

URANIA OBSERVED

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The public interest in astronomy, so often cited in this Colloquium, is demonstrated by the many works of art over the centuries with astronomical content. We mounted an exhibition, named *Urania Observed* after the muse of astronomy, at the Clark Art Institute to coincide with IAU Colloquium #105 on the Teaching of Astronomy and with the Sesquicentennial of the Hopkins Observatory. We thank Wayne Hammond of the Chapin Library for his expert assistance with this exhibition.

1. François Denis Née (French, c. 1735-1818)

After a design by Charles Nicholas Cochin fils, French, 1715-1790

ALLEGORY OF ASTRONOMY (Line engraving)

Lent by Jay M. Pasachoff

Frontispiece

Née was much in demand as an engraver of designs by illustrators such as Eisen, Gravelot, Marillier, Moreau le Jeune, and Cochin. Cochin produced large numbers of drawings to be turned by engravers into book illustrations. Although the print on view is signed as if designed by Cochin fils, it was his father who published a book entitled *Iconology in Figures*, with the assistance of Hubert Gravelot. Astronomy is presented as part of what was then defined as Mixed Mathematics, a discipline that taught how to know the celestial bodies, their sizes, movements, distances, eclipses, etc. There is a sphere, following the Copernican system, a telescope, and on a roll of paper appear four tracings of ellipses of several comets. The print on view, dated 1773, is identical to the one in the book except that it lacks a full inscription.

2. Honoré Daumier (French, 1808-1879)

FOUR CARTOONS FROM A SERIES COMPRISING 10 PIECES ENTITLED:*THE 1857 COMET* (Lithographs)

Lent by Jay M. Pasachoff

Daumier's comic lithographs, executed to be published in a newspaper, are magnificent testimonies to his genius. With witty captions supplementing his eloquent crayon, he captured the very essence of his times and dramatized the appearance of his contemporaries in memorable fashion. Daumier has chosen in his captions to the 1858 Comet series to ridicule superstitions about comets prevalent in his day. In No. 2, a man rejects a raffle ticket because it is dated two days after the expected appearance of the comet. Two neighbors in No. 3 discuss the comet but it turns out that one of them has mistaken the smoke of the chimney for it, so they reassure each other and continue to feel safe. No. 4 shows a servant giving notice because she does not want to be overtaken by the end of the world at her workplace. No. 8, perhaps the most ironic, has an old bourgeoisie brokenhearted in expectation of the

world's end and the inevitable demise of her beloved little dog Azor, as she has no fear of death for herself.

3. **Albrecht Dürer** (German, 1471-1528)

MELANCOLIA I (Engraving)

Clark Art Institute Acc. No. 1968.89

Dürer's *Melancholy* is perhaps his best known print. It is recorded that he used to present it to friends with his engraving showing St. Jerome in his study. The complexity of allusion in *Melancholy I* has been studied in great detail by Professor Panofsky in his unsurpassed book on Dürer. Panofsky contrasts Dürer's vision of Jerome, secluded in his warm and sunlit study, with Melancholy, placed in a chilly spot "dimly illuminated by the light of the moon — as can be inferred from the cast shadow of the hourglass on the wall — and by the lurid gleam of a comet which is encircled by a lunar rainbow."

4. **Etienne Léopold Trouvelot** (French, active in the United States, 1827-1895)

THE GREAT COMET OF 1881 (Chromolithograph)

Lent by Sawyer Library, Williams College

p. 188

Trouvelot's magnificent chromolithographs were issued in 1882 by Charles Scribner's Sons. Trouvelot was a professor at Harvard, an expert in astronomical drawings, and the author of a manual on the subject. Although Trouvelot considered himself a scientist and his name does not figure in art historical works, his drawings have artistic significance and importance as independent works of art. Photography rendered obsolete Trouvelot's remarkable power for recording his observations, which had gained him the admiration of colleagues and contemporaries. His objectivity and accuracy were greatly appreciated.

