



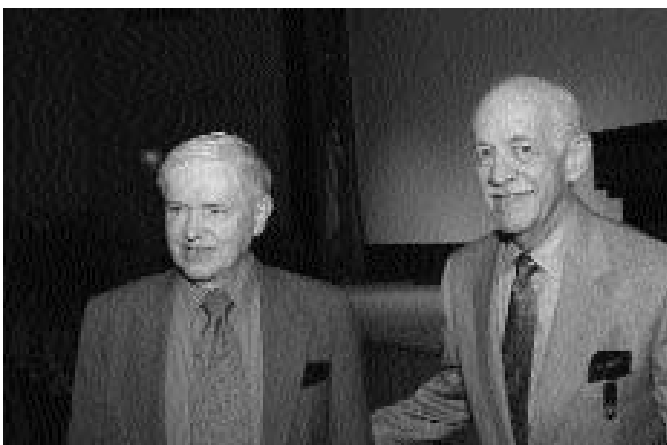
Dibner Library **NEWS**

Fall 2001
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A NEWSLETTER FROM THE DIBNER LIBRARY OF THE HISTORY OF SCIENCE AND TECHNOLOGY

The Dibner Library Celebrates Its 25th Anniversary

On October 3rd, a special half-day symposium, "Exploring the Past, Shaping the Future," was held to commemorate the 25th anniversary of the Dibner Library. It took place at the Leonard Carmichael Auditorium of the National Museum of American History, Behring Center and featured a keynote address by noted antiquarian bookseller Roger Gaskell on, "From Collector to Reader: Bern Dibner and the History of Science Collections." This was followed by a discussion with a panel composed of Smithsonian curators David DeVorkin (National Air & Space Museum), Peggy Kidwell and Deborah Jean Warner (both of the National Museum of American History), and former Dibner Library Resident Scholars Sara Schechner (Harvard University) and Alberto Martinez (Dibner Institute). The panel brought to light a number of issues concerning the Dibner Library and the future of this rare book and manuscript library at the Smithsonian Institution. The symposium was followed by the annual Dibner Library Lecture, given this year by Professor Owen Gingerich (Smithsonian Astrophysical Observatory & Harvard University) and titled, "Icons of Understanding: Celebrating Bern Dibner's Heralds of Science." The talks by Roger Gaskell and Owen Gingerich will be published and available in April 2002 (visit our website for further details and how to obtain copies).



Owen Gingerich (left) and David Dibner at the 25th Anniversary Symposium

Resident Scholar Program 2003

The Smithsonian Institution Libraries Dibner Library Resident Scholar Program awards stipends of \$2,500 per month for up to six months to individuals working on a topic relating to collections in the Dibner Library of the History of Science and Technology. Historians, librarians, doctoral students, and post-doctoral scholars interested in the history of science and technology are invited to apply for the calendar year 2003. The deadline for applications is March 1, 2002.

Successful applicants for the Dibner Library Resident Scholar Program must make substantial use of the materials housed in the Dibner Library of the History of Science and Technology. Scholars are expected to be in residence at the Smithsonian Institution in Washington, DC full-time during their award tenures. The Dibner Library Resident Scholar Program is made possible by the generous support of The Dibner Fund.

Three Ways to Obtain an Application Form

- ❖ **Download** the form from the Libraries' Web site (www.sil.si.edu)
- ❖ **Email** libmail@sil.si.edu to request the form.
- ❖ **Call** (202) 357-1568 to request the form.



Smithsonian Institution Libraries

Dibner Library Resident Scholars for 2002

Amy Ackerberg-Hastings obtained her Ph.D. in the history of technology and science from Iowa State University in 2000. Her dissertation explored the topic, "Mathematics is a Gentleman's Art: Analysis and Synthesis of American College Geometry Teaching, 1790-1840." Most recently, Amy has been working on a number of projects in the history of mathematics at the National Museum of American History and teaching the history of technology and culture at Montgomery College in Rockville, Maryland. Her research project at the Dibner Library expands on her dissertation, with a view to creating a work of more general interest. The project, "American Geometry Teaching, 1750-1850," examines the American approach to geometry instruction and its indebtedness to European methodology and thought. Amy will look at the use of Euclid's *Elements* as a standard text, how American textbook authors have traditionally followed European developments in geometry teaching, and whether advances made abroad should serve as models for American education. Works in the Dibner Library that will prove useful to Amy's research include John Playfair's *Elements of geometry* (New York, 1838), A. M. Legendre's *Éléments de géométrie* (Paris, 1794, 1813; Cambridge, MA, 1819; Edinburgh, 1824; New York, 1853, 1868, 1875), W. Hawney's *The complete measurer* (London, 1769), and even Oliver Byrne's *The first six books of the Elements of Euclid* (London, 1847).

