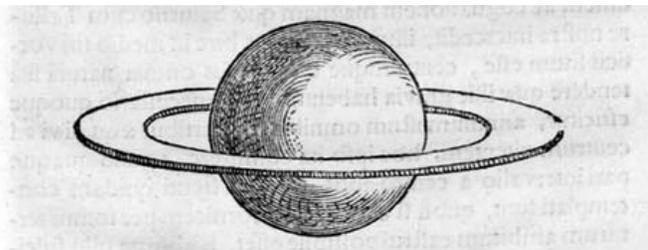


Dibner Library **NEWS**

Spring-Summer 2004
Volume 5, Number 1

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

Albert Van Helden to give the 2004 Dibner Library Lecture on October 27



from Christiaan Huygens' *Systema Saturnium* (The Hague, 1659)

We are happy to announce that Dr. Albert Van Helden will deliver the 2004 Dibner Library Lecture on Wednesday, October 27. The title of the lecture is "Huygen's Rings, Cassini's Division and Saturn's Family: The First Explorations of the Solar System." We expect this lecture to be quite topical due to the recent encounter with Jupiter by the Cassini spacecraft and the upcoming landing on Saturn's moon Titan by the Huygens space probe. After the beginning of telescopic astronomy in 1609, one discovery that puzzled everyone for half a century was the strange appearances of Saturn. As studies of the Moon, Sun, and Jupiter dominated the first half century of telescopic astronomy, the system of Saturn dominated the second half. Christiaan Huygens (1629-1695) discovered the first satellite (now named Titan) of the planet in 1655 and three years later published his celebrated ring-hypothesis to explain Saturn's puzzling appearances; Giovanni Domenico Cassini found four further satellites of Saturn and discovered the gap in the ring named after him. It is a story about telescopes, but also about the eyes and brains behind the telescopes. And this means that human emotions—ambition, pride, envy, prejudice—were involved in a community in which reputation was everything. As the planets developed, as it were, individual personalities, the personalities of the explorers on Earth were, and are, equally fascinating.

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Resident Scholar Program

2006

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 are invited to apply for calendar year 2006. Deadline **March 1, 2005**.

The strengths of the Dibner Library collection are in the fields of mathematics, astronomy, classical natural philosophy, theoretical physics (up to the early twentieth century), experimental physics (especially electricity and magnetism), engineering technology (from the Renaissance to the late nineteenth century), and scientific apparatus and instruments.

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, D.C. full-time during their award tenures.

Three Ways to Obtain an Application Form

- ❖ **Download** the form from the Smithsonian Libraries' Web site (www.sil.si.edu)
- ❖ **Email** libmail@sil.si.edu to request the form.
- ❖ **Call** (202) 633-3872 to request the form.



Smithsonian Institution Libraries

2004 Dibner Library Lecture, continued...

The lecture will be held at 5:00 PM in the Leonard Carmichael Auditorium of the National Museum of American History, Behring Center, at 12th Street and Constitution Avenue, NW, Washington, D.C. A reception will follow the lecture where you will have the opportunity to meet Dr. Van Helden and the staff of both the Dibner Library and the Smithsonian Libraries. The lecture is free and open to everyone.

Dr. Van Helden is Professor of History of Science at the University of Utrecht in the Netherlands, and was previously the Lynette S. Autrey Professor of History at Rice University. At Rice, Dr. Van Helden was instrumental in establishing the "Galileo Project," a hypertext source of information on the life and work of Galileo Galilei and the science of his time. He has published a number of excellent books and articles, and has even translated Galileo's *Sidereus Nuncius* into English.

New Acquisitions

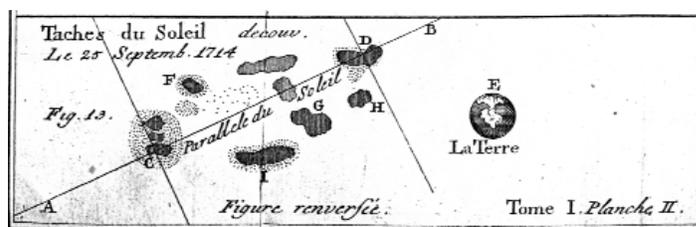
The Dibner Library obtained a number of new items for the collection last year. We highlight here a few examples to display the wide variety of topics represented in the Library.