5. **Etienne Léopold Trouvelot** (French, active in the United States, 1827-1895)

SOLAR PROTUBERANCES (Chromolithograph)

Lent by Sawyer Library, Williams College

Trouvelot entitled this print *Solar Protuberances*, which in our day are generally referred to as solar prominences. A solar prominence is a glowing gas at a temperature of about 15,000 degrees Celsius, suspended over the sun by the solar magnetic field.

6. **Nathaniel C. Sanborn** (American, 1831-1886) and **John L. Lovell** (American, 1825-1903)

TWO VIEWS OF THE HOPKINS OBSERVATORY ABOUT 1870 (Albumen prints)

Lent by the Williamsiana Collection, Williams College

The Hopkins Observatory, the oldest extant observatory in the United States, was erected in 1836-38 after the design of Professor Albert Hopkins, who built it with the help of his students. The handsome building echoes the Federal style adopted for buildings of the time in the college.

Sanborn and Lovell were 19th-century Massachusetts photographers, active in Lowell and in Amherst, respectively. Lovell was especially noted for scientific photography.

7. **Anonymous** (19th-century American photographers)

STEREOSCOPIC VIEW OF THE HOPKINS OBSERVATORY (Albumen prints)

Lent by the Williamsiana Collection, Williams College

p. 322

Stereoscopic views became very popular after the advent of photography in 1839. The first used daguerreotypes, and special cases were developed to see them. After the development of paper prints, a stereoscopic viewer was invented in which views could be changed easily. Mounted on cardboard, stereoscopic views became a standard feature of American living rooms and continued to be commercially produced until as late as the 1920s.

8. **Anonymous** (19th-century English artist)

DONATI'S COMET SEEN OVER A LANDSCAPE, 1858 (Watercolor)

Lent by Roberta Olson and Alexander Johnson

9. **Workshop of Wolgemut and Pleydenwurff** (German, active last decade of 15th century)

COMET OF 813 ON A PAGE FROM SCHEDEL'S *LIBER CHRONICARUM*
(Woodcut)

Lent by Jay M. Pasachoff

The text of the Latin *Chronicle*, published in Nuremberg in 1493, was written by Hartman Schedel (1440-1514), a prominent humanist of Nuremberg as well as the town physician. Michael Wolgemut (1434-1519) was a painter and printmaker who married the widow of the artist Hans Pleydenwurff (died 1472). Associated with his stepson Wilhelm, Wolgemut operated a workshop where woodcut illustrations for books were produced. For a time, among the young apprentices in this workshop was the young Albrecht Dürer. The *Nuremberg Chronicle* contains 13 comet illustrations, all printed from four woodblocks.

10. **Anonymous** (Mid-19th-century English designer)

FULL MOON AND COMET LETTER OPENER (Brass)

Lent by Roberta Olson and Alexander Johnson

11. **Rebecca Emes and Edward Barnard I** (English, flourished from 1808 to c. 1825)

TANKARD, 1811 (Silver)

Clark Art Institute Inv. No. 114

p. 430

The decoration of this cylindrical tankard is quite extraordinary because instead of the more customary armorials, it is engraved with representations of a comet, three planets, and numerous stars. Its finial is formed as a 12-pointed star which rises out of a mass of clouds. The planets identified as Saturn, Uranus, and Jupiter are three of the seven known in 1811 when the tankard was made. The engraved comet is most likely the Great Comet of 1811, visible for a period of 17 months. Emes and Barnard (whose mark can be seen with the London hallmarks to the upper right of the handle) served a wide range of customers, including several prosperous retailers. Well-known as purveyors of uncommon wares, Emes and Barnard were a logical choice to execute an unusual commission. The only clue to the identity of the owner is a script initial F and a small crest, probably that of the Frend or Friend family of County Limerick in Ireland, engraved on the handle, just below the shell-shaped thumbpiece.

12. **Hendrik Goltzius** (Dutch, 1558-1617)

THE MUSE URANIA (Engraving)

Lent by the Williams College Museum of Art

Urania is the muse of Astronomy. The engraving on view is part of a series of the nine muses that was issued by Goltzius. The sphere has been traditionally associated as an attribute of Urania.

