

The tensions between facts and fantasy

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Essay review of: Laura Snyder, *Eye of the Beholder: Johannes Vermeer, Antoni van Leeuwenhoek, and the Reinvention of Seeing* (New York: W. W. Norton 2015) ISBN 0393077462, 448 pp, ill., \$ 27.95.

People new to Leeuwenhoek studies soon learn that Antony van Leeuwenhoek and Johannes Vermeer share two documented events. In 1632, their baptisms were so close together that they were recorded on the same page in the register of the Nieuwe Kerk (New Church) in Delft, then one of the major cities in the Dutch Republic. When Vermeer died, Leeuwenhoek was appointed to the post of curator of his estate. Between those two events, we have no documented connection. That doesn't stop people from noting all the ways that the two could have been connected. Even Leeuwenhoek scholars enjoy these degrees-of-separation discussions over a beer. In *Eye of the Beholder*, Laura Snyder, a philosophy professor at St. John's University in New York, has made such speculation one of the two themes.

The book's major theme is in the sub-title: *the Reinvention of Seeing*. This process, which happened during the 17th century in Europe, was distinguished by a new tool to augment the human eye: the glass lens. Using lenses of glass for purposes of making fires (burning lenses) and assisting weak eyesight had long been a part of human culture. Yet it wasn't until the early 1600's that two lenses were attached to a tube and the telescope and microscope were developed. Snyder does a skilful job of weaving together the events and people that led to the use of lenses in Delft in the 1660's and 1670's. Whether or not Johannes Vermeer used a lens mounted in a box, the camera obscura, is a subject about which much has been speculated by (art-)historians for a long time. Though we have no direct evidence, Snyder draws on and extends the work of scholars who have made a strong case for Vermeer's use of it. Antony van Leeuwenhoek made and used tiny magnifying glasses; each had a bi-convex lens only a millimeter or two wide. Of that fact we have no doubt because about a dozen of his microscopes have survived. With lenses Leeuwenhoek, and perhaps also Vermeer learned to see what humans had never seen before. Of their sharp vision we have plenty of evidence, Vermeer's several dozen paintings and the approximately twelve hundred figures illustrating Leeuwenhoek's letters.

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Learning to see is a difficult process. Snyder's account of their lives explains both the difficulty and the game-changing nature of their accomplishments: "The most radical influence of the seventeenth century on our time is the realization that seeing requires more than simply opening one's eyes and passively receiving sense impressions – one needs to learn how to engage in attentive looking, often with instruments, to make sense of the world around us" (p. 325). Snyder places the accomplishments of Vermeer and Leeuwenhoek in the context of the emergence of modern science. More than a third of the book is devoted to that context. The rest, in alternating chapters, is equally divided between the two men's lives.

These men were pioneers if not anomalies. Snyder writes eloquently that "A new idea of what it meant to see emerged: one that allowed that there was more to nature than meets the naked eye, and that lenses, and other optical instruments, could help us see a part of nature that was otherwise hidden" (p. 7). Indeed, what Vermeer saw, as recorded in his paintings, was not widely appreciated until more than two hundred years after his death, rediscovered in the light of Impressionism. Similarly, while every human society knew about the stars and developed mythologies to explain their presence and movements, no human had imagined the micro-world. It took until the 19th century for the double-lens microscope to attain the power of Leeuwenhoek's single-lens magnifiers and even longer for people to see what Leeuwenhoek saw. His microbes had to be rediscovered, re-seen, in the light of Linnaean taxonomy and the germ theory of Pasteur and Koch. Snyder helps us understand why Vermeer and Leeuwenhoek's new ways of seeing were so radical as well as difficult for others to accept let alone duplicate.

Snyder's account is especially strong when she lavishes attention on Vermeer's paintings, brush stroke by brush stroke. Oddly, she does not give the same attention to the figures accompanying Leeuwenhoek's letters, what Leeuwenhoek saw. Nevertheless, her premise is sound: if these two men, living in houses a few hundred meters apart, both used lenses, then it is difficult to believe that they did not know each other. By way of context, Snyder writes excellent summaries of historical trends for a popular audience. Her main theme of how these men reinvented seeing is illuminating and provocative. However, when it comes to the factual details, her research is lacking. Her first theme emphasizes how 17th century scientists laid particular emphasis on direct observation as opposed to book learning. She quotes the Royal Society's clarion call to enlightenment: *Nullius in Verba*, "take nobody's word for it". Snyder has not taken this to heart and has not done enough primary research herself.