Siméon-Denis Poisson (1781-1840), the celebrated French mathematician, is well represented in the Dibner Library with over twenty books and manuscripts listed in the catalog. Late in his life he published two important treatises on applied mathematics. The first one, *Recherches sur la probabilité des jugements en matière criminelle et en matière civile* (1837; Research on the Probability of Criminal and Civil Verdicts) used the calculus of probability to study the French legal system and a copy is in the Dibner Library (originally owned by Asaph Hall, the astronomer at the US Naval Observatory). We have now obtained the second work, *Recherches sur le mouvement des projectiles dans l'air, en ayant égard à leur figure et leur rotation, et à l'influence du mouvement diurne de la terre* (1839, Research on the movement of projectiles in the air, with regard to their shape and rotation, and the influence of the daily motion of the Earth), our copy being a presentation copy from Poisson to an M. Schumacher. Typical of Poisson, he made great use of the work done by a former graduate student of his, in this case Gustave-Gaspard Coriolis, but he never mentioned his student's contributions in the work. Today we at least have given Coriolis the credit he deserves for defining the forces acting on a rotating body with the well-known "Coriolis Effect" used extensively in meteorology and ballistics. The work by Poisson provided the inspiration for Jean-Bernard-Léon Foucault to design his pendulum experiment, which, through his demonstration of the effect of the Coriolis force, proved at long last that the Earth rotates. Foucault's landmark article, "Sur divers signes sensibles du mouvement diurne de la terre," one of Bern Dibner's *Heralds of Science*, is also in the Dibner Library in the form of an 1852 offprint that is a presentation copy from Foucault to a Mr. Barnard.

The Dibner Library obtained a copy of the quite rare first edition of Friedrich Kries's *Lehrbuch der Physik* (Textbook of Physics), printed in Jena in 1806. Only one other copy of this title is listed in the online union catalogs, OCLC and RLG, and it is an 1835 fifth edition at the Mayo Clinic Library. Kries was an instructor at the Gymnasium in Gotha and produced various science and mathematics textbooks for the use of his advanced students. We found his physics book to be an important addition to our collec-

tions because of its extensive discussion on electricity and magnetism, a subject of great importance to the Dibner Library's holdings. Kries (1768-1849) produced and translated a number of other works as well. We have seven of these in the Library, so the physics textbook is a nice addition.

In the field of astronomy, we are happy to have acquired a copy of Joseph Nicolas de L'Isle's (1688-1768) *Memoires pour servir a l'histoire & au progrès de l'astronomie, de la géographie & de la physique* (1738; Memoirs relating to the history and progress of astronomy, geography, and physics). This is the only edition of this collection of works by the astronomer and geographer de L'Isle. It is quite rare, and in addition to his astronomical articles on sunspots and eclipses, includes a description with a large fold-out illustration of a new metric (he called it a "universal") thermometer that he had created. The work contains accounts of his viewing of an aurora borealis in Russia and his earlier experiments on light in Paris (he accepted a position as a court scientist



Sunspots shown in de L'Isle's work

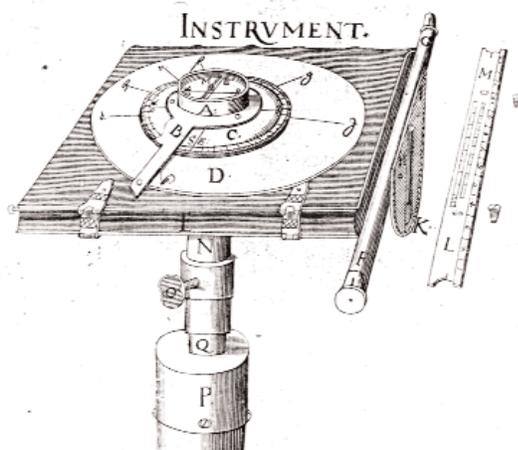
in St. Petersburg, Russia, from Catherine the Great who was stocking up on famous mathematicians and scientists). De L'Isle is best remembered these days for his interest in astronomical transits of Mercury and Venus and his improvement of Halley's method to use transits of Venus to determine the distance from the Earth to the Sun. The variety of his research, his importance to the history of science, and the relative scarcity of this work make it a valuable addition to our collection.