13. **Anonymous** (Italian)

Title Page of *Practica Musicae* by Franchino Gaffurio

MUSIC OF THE SPHERES, Milan: 1496 (Woodcut)

Lent by the Chapin Library of Rare Books, Williams College

p. 72

This wonderfully composed cut is an allegory, showing the derivation of Music from Apollo (seated at top), the Muses (left-hand figures), and the Celestial Bodies (right-hand figures). Each planet is drawn with its traditional astrological figure. Note, too, that Urania, the muse of astronomy, is the first of the muses.

14. **William Blake** (English, 1757-1827)

after a design by Henry Fuseli, Swiss, working in England, 1741-1825

Plate in *The Botanic Garden* by Erasmus Darwin

FERTILIZATION OF EGYPT, London: 1795 (Engraving)

Lent by the Chapin Library of Rare Books, Williams College

p. 38

For the third edition of this famous poem with scientific notes, all composed by the grand-

father of Charles Darwin, Blake executed several new plates after designs by his friend and frequent collaborator, Henry Fuseli.

Here Sirius, or the Dog Star, is depicted as the portent of the summer rise and flooding of the Nile, which annually deposits rich soil in the river's flood plain.

15. **Jacob Andreas Friderich** (German, 1684-1751)
after a design by Melchior Füssli, Swiss-German, 1677-1736
**Plate in *Kupfer-Bibel* by Johann Jacob Scheuchzer TAB. I. GENESIS I: 1. CRE-
ATIO UNIVERSI**
Augsburg & Ulm: 1731, Vol. I. (Engraving)
Lent by the Chapin Library of Rare Books, Williams College
- This artistic composite of astronomical knowledge includes a pre-Copernican cosmological diagram in the upper left, and a diagram of relative planet sizes in the lower right. Scheuchzer was one of the great scientific writers of his age, and in his six-volume *Physica Sacra* or *Kupfer-Bibel* he attempts to give the 18th-century scientific view — in word and picture — or every material thing of physical event described in the Bible.
16. **Johann Georg Pintz** (German, 1697-1767)
TAB. DXIV. JOB IX: 9. PLEJADES, ORION, URSA MINOR **Opposite p. 1**
TAB. DXXIX. JOB XXXVIII: 4-6. TERRA DEI
ARCHITEKTONAEMA
TAB. DLXIII. PSALM CIV: 5-9. TERRA SUI S FUNDATA BASIBUS (Engravings)
Lent by the Chapin Library of Rare Books, Williams College
- Extracted from the *Kupfer-Bibel*, these plates are part of the suite of 750 executed in the great engraving workshop of Johann Andreas Pfeffel, by appointment, engraver to the Emperor.
- Plate DXIV interprets the passage in Job's first speech of resignation: "it is God ... who made Aldebaran and Orion, the Pleiades and the Circle of the southern stars."
- Plate DXXIX is a baroque picturing of a passage drawn from God's final answer to Job: "Where were you when I laid the earth's foundations, who settled its dimensions, who stretched his measuring line over it?"
- Plate DLXIII continues the praise of God for creating the heavens with praise for his creation of the earth: "Thou didst fix the earth on its foundation so that it never can be shaken; the deep overspread it like a cloak. ..."
17. **Stefano della Bella** (Italian, 1610-1664)
Frontispiece of *Dialogo*, by Galileo Galilei
ARISTOTLE, PTOLEMY, AND COPERNICUS, Florence: 1632 (Etching)
Lent by Jay M. Pasachoff **Cover**
- Perhaps the most famous image in all of astronomy after the heliocentric diagram in the 1543 Copernicus, this etching captures the feeling of walking on eggshells that was embodied in *Dialogue concerning the Two Chief World Systems — Ptolemaic and Copernican*. Aristotle, with his back to the viewer, was an acceptable philosopher to the Catholic Church, and is seen here as the moderator. Though the book caused its author to stand trial for heresy for again defending Copernicanism, the young artist of the frontispiece had no such problems and enjoyed patronage and commissions in great number. It is estimated that della Bella executed nearly 1400 engravings during his lifetime.
18. **William Blake** (English, 1757-1827)
Plate 14 in *Illustrations of the Book of Job*
**WHEN THE MORNING STARS SANG TOGETHER AND ALL THE SONS
OF GOD SHOUTED FOR JOY**
London: March 1826. Proof copy (Engraving with etched border)
Lent by the Chapin Library of Rare Books, Williams College
- Apprenticed as an engraver of other artists' designs, Blake chose engraving for his own

numerous publications. Job, his final work, is considered his finest both technically and artistically.