Jen E. Boyle is a Ph.D. candidate (degree expected 2001) in the Department of English and Comparative Literature at the University of California, Irvine. Her dissertation, "Anamorphic Imagination and the Empirical Body: Perspective and the Embodiment of Space and Text in Restoration and Early Eighteenth-Century Science," in her words, "employs early geometrical and mathematical perspective theories and experimentation to explore the limits of artistic theories and symbolism, experimental space and technology, and scientific and literary narratives." At the Dibner Library, Jen will extend this research with a project titled, "Perspective Manuals and Eighteenth-Century Calculus: Embodiment and the Technology of Nationalism." Perspective manuals functioned "as an early modern forum for debates over the boundaries of textual narrative representation and sensory perception, and further examine the limits of scientific authority in relation to 'practical' crafts and abstract mathematical and scientific thought." She will be looking particularly at eighteenth-century perspective manuals and the exchange of mathematical theories and the technologies of perspective between England and France at that time. At the Dibner Library she will be looking at, among others, various editions of Newton's *Opticks* (1704, 1706, 1718, 1721, 1722, 1730 1749), his alchemical manuscripts, works by Leibniz (including some correspondence with Fontenelle), and several translations of Continental works by Edmund Stone.

Guido Giglioni is a Ph.D. candidate in the Department of the History of Science, Medicine, and Technology at The Johns Hopkins University, where he is writing a dissertation on the work and life of the English anatomist, physician, and philosopher, Francis Glisson (1598-1677). At the Dibner Library, Guido's research project titled, "Motion, Life, and Perception in Early Seventeenth-Century England," and will concentrate on the authors Francis Bacon, William Gilbert, and William Harvey. These three figures espoused theories of vital naturalism that influenced Glisson and his theory of life, which was based on the belief that there are perceptive powers inherent in matter. At the Dibner Library, Guido will study works by authors such as Bacon (including his posthumous *Scripta in naturali et universalis philosophia* of 1653 that contributed to a strong revival of atomism and theories of matter in England), William Barlowe, Thomas Blundeville, Tommaso Campanella (including his *De sensu rerum* of 1620 that was highly influential in England), Girolamo Cardano, George Ent, Robert Fludd, William Gilbert (especially his *De mundo nostro sublunari* of 1651), Matthew Hale, William Harvey (particularly his *De generatione animalium* of 1651, in which he discusses his doctrine of blood as a self-active matter, originally endowed with life and perception), Jean Baptiste van Helmont, Mark Ridley, Alexander Ross, Bernardo Telesio, and Edward Wright.

Neil Safier is a Ph.D. candidate in the Department of History at The Johns Hopkins University. His dissertation examines the "processes and circumstances through which scientific knowledge came to be produced, collected, and communicated by European explorers traveling through the Amazon region during the eighteenth century." Of particular interest to him are the methods whereby cartographic representation of Amazonia's natural features were transformed from "broad strokes and flamboyant flourishes in early atlases to detailed, precision engravings on eighteenth-century maps." At the Dibner Library, Neil plans to study the changes that took place in the astronomical and geographical sciences in the early 1700s and how these "reworked and refigured the shape of the Amazon's course." Among the works that he plans to consult at the Dibner Library are texts that detail the observational procedures used to construct cartographic representations in the eighteenth century, such as William Leybourn's *Cursus mathematicus* (1690), George Gordon's *An introduction to geography, astronomy, and dialling* (1742), Jacques Cassini's *Tables astronomiques* (1740), and Patrick Gordon's *Geography anatomiz'd: or, The geographical grammar* (1744). He also will be examining the National Museum of American History's scientific instrument collection and the Dibner Library's books about them by authors such as Pierre-Charles Le Monnier and Michel-Ferdinand d'Albert d'Ailly, duc de Chaulnes.

The Smithsonian Institution Libraries Resident Scholar Program is supported by
The Dibner Fund

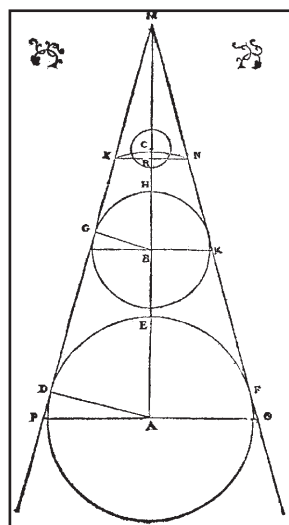
Spotlighting the Dibner Library's Collections
History of Astronomy. Part I.

The study of astronomy in all its forms has been of great interest throughout the entire period of Western civilization. The wide variety of topics covered in this science, from predicting eclipses and the path of the planets to the study of the physical properties of celestial bodies, are all well represented in the approximately one thousand titles in the Dibner Library's astronomy rare book holdings. The books range chronologically from the 15th-century works of Greek and medieval astronomers to late 19th-century titles penned by astrophysicists.