Our collection of books on scientific instruments from the 1600s was strengthened by three purchases made with the Dr. John W. Wells and Ellen B. Wells Endowment Fund. Ellen Wells was formerly Head of Special Collections at the Smithsonian Libraries.

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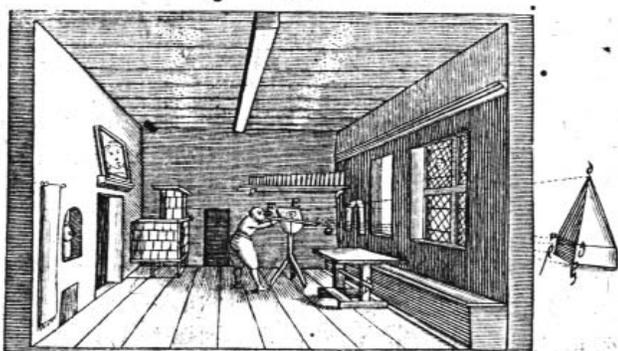
New Acquisitions, continued....

Her father, John Wells, was a professor of geology and paleontology at Cornell University. The first book purchased was a work by Andreas Albrecht, *Eigentlicher abriss und beschreibung eines sonderbaren nutzlich und notwendigen mechanischen instruments* (ca. 1625; True outline and description of a singularly useful and essential mechanical instrument). This work is a description of an instrument designed by Albrecht for use primarily in surveying. One of the plates (reproduced here) depicts the



complicated instrument. Albrecht (d. 1628), published a number of books on proportion, architecture, and mechanical instruments between 1620 and 1628. As an added bonus, our copy has, bound in at the end of the volume, an 8-page ink manuscript, in German, on the subject of azimuths and quadrants.

Figur No 10



Detail of someone using Albrecht's singularly useful instrument.

The second purchase was a fine copy of Guillaume Amontons's *Remarques et experiences phisiques sur la construction d'une nouvelle clepsidre sur les barometres, termometres, & higrometres* (1695; Remarks and physical experiments on the construction of a new water-clock and on barometers, thermometers, and hygrometers). According to the *Dictionary of scientific biography*, in 1695 Amontons sought to renew the use of the clepsydra as a timing apparatus on ships in order to solve the age-old problem of determining longitude at sea. In this paper, he also described two instruments he designed that became well known

in the eighteenth century. One was a cisternless barometer consisting of a tube narrow enough for the column of mercury to remain suspended, and the other was an air thermometer independent of the atmospheric pressure.

The final purchase on scientific instruments is a volume containing two distinct works, Denis Henrion's *Usage du compas de proportion*. (1624; The use of the proportional compass) and Pierre de Floutrières's *Traité de horlogeographie* (1619; Treatise on "dialling"). This copy represents the 2nd enlarged edition of the Henrion work, by far the best, containing for the first time a full description of the instrument by Daniel Chorez. The proportional compass, also known as a geometrical sector, is a sophisticated and versatile calculating device. It renders possible several geometrical and arithmetical operations by comparing the sides of similar triangles. Henrion's work on the sector was written ca. 1610 and a first version was published in his *Mémoires Mathématiques* (1612). Separate editions appeared in 1616 and 1618 but this edition of 1624 was heavily revised and expanded and constitutes the fullest and most useful version of this early text on the subject. The work had several subsequent editions. No copies of the 1624 edition are listed in OCLC. The second work in this volume, Pierre de Floutrières's treatise on dialling, is also very rare and particularly interesting for the description and illustration that it provides of the "sciaterre," an instrument with which dials could be laid out without calculation and of which a few rare examples have survived. Our copy is a first edition and it was succeeded by four more, the last in 1701. Only one U.S. library, Yale University Library, is listed as having this work in OCLC.

