

Lagerlöf pulls her four examples together in a concluding chapter that returns to her theoretical base. She sees the galleries as performative spaces, influenced not simply by the imagery but also by shape, size, and the light that is so much a part of her chapter on the Stockholm gallery. She peels the rooms apart to reveal their semiotic systems, much as she intimates in her introduction.

In so doing, what Lagerlöf also does is underline the totality of these galleries. Architecture, especially when conceived as it was in galleries, as an enveloping ensemble of structure, painting, sculpture, and frame, is the most difficult of the arts to describe in text. Anything so truly three-dimensional and even four-dimensional fights against being reduced to the flatness, the sequential nature of writing and reading—and architecture usually loses that fight. It is greatly to Lagerlöf's credit that she nevertheless brings these places to thought-provoking life.

Dániel Margócsy. *Commercial Visions: Science, Trade, and Visual Culture in the Dutch Golden Age*. Chicago: Chicago University Press, 2014. x + 319 pp. + illustrations (some color). \$40.00. Review by MICHAEL R. LYNN, PURDUE UNIVERSITY NORTH CENTRAL.

In the *Opticks*, Isaac Newton demonstrated to scholars that science could be performed with a prism and some minimal damage to the blinds in your office. Other forms of science, however, require a different sort of access to materials, books, objects, or specimens. Depending greatly on what kind of scientific activity appealed to someone, this could be done in a manner which was fairly cost effective. But it could also be enormously expensive. Studying, first hand, quadrupeds which were not native to Europe, especially living samples, meant going abroad or finding someone traveling abroad willing to act as your agent, paying them to find and acquire the animal, ship it back to Europe with the associated costs of food and care, and then arranging for it to be tended upon arrival. This involved negotiating multiple forms of transportation, dealing with food supplies, and worrying that even after all the expense, the animal might die anyway. Other scholars might get away with the purchase of some scientific equipment,

such as an electrical machine or an air pump, or perhaps even just a few books. But natural historians, working on smaller items, such as plants and insects, depended on a series of other methods. Some relied on an exchange or gift system while others, including a number of savants in the Netherlands, created or tapped into emerging commercial networks. It is these Dutch entrepreneurial savants and their customers which form the subject of Dániel Margócsy's *Commercial Visions: Science, Trade, and Visual Culture in the Dutch Golden Age*.

By way of introduction, Margócsy describes the visit of Baron Zacharias Conrad von Uffenbach to Amsterdam in 1710. A wealthy man with a penchant for natural history, von Uffenbach visited botanical gardens, anatomical theaters, and cabinets of curiosity including the cabinet of the anatomist Frederik Ruysch, where he got a peek at a preserved head of young girl reputed to be so life-like that Peter the Great had once kissed it. The method used by Ruysch was a trade secret that many would have liked to have learned. Von Uffenbach visited these locations as a tourist, assuredly, but also as a consumer of scientific goods and as a critic. He was looking to augment his own collection with purchases. Margócsy uses this anecdote to bring together the themes for his book, namely the creation of commercial networks in which science, in this case natural history, could be advertised, marketed, sold, and delivered to the buyer. This new market transformed what had been a system based largely on gifts and exchanges. Science depended, in part, on knowledge exchange, but not always from altruistic motivations; sometimes savants traded in science in the Republic of Letters for commercial gain as well. Thanks to the work of mercantile companies and the infrastructure they used, disciplines like natural history and anatomy could take advantage of long-distance trade and gain access to specimens they might never have had the chance to obtain previously. The ability to gain access to such samples led, however, to an instability in their meaning. While commercialism led to increased access, Margócsy argues, it did not provide any tools for calculating the value or validity of the specimens. Savants had to provide an epistemological justification for their work that coincided with its cost.

After the introductory chapter, Margócsy presents his analysis through five case studies exploring different aspects of this knowledge

production and commercialization. Chapter 2 explores the creation of, essentially, mail-order catalogs for plant, shell, and insect collecting. These catalogues, or repertories, differed fundamental from their Renaissance predecessors by focusing almost entirely on morphological descriptions. These books worked as reference material for someone interested in a particular item. Curiously, or perhaps not so curiously as Margócsy points out, botany, conchology and entomology produced many more such repertories than did other fields such as zoology. The relative costs and ease of transport to ship, for example, seeds as opposed to a rhinoceros, were easily calculated. As such, the appearance of similar repertories for larger animals was delayed until the cost of importing them was reduced. Seeds, seashells and insects, however, remained highly popular items to buy and sell. Those savants who participated in this trade could earn a considerable income. The appearance of common reference books facilitated this endeavor by enabling individuals corresponding by mail to cite specific editions and pages of books they held in common to indicate what they wished to purchase.