The earliest works in the collection are the texts that survived from ancient Greece and were printed shortly after the invention of movable type in the 15th century. Most of the early Greek philosophers' works intended for general consumption did not survive antiquity except in fragments, including those of Aristotle (384-322 BC). Some thirty of Aristotle's treatises, works that were intended for use by students in his school, were preserved and among these is his *De caelo* (On the heavens). Aristotle's works were quite influential, and for centuries his discussions of homocentric spheres that moved and carried the planets (including the Sun and Moon) around a stationary and central Earth held sway over the study of astronomy. The Dibner Library holds the editions of 1493 (Cologne), 1495, 1545, 1549 (all Venice), 1519 (Augsburg), and 1542, 1546 (all Leiden) of Latin translations of the *De caelo*.

Aristarchus of Samos (c. 310-230 BC) is best known for having proposed a theory that the Earth orbits around a stationary Sun, anticipating Copernicus's revolutionary concept, but this work is no longer extant. His only surviving text is *De magnitudinibus, et distantibus solis, et lunae* (On the sizes and distances of the Sun and Moon), the first attempt to determine astronomical distances and dimensions based on mathematical calculations.

Although his final values were far off the mark, he did decide that the Sun was much larger than the Moon and the Earth, no doubt making it seem sensible to him that the Sun was the center of the universe. The Dibner Library has the 1572 and 1688 editions of the Latin translation by Commandino (the latter edition also containing the Greek text).



From Aristarchus, *De magnitudinibus...* (Pisa 1572).

Eratosthenes (c. 276-195 BC), librarian at Alexandria, is remembered for his mathematical demonstration for finding the circumference of the Earth. Noting the difference in the shadows cast at noon in two cities believed to be on the same line of longitude and the estimated distance between the two cities, he calculated the circumference of the Earth to be equivalent to 29,000 statute

miles, quite an accomplishment for the time, as the actual value is nearly 25,000 miles. Unfortunately, Eratosthenes's works exist only in fragments and are known primarily from their citation in later works. The Dibner Library has a number of these later titles, including Macrobius's *In somnium Scipionis* (The Dream of Scipio, 1550 in Latin), Strabo's *Rerum geographicarum* (On geographical matters, 1494, 1502 in Latin, and 1549, 1571 in Greek & Latin), and Pliny the Elder's *Naturalis historia* (Natural history, 1469, 1476, 1479, 1481, 1483, 1491, 1496, 1516, and 1582, all in Latin).

Ptolemy (fl. AD 127-145), an astronomer from Alexandria, provided a grand synthesis of Greek mathematical astronomy in a



Woodcut depiction of Ptolemy using an astronomical quadrant, from his *Geographiae* (Basel, 1552)

work that had a profound influence on all astronomers until the Copernican revolution in the 16th century. This work, *Almagest* (The greatest [astronomer]), provided a mathematical model for an Earth-centered universe, explaining how the irregular planetary motions could be accounted for using the necessary Aristotelian perfect circular paths. This Ptolemy did by having the planets travel in circular paths (epicycles) centered on a larger circular path (deferent) that was slightly off-center from the stationary Earth.

The editions of 1515, 1550, 1556 (Latin), and 1538 (Greek) are in the Dibner Library, along with the famous 1496 epitome of the *Almagest* by Peurbach and Regiomontanus. The library also has some of Ptolemy's other astronomical works, including *Liber de analemmate* (On the analemma, 1562 in Latin, in which he discusses the construction of sundials) and *Planisphaerium* (Planisphere, 1572 in Italian, in which he discusses how to map a spherical surface onto a plane). Ptolemy was also influential through his writings on astrology, a field once closely allied with astronomy. Scholars in the Dibner Library will be able to find copies of his *Tetrabiblos* (Four books [on astrology]) in the editions of 1484, 1493 (all in Latin), and 1786 (in English).

The next part of this article will take a closer look at the Dibner Library's holdings in Islamic and Medieval Latin astronomy.

To be continued...

Ronald Brashear

Be sure to visit the Dibner Library's website:
www.sil.si.edu/Branches/dibner.htm

News in brief...

Please welcome two new Library Technicians, Daria Wingreen and Kirsten van der Veen, to the Dibner Library. Daria comes to us from the Cataloging Services Division of the Smithsonian Institution Libraries, and Kirsten joined us from the Library of the Urban Institute in Washington, DC. Please be sure to stop by and say hello when you are nearby.

Ronald Brashear has been named Head of Special Collections at the Smithsonian Institution Libraries, and remains Curator of Science and Technology Rare Books.

Dibner Library News is published twice yearly by the Special Collections Department of the Smithsonian Institution Libraries. If you would like to be included on the mailing list for the *DLN*, please send a note to:

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Roger Gaskell giving his talk at the Dibner Library 25th Anniversary Symposium, "Exploring the Past, Shaping the Future," on October 3rd.

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