Ronald E. Wilkinson, in memory of Ellen Wells, supplemented our alchemical works by a recent gift of two tracts by the very influential 17th-century alchemist with the pseudonym of Eirenaeus Philalethes (a peaceful lover of truth). They are *Ripley reviv'd, or, An exposition upon Sir George Ripley's hermetico-poetical works: Containing the plainest and most excellent discoveries of the most hidden secrets of the ancient philosophers, that were ever yet published* (1678) and *Secrets reveal'd, or, An open entrance to the shut-palace of the king: containing, the greatest treasure in chymistry, never yet so plainly discovered* (1669). According to Dr. William Newman of Indiana University, Philalethes was really the first famous American scientist, alchemist George Starkey (1628-1665), a native of Bermuda educated at Harvard College. Starkey became the first English-speaking native of the New World to be read widely in Europe. Newman continues, "Starkey immigrated to London in 1650, where he immediately erected a laboratory and became the chemistry teacher of a man who would go on to acquire fame as 'the father of modern chemistry'—Robert Boyle. [Starkey's] works acquired a huge audience that included such luminaries as Isaac Newton, John Locke, and Gottfried Wilhelm Leibniz. The million or so words that Newton composed on alchemy are heavily indebted to the theory and practice of Philalethes, although Newton incorporated significant modifications into Starkey's work as well."*

* from www.indiana.edu/~college/WilliamNewmanProject.shtml

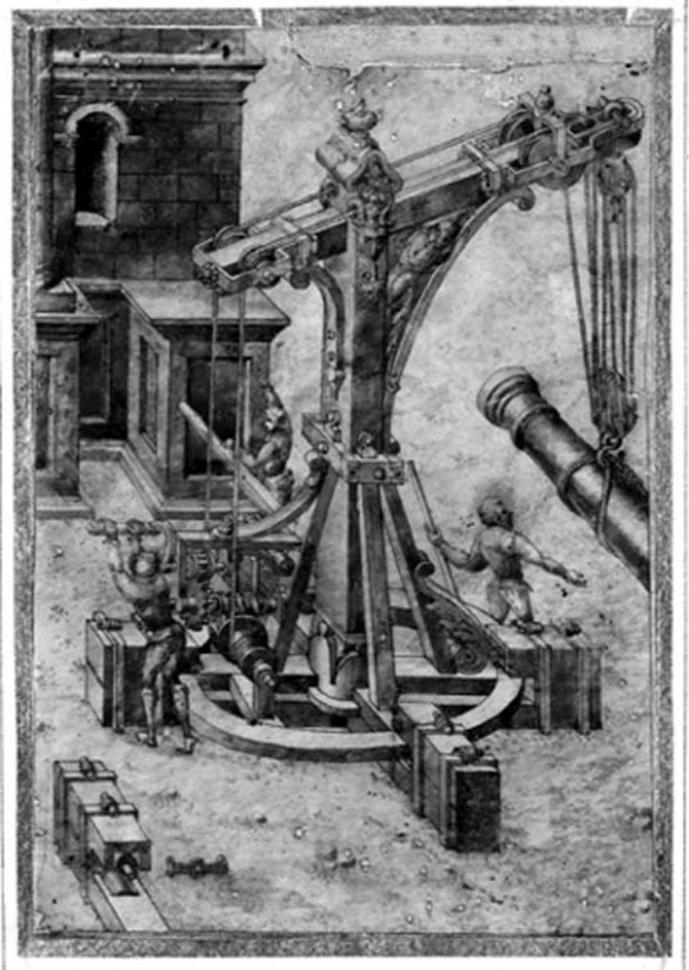
New Additions to the Dibner Library Web Site

We have recently added three new electronic resources to our web site that highlight interesting parts of the Dibner Library's collections: our Incunabula, our collection of drawings by Agostino Ramelli, and our collection of portraits of scientists and engineers.

