Introduction Making Visible: The Visual and Graphic Practices of the Early Royal Society

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The four papers in this volume arise out of a research project, "Making Visible: The visual and graphic practices of the early Royal Society," funded by the Arts and Humanities Research Council of the United Kingdom.[1] The project sought to understand how visual resources and practices contributed to, and shaped the development and dissemination of scientific knowledge in the first fifty years of the Royal Society. The Royal Society, as an early institution dedicated to promoting natural knowledge, has received substantial scholarly attention from historians of science, aided by a rich administrative archive that has been preserved virtually unbroken since its foundation.[2] Because modern cataloguing of manuscripts has tended to prioritize textual over pictorial information, the archives of the Royal Society were systematically examined in our project, and more than 4000 pages with images were identified. These do not, however, represent the totality of the images that the Royal Society dealt with in its first fifty years. The minutes of the meetings and the accounts suggest that quite a few images are now missing from the Society's archives.

Of the drawings located in the Royal Society archives, some are familiar to historians of science because they were printed as illustrations in *Philosophical Transactions* or in publications of Fellows, and others too have

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2. It is not possible to list the entire substantial scholarship on the Royal Society. We are particularly indebted to Hunter 1989, and Hall and Hall 1965–1986. For the Royal Society archives, see Feingold 1998, and recently digitized material at: https://royalsociety.org/collections/turning-pages/ (and) https://makingscience.royalsociety.org/s/rs/page/welcome.

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received recent scholarly attention.[3] Our aim in these papers is to draw attention to the potential for further research by integrating some of the less well-known images (some of which are published for the first time) into our historical analysis. The images we discuss here are the proverbial tip of the iceberg, and we hope that the remainder will begin to receive the scholarly attention they deserve when they become available through the Society's online picture library.[4]

Many of the images originated outside of the Society. They were drawn, painted or printed elsewhere and were sent, given, or loaned to the Society, while the Society's meetings also ordered images to be made. The images viewed, examined, and discussed at the weekly meetings of the Society varied in provenance, size, medium, execution, and topic. Such heterogeneity, described in the essay by Kusukawa, should not surprise us, given the equally wide-ranging interests of the Fellows in the activities of the early Royal Society. Rather, it confirms that images were well embedded in the quotidian transactions of the Society. We have also found that several images, once they arrived in the Royal Society, were copied, re-copied, or cut out of the original letters in order to form the institution's official archives.[5] It is an important reminder that images, alongside text, formed an integral part of knowledge that the Society wished to preserve and protect.

The Society had provisions from its earliest statutes to appoint its own engraver or "chalcographer," which suggests an acknowledgement of the usefulness of printed images for its mission. However, the Society never appointed its own engraver in its early years, perhaps because London had a ready supply of engravers—at least twenty of them, for example, could be called upon to create the illustrations of *Historia piscium* (1686) published by the Royal Society in a relatively short time (Kusukawa 2000). In other words, at this time in London, there was no need for a graphic craftsman to be retained exclusively to create scientific images, and Fellows of the Royal Society constituted but one of the many customers for whom painters or engravers did piece work. Indeed, the London that Robert Hooke perambulated on a regular basis was full of craftsmen and tradesmen who had something interesting to offer him, as Henderson's paper reminds us. London was also where bits and pieces of exotic flora and fauna were relatively easy to come by in the alleys, inns, pubs, and the

3. For recent scholarship drawing specifically on archival and/or printed images from the Royal Society, see the references in the following papers.

4. URL: https://pictures.royalsociety.org/home.

5. For the role of images in the formation of the Society's records, see Fransen, Reinhart, and Kusukawa, "Copying Images in the Archives of the early Royal Society," *Word & Image*, forthcoming.

docks (Kusukawa 2017), and the Royal Society certainly benefited from London's global reach.