Job 38:7 is illustrated here in the central panel. In the borders we see the artist's outline etchings of the days of creation. God, who is being quoted in the caption, forms the central figure, while Job, restored to his wife and friends, kneels below, and the sons of God rejoice among the stars above.

19. **Alexander Mair** (German, 1559-1625)

Plates in *Uranometria* by Johann Bayer, 1572-1625

ARGO NAVIS (ARGONAUT'S SHIP) and CYGNUS, Augsburg: 1603 (Engraving)
Lent by Jay M. Pasachoff p. 210

Some eight reissues of Mair's plates for Bayer's atlas appeared in the 17th century, but the plates are most brilliantly reproduced in this first edition of the first consciously artistic multi-sheet star atlas (48 maps). Bayer recorded at least 1700 stars from the Ptolemaic catalogue, his own observations, and the most recent observations of Tycho Brahe. Interestingly, Bayer was only an amateur astronomer; by training and occupation he was a lawyer.

20. **Friedrich Gottlieb Berger** (German, 1713-1800)

After charts by Johann Elert Bode, 1747-1826

Plate in *Uranographia, sive Astrorum descriptio* by Johann Elert Bode

Tab. XIV. VIRGO, LIBRA, TURDUS SOLITARIUS, Berlin: 1801 (Engraving)
Lent by Jay M. Pasachoff

Bode (1747-1826) was director of the observatory of the Berlin Academy of Sciences for forty years. Bode, in his final celestial atlas (he had published earlier atlases in 1768 and 1782), records 17,240 stars on his two hemisphere maps and eighteen maps of ninety-nine constellations, centered on the vernal and autumnal equinoxes. This is the last great star atlas — later popular ones used only stars visible to the naked eye, while ones prepared for astronomers reduced or eliminated the traditional, contrived constellation figures.

21. **Anonymous** (Italian)

Page in *Poeticon Astronomicon* by Hyginus

ARA AND HYDRA, Venice: 1482 (Woodcuts)

Lent by the Chapin Library of Rare Books, Williams College

The thirty-nine constellation figures in this first illustrated edition of Hyginus undoubtedly were based on the simple figures found in manuscripts circulated since the 13th century. The medieval tradition of these pictures, rather than the Ptolemaic, is manifested by the demons drawn around the basic figure of the constellation Ara.

22. **Anonymous** (Italian)

Frontispiece of *Epytoma in Almagestum Ptolomei* by Johannes Regiomontanus

PTOLEMY AND REGIOMONTANUS WITH ARMILLARY SPHERE, Venice: 1496 (Woodcut with wood engraving as border)

Lent by the Chapin Library of Rare Books, Williams College

p. 6

Creator of the first observatory in northern Europe (at Nuremberg in 1471), Regiomontanus (Hans Mueller) was called to Rome as papal astronomer in 1475, but died in 1476.

Considered one of the very finest Venetian cuts of the late 15th century, the image accompanies Regiomontanus' condensation or digest of the *Almagest* or system of cosmology of Ptolemy. Since 1400, the rediscovered scientific writings of Ptolemy had been favorites of Renaissance Italian scholars.

23. **Anonymous** (16th-century Swiss artist)

Comet on a Page from *Prodigiorum et Ostentorum Chronicon* (Woodcut)

Lent by Roberta Olson and Alexander Johnson

This page comes from a book published in Basel in 1557. The author was the German philologist Conrad Wolffhart, a professor at the University of Basel, born about 1518 in Al-

sace, who died in 1561 after a distinguished career. As a humanist, Wolffhart had translated his surname into its Greek equivalent of Lycosthenes. In 1559, this work on portents and prodigies as well as the whole literary output of Wolffhart were condemned by Pope Paul IV and included in the Index of forbidden books.