The third chapter examines the participation of natural historians in the book trade. Margócsy explores the publication history of works such as Albertus Seba's *Thesaurus*, a four-volume illustrated, descriptive catalogue of his own cabinet of curiosities which appeared between 1734 and 1765. In this case, Seba, contracted with two different publishers, had to make a significant financial contribution of his own to see the work through the press. He could expect, however, to earn his money back, and then some, thanks to his status as a collector. Unfortunately, he died before he could finish the last two volumes. However, his family hired ghostwriters to complete the work, although this led to substantial delays in the publication. The timeline was extended even farther when Seba's heirs made the decision to sell off his cabinet, to raise money, which made it even more difficult to base descriptions of the cabinet off of first hand observations. This leads Margócsy to a discussion of authenticity and accuracy. With multiple authors, sometimes describing the contents of a cabinet they had never seen, it was difficult to assert that Seba's work matched its claims. However, it did finally appear in print thanks to the entrepreneurial attitude of the publishers and Seba's heirs.

In the second half of the book Margócsy turns to the development of new technologies for representing the body. In Chapter 4, he looks at how anatomists preserved the human body through an examination of the ground-breaking work by Frederik Ruysch who used dyed wax, injected into the circulatory system, to preserve anatomical specimens. He claimed to have invented this method which, in turn, meant that he was able to preserve the natural world for all to see. Ruysch, as a member of the commercial scientific world, also wanted to make sure that everybody knew about his method and recognized his priority in discovering it, but without revealing the secret techniques he used. His goal was to advertise, through print media, his talents and skills as a preservationist so that people would want to buy his specimens. His books thus served a dual purpose by serving as a desirable representation of natural history objects which people could buy; but they also functioned as advertisements to lure people in who wanted to purchase objects for their own cabinets. He kept his methods, of course, secret to ensure that he was the sole purveyor of certain types of objects preserved in a particular way. From this case study, Margócsy argues for an intimate connection between the printed word, images in books, and the sale of specimens. An entrepreneurial savant, like Ruysch, could take advantage of these connections and earn a tidy profit as a result.

In the fifth chapter Margócsy turns to an early modern advertising battle between Ruysch, with his secret method of preparing specimens, and Govard Bidloo, an anatomy professor from Leiden who sought to make his fortune through the publication of an anatomical atlas, the *Anatomia humani corporis* (1685). Bidloo underpriced his anatomical specimens in order to lure people into purchasing his wares instead of Ruysch's which were, comparatively, extremely pricy. Bidloo hoped to make his money through the sales of his accompanying books. The two anatomists despised each other and engaged in a vigorous pamphlet war in which each claimed supremacy for their methods. Margócsy argues that the resulting battle reveals an underlying question over the status of the various representations of the human body each used. The success of their commercial enterprises was tied up, he suggests, with the perceived value of the epistemological assertions regarding the accuracy of their work.

In Chapter 6, Margócsy analyzes a new invention in printing developed by Jacob Christoffel Le Blon who created a technique for making mechanically reproducible color prints. To protect his potentially valuable invention, Le Blon maintained a veil of secrecy and, where applicable, applied for patents. Working in the early eighteenth century, Le Blon diligently tried to keep his processes secret even as the rhetoric of the day espoused increased openness, epitomized, at mid-century, by the *Encyclopédie* of Diderot and d'Alembert.

By way of conclusion, Margócsy turns in the final chapter to a discussion of the scientific collecting practiced by the Russian czar Peter the Great. Peter purchased a large number of objects and instruments during the period of the Great Embassy when he traveled throughout Europe. As Margócsy argues, the circulation of knowledge was, at least in part, the purview of merchants, or at least entrepreneurially minded savants. This commercial culture of science found a particularly good home in the Netherlands, where the local economy encouraged such behavior in all areas of life, including natural history.

Margócsy's book offers a significant and subtle exploration of the relationship between science and commerce. Thoroughly researched with rich case studies, Margócsy has provided an excellent analysis of early modern scientific culture.