Making Visible: The visual and graphic practices of the early Royal Society

AHRC Funded Research Project

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CRASSH, University of Cambridge

Richard Waller's study of the knapweed and the blue-bottle.
Royal Society Archives, MS 131 © The Royal Society

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Project Description

How and when did science become visual? How did drawings, diagrams and charts come to be used alongside words and objects by a group of people who hoped to reform and establish a new form of knowledge of nature, based on collaboration, experimentation and observation in the second half of the century? Who made those drawings and diagrams, and what made them 'scientific'? The aim of this project is to understand the roles visual resources and practices played in the development and dissemination of scientific knowledge in the first fifty years of the Royal Society. As one of the earliest institutions dedicated to collective investigation of nature, the Royal Society had few precedents to follow, and faced challenges in forming and presenting a new kind of collaborative knowledge to its audience. Many of the publications sponsored by the Royal Society such as Robert Hooke's *Micrographia* or Francis Willughby's *Historia piscium*, as well as the institution's journal, *Philosophical Transactions*, contained extensive illustrations. These were important projects, as the Society grappled with various strategies to present a new form of knowledge and establish its own authority in scientific matters. The Royal Society's archive contains a rich variety of images that have not yet received much attention by historians of science. This project proposes to undertake a systematic investigation into the visual and graphic practices of the Royal Society during its first fifty years, and examine the roles the Society played in the emergence of a scientific visual culture in the early modern period.

Project Outputs

- Researched information on images will be made available via the Royal Society's Picture Library
- Interviews (made available on the project website) with curators, artists, historians of art and historians of science jointly discussing specific historical images
- Research papers in peer-reviewed journals by team members
- Monograph (co-authored) on the visual culture of science in the early Royal Society
- A collection of essays arising from the project workshops
- Exhibition (physical and digital) at the Royal Society
- Concordance and finding aid of images relating to the early Royal Society

Project Activities

The basis of this project is a complete survey of the Royal Society's Archives for drawings, tables and other forms of visual resources (to be conducted in the first year). This will be accompanied by

1) 'study sessions' in the use of historical drawing tools, intaglio prints, pigments and instruments;

2) international workshops

(a) taxonomy, legibility and translatability of images;

(b) local and global contexts;

(c) ideas, ideals and practices of expertise (of the hand) among scientific and graphic practitioners

Public Engagement

The project aims to engage with members of the public through its website, and the University's Festival of ideas and National Science Week events.

Drawing and Knowing is the project's own engagement activity. Interested members of the public will be invited to draw a couple of scientific objects, first, without any instruction; then a curator will explain the scientific significance of the objects and an art instructor will explain how best to draw the objects in question; the participants will then be asked to draw the objects again; finally they will be asked to comment on how their drawings have changed after the lectures by the curator and the artist. The aim of this event is to highlight the complex relationship between seeing, drawing and knowing. If possible, we will try to make this meeting coincide with the annual 'Big Draw' event, in conjunction with a museum. This event will be filmed and made available on the project's website.

Research Questions

1) *Taxonomy of images.* As yet we do not have a comprehensive overview of the range of images utilized by members of the Royal Society. Individual studies have tended to focus on one type of image (e.g. optical diagrams or fossil drawings), but it is important to note that fellows of the Royal Society discussed, studied and valued a wide range of visual resources, from sketches of kidney stones and mathematical diagrams to weather tables and portraits. Because cataloguing of manuscripts has tended to prioritize textual over pictorial information , it will be necessary to examine the archives of the Royal Society systematically to locate drawings. This search will form the basis of a survey of the range of objects depicted, as well as techniques and styles deployed. It will enable us to ask how choices of technique, style and medium were related to the types of objects and processes depicted, and whether any other patterns may be discerned in terms of the number, quality and style of images produced over the first 50 years of the Society.

2) *Image-making*. These images were a product of collaboration between graphic craftsmen[1] and natural philosophers – a process described as 'four-eyed sight' by Lorraine Daston and Peter Galison (*Objectivity*, New York, 2007), typical of the period. Little is known, however, as to what such a collaborative process entailed. We will identify the procedures and people involved in the selection of objects, scientific instruments and graphic tools; copying, correcting and authorizing images; and the decision to publish an image or not, and in what medium. This investigation will be set within the wider visual worlds graphic craftsmen and natural philosophers inhabited. The work graphic craftsmen executed for the Royal Society will be placed within their oeuvre and output as a whole (which included still life and landscapes). Did they develop styles of representation that were perceived as unique or at least appropriate for scientific objects? Some Fellows, such as John Evelyn (cf. his *Sculptura*, 1662), were conversant with contemporary graphic techniques through their connoisseurial interests, while others had learnt to draw through manuals such as Edward Norgate's *Miniatura* or William Sanderson's *Graphice*. Several of the fellows (e.g. John Evelyn, Samuel Pepys, Thomas Povey, William Aglionby) were also connoisseurs and enthusiastic collectors of art, and knew of other collections and

[1] We use the phrase 'graphic craftsmen' instead of artists, because the latter is historically problematic. The former label enables us to include a wide range of practitioners and examine the types of graphic expertise professed and expected in the period.

Kunstkammers. How did such first-hand appreciation of art, artistic skills and collections affect the way they used and judged images in their scientific studies? In turn, how much were graphic craftsmen expected to know about the objects and processes they were asked to depict? In short, how did graphic craftsmen and natural philosophers learn to see and understand from each other in this collaborative process? Is it possible to speak of the emergence of visual literacy in the sciences in this period?

3) *Knowledge-making*. Understanding how images shaped and contributed to the formation and dissemination of knowledge in an institution of collective investigation requires comparative analyses of the functions of image, text and object in communicating knowledge; their effectiveness and limitations in resolving conflicts; and their uses in forming and defining a community. How did graphic craftsmen help visualize objects that had never been seen before? Were images sufficient to prove the veracity of an object, or did they require texts and other forms of persuasion? How 'transparent' were meanings of images: could they be understood without understanding the accompanying English text? Did certain types of images broaden the Society's audience, or limit it? When the Society sought to gather information from far-flung places across the globe using lists and queries, did they also include instructions about aligning ways of visualization? Did images prompt others to collect and examine certain types of objects and problems, rather than others? How did portraits, as part of a gift economy, help define a community of investigators? These questions will illuminate the role of images in disseminating ideas and practices, in shaping scientific experience and in defining a community. Is it possible to argue for the emergence of a visual culture of science that shaped and sustained a community of natural philosophers and virtuosi?