Snyder's second theme examines the web of people and circumstances that brings Vermeer and Leeuwenhoek into tantalizingly close proximity. It is tempting to speculate that Vermeer and Leeuwenhoek must have known each other, that they must have been friends who talked together about lenses and optical experiments. There is an intricate web of threads that draws them together – they were born the same week in 1632, they lived and worked their entire adult lives within the area of an American football field, they had friends in common, and, most telling of all perhaps, when Vermeer died, Leeuwenhoek was the executor of his estate. But there is no 'smoking gun' proving conclusively that they were friends or even acquaintances. What we do know of the two men is intriguing enough without engaging in conjecture, no matter how agreeable it is to imagine them discussing optics and optical instruments over a beer in Vermeer's family's tavern. The true allure of the story of their lives and works is the way both men played key roles in the sea change in the notion of seeing that occurred in this time and place (p. 11).

Nevertheless, Snyder not only speculates, she ignores well established historical facts. Without the space to note all the inaccuracies in service of her speculations, I will explain

only a few. Vermeer married a Catholic, so Snyder wants Leeuwenhoek to be Catholic. Writing about events in 1665, she claims that Leeuwenhoek was “not formally affiliated with the Dutch Reformed Church” (p. 122). The member registry of the Hervormde Gemeente Delft (Reformed Church Delft) says otherwise. The entry for September 1658 (HGD inv. no 478, p. 22; searchable at Collectie Delft (<http://collectie-delft.nl/>)) lists Leeuwenhoek as an incoming member. His occupation is noted as storekeeper (‘winkelier’) with a residence on the Pooltjesbuurt, a common shortening of the name Hippolytusbuurt, where Leeuwenhoek purchased a house and shop in February 1655.

Snyder tells us that “the Leeuwenhoek family home – after which they took their surname – was right next to the Bagijnhof” (p. 49). In fact, the family home on the Oosteinde gracht in the southeast corner of the city was far away from the Bagijnhof in the northwest corner of the city. However, the facts would not support the connection: “After Antoni’s marriage, he bought a house near this area, as if he wanted to continue living close to a Catholic enclave”.

Snyder makes other facts fit her need for speculative connections. “Before her marriage, [Leeuwenhoek’s mother] Grietge lived on the Oude Langendijck, only a few doors down from the house later purchased by Vermeer’s future mother-in-law” (p. 46). The house on the Oude Langendijck was owned by Grietge’s uncle, not her parents. She grew up in the house that was where Beestemarkt 8 now stands, only a couple hundred feet from the Oude Langendijck. By “before her marriage”, Snyder is probably referring to the address Grietge gave when she registered the marriage in the civil Ondertrouwboek. She assumed that a young woman of the time married out of her parent’s house. Note that in 1654 when Leeuwenhoek married Barbara de Meij and the following March when his sister Catharina married Claes van Leeuwen, both of them gave the address of their cousin Geertruijt, who lived on the Verwersdijck, and not the address of their mother on the Choorstraat.

Why is this address important? Snyder wants to make the connection between Leeuwenhoek and Vermeer’s future wife in the next sentence: “It is possible that a young Antoni visited his grandparents on the Oude Langendijck, where he might have met the two Bolnes sisters, Catharina and Cornelia, and joined them in their games” (p. 46).

Leeuwenhoek lived until age eight around the corner on the Oosteinde gracht, so he did not have to visit his grandparents in order to have played with the Bolnes’ sisters. In any event, his maternal grandparents, Jacob Sebastiaans van den Berch and Margriete Cornelis Verburch, died in 1615 and 1616, almost two decades before Leeuwenhoek was born and several years before the marriage of Grietge, by then in her late 20’s. If Leeuwenhoek visited his grandparents, it was at their graves, not their house. When Grietge re-married in 1640, she moved to the Choorstraat, so eight-year-old Leeuwenhoek could as likely have played with little Johannes Vermeer, who lived just around the corner from the Choorstraat. All of this housing information is publicly available at Collectie Delft (<http://collectie-delft.nl/>) and Historisch GIS Delft (<http://historischgis.delft.nl/historischgisdelft/>).

