment as a teacher. In this letter Avogadro complains about the fact that the duration of the physics course was reduced from three years to two.

Reading the two books edited by Ciardi and Di Matteo shows us that many aspects of the life of a scholar in the first half of the nineteenth century resemble those of our present-day academic life. These books are essential for anyone who is studying Avogadro's life.

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Marion Gindhart; Hanspeter Marti; Robert Seidel (Editors). *Frühneuzeitliche Disputationen: Polyvalente Produktionsapparate gelehrten Wissens*. 364 pp., figs., index. Cologne: Böhlau Verlag, 2016. €50 (cloth).

Disputations were the daily bread of early modern academic life. They constitute a rich historical source for both the organization of teaching and the content of what was being taught. In addition, the dedication preceding a disputation can teach us much about the social background of the student, about his (former) mentors, and about his network. Congratulatory poems at the end tell us more about the students' networks—in particular, their student networks. Disputations, moreover, carry specific dates, which can supplement the scarce evidence of curricula.

The shelves of libraries still testify to the *Disputierfreude* of sixteenth-, seventeenth-, and eighteenth-century universities. Historians of universities are increasingly turning to these disputations, and they are being supported by ever more bibliographical tools that facilitate the identification and location of the usually quite ephemeral pamphlet-like printed disputations. Laurence Brockliss for France and Rienk Vermij, Keith Stanglin, and I for the Netherlands have all based monographs primarily on the study of disputations.

But the most fruitful territory, and the area hitherto explored best, is no doubt the German realm. Disputations from the German realm led Robert Evans to conclude that in the second half of the seventeenth century, generally thought to be a time in which the German universities were in a dismal state, these schools were actually thriving. Sari Kivistö's wonderful recent study of learned moral conduct is largely based on disputations from German territories. It is somewhat disappointing that none of the authors and studies listed above are mentioned in the volume under review. The geographical scope is German, but so is the historiographical positioning—as is evidenced by the historiographical survey in the volume's introduction (for example, only a small catalogue from a Leiden exhibition is mentioned). Margaret Ahsmann's study of juridical disputations is given some attention only in a fine contribution by Ulrich Schlegelmilch on disputations about physiology and pathology at Leiden University—an important essay that analyzes handwritten sources that give us a clear idea of what went on in organizing unpublished disputations during private lessons.

A volume of this magnitude is what it is: a collection of articles by authors who each have their own take on the subject. Most of them use disputations as a source for exploring a variety of subjects in the history of knowledge (Cartesianism, Rudbeckianism, witchcraft, theories of sovereignty or of rhetoric and poetry, the teaching of *historia literaria*), while offering relatively little theory about the genre itself. Often the generalizing observations on disputations are underdeveloped and appear tangential to the content-driven research.