Ramelli's Drawings

The military engineer Agostino Ramelli produced a remarkable illustrated book in 1588 describing a large number of machines that he devised. Called *Le diverse et artificiose machine del Capitano Agostino Ramelli* (The various and ingenious machines of Captain Agostino Ramelli), this work had a great impact in the field of mechanical engineering. The book contains 195 superb engravings of various machines along with detailed descriptions of each one

in both French and Italian. The Dibner Library has original drawings of seven of the machines and this web site has been developed to assist in research on these artworks.



Drawing attributed to Bachot depicting the same image

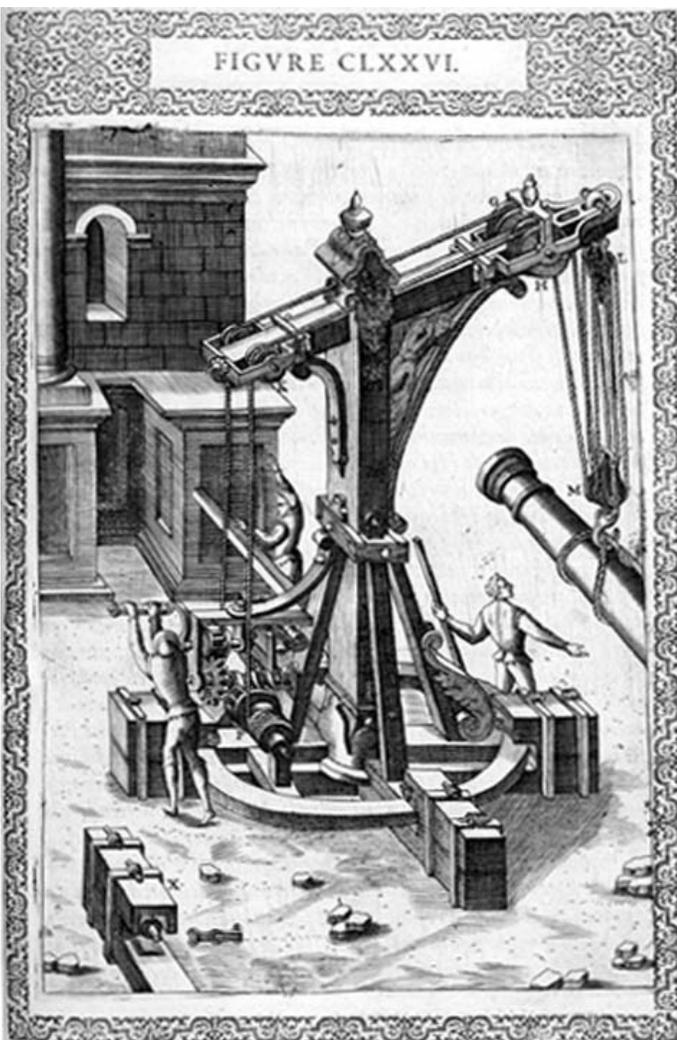


Plate illustrating an early crane from Ramelli's *Le diverse et artificiose machine* (Paris, 1588)

We have on display each of the drawings along with their counterparts in the printed book. The seven drawings in the Dibner Library's collections came as part of the original gift from the Burndy Library. They are pen-and-ink and sepia wash drawings on vellum, highlighted with touches of white, mounted on eighteenth-century heavy paper. The drawings were originally attributed to Ambroise Bachot (and still are listed as such in the Smithsonian online catalog, SIRIS). The drawings have been assigned the local call number MSS 1604A. The URL for this website is: <http://www.sil.si.edu/ondisplay/ramelli/>

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Dibner Library's Web Site, continued...