In the paragraph after Snyder bases a description of Vermeer’s house on the room-by-room inventory of his estate, she describes Leeuwenhoek’s house, but does not use the readily available room-by-room inventory of that house. Nor does she cite the sources for her description: “In front of the house was a courtyard containing a well surrounded by a wall so high that the sun barely reached the well” (p. 177). We have two reasonably accurate city maps from the 1600’s and the very accurate cadastral map from 1832. None of them shows such a wall in front of Leeuwenhoek’s house nor for that matter in front of any other

private residence. Wells were behind the houses, as shown in paintings of Delft courtyards by Pieter de Hooch and others.

Snyder continues, “We know that his study was on the ground floor, probably in the space he had formerly used as a haberdashery shop. The room where Leeuwenhoek and his wife slept was also on the ground floor”. The first claim is not cited and the second is true only if

- the first was true,
- Leeuwenhoek’s claim in his letter of November 1677 was literally true, that he examined his own semen “immediately after ejaculation before six beats of the pulse had intervened”, and
- he could use his microscopes only in his study.

What do the primary documents say? In the records of notary Joris Geesteranus, publicly available in the Delft city archives, the inventory of Leeuwenhoek’s daughter’s estate makes it clear. As do most such documents, it begins with the front rooms on the ground floor and continues through the kitchens and back garden. Then it lists the hallway and stairs before moving to the upper floors, first the front room and then the ‘comptoire’. In a 1676 letter, Leeuwenhoek noted that he worked in his ‘comptoire’, using the same word that the notaries used seventy years later. Clearly, Leeuwenhoek worked on the floor above the ground floor, overlooking the street. The house had been built in the 1500’s, so the beds were in the walls of the upstairs sitting rooms, not free-standing in rooms dedicated to that purpose. However, such an arrangement would deny Snyder her deft depiction of the scene so beloved in popular histories of science: the ‘ah-ha’ moment. Leeuwenhoek’s occurred in August 1674 and is recounted on the opening page of *Eye of the Beholder*: “Today, the entire shutter has been thrown open. If any of [Leeuwenhoek’s] neighbours happen to glance into the ground floor room as they pass by, [...] they might remark to each other that the ‘curious dabbler’ is at his peculiar pursuits again” (p. 1).

Not only was his study on the floor above the street, but what we know of Leeuwenhoek’s personality indicates that he was not interested in exposing his work to the scrutiny of his fellow citizens of Delft, especially that early in his career. They called him a magician (‘tovenaer’). The scene is as telling a dramatization as the drowsy Newton conked into brilliance by an apple falling on his head, and as erroneous.

Eye of the Beholder cannot be faulted too much since other accounts of Leeuwenhoek’s life, including those Snyder drew from, contain inaccuracies that come from reliance on secondary rather than primary sources. Unfortunately, *Eye of the Beholder* is printed on paper, so these things cannot be changed the same way they can with an online content management system. That permanence should put an even greater premium on accuracy. Stretching or ignoring the facts to make a more interesting story is a time-honoured technique for popular history. But it is not good scholarship. In Snyder’s own words, “What we do know of the two men is intriguing enough without engaging in conjecture, no matter how agreeable it is”.

These points of historical inaccuracy aside, *Eye of the Beholder* is a valuable contribution to the popular history of the Dutch Golden Age, as well as the Enlightenment. Read *Eye of the Beholder* for the intriguing ideas about learning to see and for degree-of-separation speculations to toss out over a beer. Here’s another: What if it had been Leeuwenhoek who died in his forties and Vermeer who lived into his nineties? Everything Leeuwenhoek saw would have been seen by someone else, eventually. But we would have another five decades of the wonderful world seen by Vermeer.