From the collections: the Grove-Hills bequest

Siân Prosser explores some cutting-edge scientific tools from the 15th century, a gift to the RAS that, in its research and outreach value, keeps on giving.

The Royal Astronomical Society has been collecting books and manuscripts since it was established in 1820. It now has a core collection of 4300 rare books, purchased or donated by Fellows. The 1922 bequest of the astronomer and soldier Colonel Edmond Grove-Hills is one of the most valuable donations: more than 500 books dating from 1472 to 1700. The collection includes 36 incunables, books printed in Europe before 1501 in the tradition of the 15th century, including those by Euclid, Copernicus, Kepler, Galileo and Newton. Many of these can be found in the Grove-Hills collection.

Grove-Hills (see the box “Who was Grove-Hills?”) published his own research only on the results of solar eclipse expeditions, the movement of the poles and other scientific matters, but the contents of the library collection that he left to the RAS show that he was a very knowledgeable bibliophile in the domain of history of science. His collection was arranged and catalogued at Burlington House by Kathleen Williams, the assistant secretary of the RAS, under the supervision of Edward Ball Knobel who was chair of the Library Committee at that time and a book collector himself. While there is little evidence of what motivated Grove-Hills to choose the books he collected, the design of his book plates offers some clues.

It includes the initials EHH on the coat of arms with, in the background, some subtly engraved hills. The words “Bibliotheca Astronomica” in a bold style of lettering and astronomical imagery, including an armillary sphere on a table with books, are reminiscent of the woodcuts in key texts in astronomy up to the end of the 17th century, including those by Euclid, Copernicus, Kepler, Galileo and Newton. Many of these can be found in the Grove-Hills collection.

‘De Sphaera’
Among the 36 incunables, there are five editions of Tractatus de Sphaera by Johannes de Sacrobosco, also known as John of Holywood, who taught astronomy at the University of Paris in the 13th century. De Sphaera is an astronomy textbook that draws on the Aristotelian and Ptolemaic geocentric models of the solar system, and on later works such as those of two 9th-century scholars based in Baghdad, Abū al-Ḥasan Ahmad ibn Muhammad ibn Kāthīr al-Farghānī and Thabit ibn Qurra. At first disseminated through manuscripts and then in print. They include examples of innovations in scientific publishing – multi-coloured figures and paper instruments – that made these volumes the cutting-edge scientific tools of their day. Now they provide a window into 15th-century scientific thought that is valuable for outreach as well as research.

Grove-Hills had 34 editions of De Sphaera altogether, including the five pre-1500 copies; it is perhaps not surprising that a
professional geodesist would acquire books containing depictions of the figure of the Earth. The 1485 edition is accompanied by another tract called Theoricae Novae Planetarium by Georg von Peurbach (1423–61), about the motions of the planets and the theory of eclipses, also among Grove-Hills’ research interests.

The eclipse diagrams in this edition are not only of scientific interest, but also significant to the history of printing, because they represent some of the earliest examples of multicolour printing by the innovative and prolific printer Erhard Ratdolt (1452–1528), 10 of whose editions are in the Grove-Hills collection. Ratdolt spent his working life in Venice and Augsburg and his other inventions included the title page (figure 1). Today, sundials of this type are known as Regiomontanus dials. A much greater impact was created by his work with Peurbach to develop a new theory of eclipses, also among Grove-Hills’ part to obtain these works, even at a time when history of science books were less sought-after.

The RAS celebrates its bicentenary in 2020; the Grove-Hills collection is a jewel within the Library and Archive collections amassed over 200 years. It stands as an example of philanthropy from the end of the first century of the Society’s existence that holds its scientific and historical value at the start of the third. The collection – and the incunables especially – are part of a gift to the Society that will keep on giving if we use these books in our aim to promote the understanding of astronomy and geophysics, and the history of these subjects, in the course of education and outreach activities as well as making the texts available to expert researchers.

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FURTHER READING
British Sundial Society glossary http://sundialsoc.org.uk/discussions/glossary-a-z
Collier P 2006 in Old Worlds–New Worlds, the History of Colonial Cartography 1750–1950 (Utrecht University) 21 to 23 August 2006
Stijjman A & Savage E 2015 Printing Colour 1400–1700, History, Techniques, Functions and Receptions (Birk, Leiden)
The Sphere: Knowledge System Evolution and the Shared Scientific Identity of Europe https://sphaera.mpiwg-berlin.mpg.de
Zinner E & Brown E 1990 Regiomontanus: His Life and Work (New Holland)

“Regiomontanus
Regiomontanus was an outstanding astronomer and linguist who, along with his collaborator Georg von Peurbach, and at the instigation of the humanist cardinal Johannes Bessarion (c.1395–1472), dedicated himself to revising authoritative astronomical texts and compiling new, accurate ephemerides, correcting the mistakes introduced through centuries of scribal copying. He opened a print shop in Nuremberg.

While the edition of the Kalendarium was printed by Ratdolt, not Regiomontanus, it contains ingenious printed instruments originally designed by Regiomontanus, such as a portable sundial constructed on a flat plane, with an articulated brass pointer or brachiolus with a hole in the end, to which a string carrying a bead would be attached (figure 2). Today, sundials of this type are known as Regiomontanus dials. The eclipse diagrams in this edition are not only of scientific interest, but also significant to the history of printing, because they represent some of the earliest examples of multicolour printing by the innovative and prolific printer Erhard Ratdolt (1452–1528), 10 of whose editions are in the Grove-Hills collection. Ratdolt spent his working life in Venice and Augsburg and his other inventions included the title page (figure 1). Today, sundials of this type are known as Regiomontanus dials. A much greater impact was created by his work with Peurbach to develop a new theory of eclipses, also among Grove-Hills’ part to obtain these works, even at a time when history of science books were less sought-after.

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