Incunabula



Illuminated initial from Pliny the Elder's *Historia Naturalis* (Venice, 1469)

This site gives some basic information about the 320 incunabula in the Dibner Library's collection. Incunabula (from the Latin word meaning swaddling clothes or, figuratively, infancy) are European books printed with movable type during the fifteenth century, that is, during the very beginnings of Western printing. Incunabula represent the formative stages of printing practice

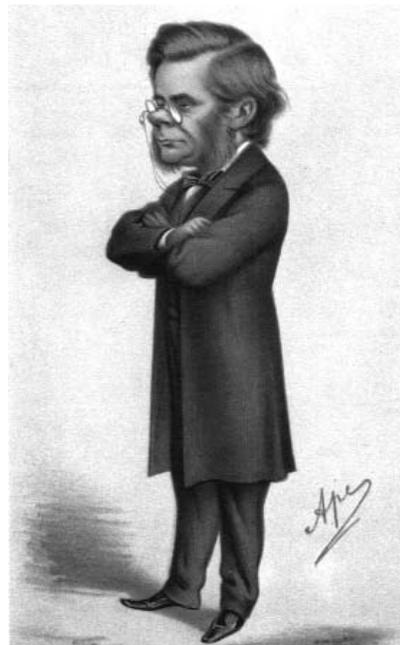


Front cover of Regiomontanus' *Calendarium* (Venice, 1483), made from a leaf of a manuscript psalter.

when the transition from manuscripts to modern books occurred. The Dibner Library's collection is remarkable in that the majority of the works concentrate on scientific (or more properly, natural philosophy), mathematical, and medical subjects. Almost all of the Dibner Library's incunabula were originally collected by Bern Dibner for the Burndy Library. The web site collects the bibliographic information from the Smithsonian online catalog, SIRIS, and allows people to more easily browse our collection. To increase interest, we have started adding images of some of the pages from the works. At the moment we only have a few images but we plan to add more as the opportunities arise. The URL for this site is:
<http://www.sil.si.edu/silpublications/incunabula/>

Scientific Identity

By far, our most popular addition is "Scientific Identity: Portraits from the Dibner Library of the History of Science and Technology." Authors and publishers needing portraits for their books or exhibitions have discovered this site and are making great use of it. Bern Dibner starting assembling his scientific portrait collection in the 1940s. The portraits he collected are of various types: woodcuts, copper and steel engravings, mezzotints, lithographs, oil paintings, and photographs. Many of them are images that were printed as separate items, used as gifts to send to colleagues and admirers. The exchange of portraits among scientists in the eighteenth century became a popular form of correspondence. A number of prints also served as frontispieces of books and, unfortunately, a few of the prints in the collection had originally been bound as pages in books and removed some time in the distant past. The entire portrait collection was part of the original gift from the Burndy Library in 1974, but Bern Dibner's image collection was eventually split between the two libraries. In the end, approximately one thousand portraits were transferred to the Dibner Library and the rest, including almost all of the over one hundred oil paintings, remained with Bern Dibner and are still at the Burndy Library and Dibner Institute of the History of Science and Technology in Cambridge, Massachusetts.



Caricature of Thomas Henry Huxley by Carlo Pellegrini ("Ape") appearing in *Vanity Fair*

The 643 people currently represented in the Dibner Library portrait collection are primarily scientists, natural philosophers, engineers, and inventors. There are a handful of individuals with no direct relationship to a scientific or technological enterprise, but they have been included for completeness. For purpose of practicality, the individuals have been classified along broad disciplinary categories similar to those used by Bern Dibner.

Continued on page 6

Dibner Library's Web Site, continued...



Early engraving of mathematician Jean de Montréal

For nearly thirty years, the portraits have resided in the Dibner Library's climate-controlled stacks, available to researchers but not cataloged. Now, with the increased ability to provide digital access to research collections and thanks to a grant from the Research Libraries Group, the Scientific Identity site will finally allow an unprecedented level of access to the Dibner Library portrait collection. In the future, we plan to supplement this collection with portraits of other scientists that are bound into the rare books in the Dibner Library. The URL for this site is: <http://www.sil.si.edu/digitalcollections/hst/scientific-identity/>

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

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