Who were the people who drew and engraved the images now found in the Royal Society? Although their handiwork was certainly visible in the publications of the Royal Society, engravers' names were only sporadically visible when they had signed the plates, while those who made the original drawings were rarely recorded or mentioned in publications. A search through the archives has enabled us to identify a few more names of these "invisible" image-makers, several of whom were Fellows themselves. Of the Fellows of the Royal Society, Hooke is probably best known for his graphic proficiency, given his earlier training with Peter Lely. A less well-known Fellow, Richard Waller, as Reinhart argues, also made scientific contributions with his drawings. Hooke, Waller's senior by almost thirty years and a close colleague with whom he observed and discussed experiments, may well have encouraged Waller to deploy his graphic skills which were most likely acquired through his mother. It is worth noting, however, that when they drew similar fossil objects, their drawings looked rather different (Kusukawa 2013), as Waller used his limning skills and Hooke adapted a visual vocabulary of print (Doherty 2012). It cautions us from positing a fixed style of scientific drawing in this period.

Fellows interested in pursuing natural knowledge who also had graphic proficiency rarely wrote down how their drawings were generated from their observations, or how they thought their images contributed to knowledge. Hooke, however, as Henderson shows, thought carefully about an image's role in making things look familiar and also strange. In contrast, Antoni van Leeuwenhoek claimed he could not draw and described his interaction with his draughtsmen in detail in his letters to the Royal Society. These letters reveal the collaborative processes between the draughtsman and the naturalist described as "four-eyed sight" by Daston and Galison (2007). But as Fransen shows, Leeuwenhoek could in fact draw. It was Delft's distance from London that made it difficult for members of the Royal Society to believe his observations. Along with the drawings, Leeuwenhoek sent microscopes and even the objects themselves for corroboration. Furthermore, he invoked his graphic craftsmen as witnesses or aids to his failing eyesight. Though never named by Leeuwenhoek in his letters, a systematic analysis of the surviving images has enabled Fransen to confirm the identity of at least one of Leeuwenhoek's draughtsmen.

The seventeenth century was a period when drawing had become a fashionable pastime for gentle-men and -women, encouraged and assisted by the works of Henry Peacham, Richard Haydocke, William Sanderson and Edward Norgate, and the numerous drawing masters that emerged in London (Sloan 2000). Drawing skills undoubtedly helped several Fellows

recognize and decode the visual conventions used in the drawings, prints, and paintings they encountered. Several of the Fellows, moreover, were collectors, and learned how to view and discern paintings from painters and by visiting other collections.[6] As collectors and connoisseurs, they were part of the increasing interest in art in England, which saw an emerging market for paintings in auctions, adorning of country houses with paintings and sculptures, a renewed enthusiasm for portraits, and a nostalgia for the art collection of the late Charles I.[7] As Kusukawa points out, their interests as collectors and connoisseurs were reflected in the topics and objects they discussed at the Royal Society.

The essays presented here introduce some of the ways in which the visual corpus within a scientific archive may be interrogated and contextualized. They are also an invitation for further research. More case studies paying close attention to the processes by which graphic craftsmen and natural philosophers learned to see and understand from each other would augment our current understanding of observational practices in this period (Daston and Lunbeck 2011). Examining the extent to which scientific images could or could not be understood without the accompanying text (and vice versa) would further clarify the dual role of images as proof and persuasion. Understanding how images prompted or guided others to collect and study similar objects would help flesh out the role of images in shaping a scientific community. Such questions would help illuminate the role of images in disseminating ideas and practices, in shaping scientific experience, and in defining a community. Determining how a connoisseur's eye and judgment informed or was informed by the scientific activities of a fellow would clarify the relationship between artistic and scientific cultures. Would it possible to argue for the emergence of a visual culture of science that shaped and sustained a community of natural philosophers and virtuosi?

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6. For recent scholarship on discernment, see Dupré and Göttler 2017.

7. Again, it would be impossible to list the substantial scholarship on British art in this period. See Hallett et al. 2016 for further studies and references to past scholarship, and for further primary sources, "The art world in Britain 1660–1735," https://artworld.york.ac.uk/artworld/.

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