



The UNIVERSITY of
OKLAHOMA LIBRARIES
Special Collections



SOONER HORIZON

SPRING 2016

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On the Cover: TOP Decorative screen designed by Joe Taylor on display in the Barbara Brite Paul Grand Foyer of the Bizzell Memorial Library.
BOTTOM "The Barbara Brite Paul Grand Foyer.

Letter from the Dean

As we embark on a new year at OU Libraries, we reemphasize the role of the libraries as active participants in the creation of knowledge. Peering inside our doors, the library is an essential component in understanding how to look at knowledge transmission today. As the hub of campus, intellectually and geographically, we are at the center of both where cultural meaning resides in our repositories, and where an open door enables the scaffolding for new learning modalities. It is with this perspective of facilitating active engagement, collaboration and the creative exploration of new ideas that we narrate the initiatives within this publication.

Professors Keith Gaddie and David Wrobel have successfully demonstrated the synergistic combination of library collections, new staff capabilities and use of renovated facilities in a unique and creative fashion. By combining university sponsorship of a Presidential Dream Course, with the holdings of the Western History Collections and the advanced technology of the libraries' Digital Scholarship Lab, they created an academic experience that extends well beyond the traditional classroom. Aside from the incomparable impact of the course on its students, the creation of the knowledge generated from this unique experience is something now captured and preserved for exploration and extension in future classes. This course is a model for how creative ideas can be achieved collaboratively to advance academic excellence across departments and across the campus in a way unique to the University of Oklahoma.



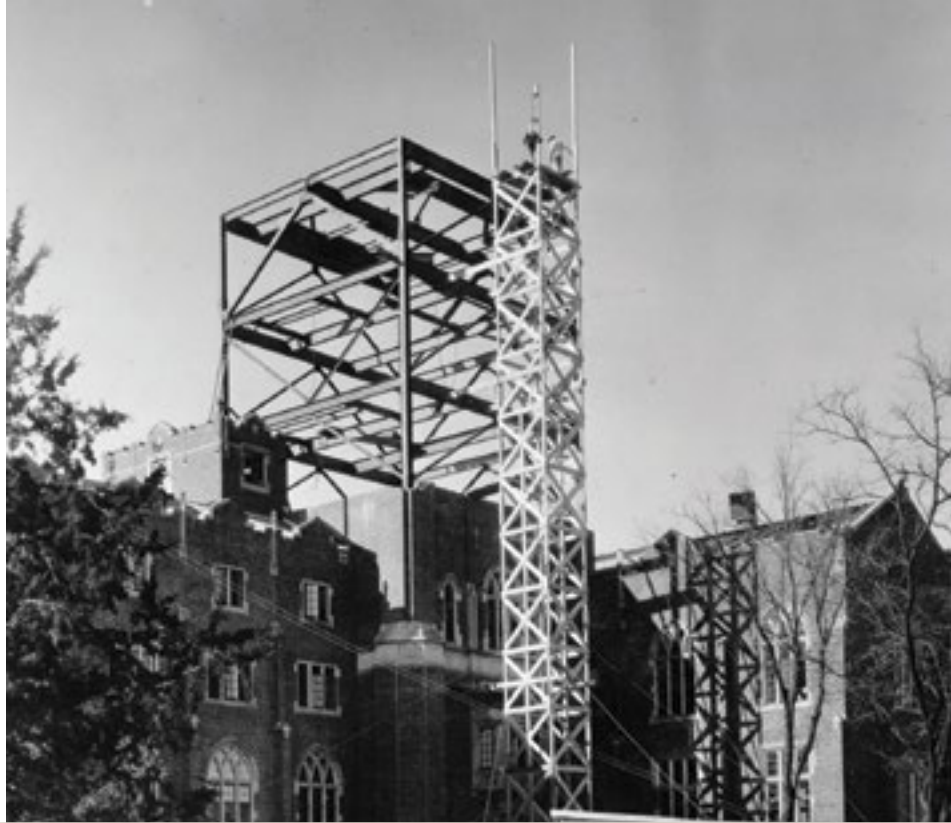
As our libraries continue to grow our facilities to meet the rapidly escalating demand for collaborative and technologically enabled spaces, we remain equally focused on strengthening the diversity of, and access to, our special collections. A recent gift by Wai-lim Yip to our Chinese Literature Translation Archive adds new opportunities for multicultural exploration and international collaboration through the digitization and open access of previously unexplored manuscripts and artifacts relevant to the processes of language translation and the creative, contextual nuances that enable deeper meaning and facilitate rich academic exploration.

These new endeavors are examples, along with the *Galileo's World* exhibition, of enabling creative synergy through our special collections while also introducing our multidimensional resources to entirely new audiences. It is our vision to actively enable the amazing ideas of our OU faculty and students, together with our highly skilled team, to create new knowledge that inspires and advances.

Sincerely,

A handwritten signature in blue ink, which appears to read "Rick Luce".

Rick Luce
Dean, University Libraries
Professor and Peggy V. Helmerich Chair
Associate Vice President for Research, Norman Campus



TOP LEFT Students gather in front of a WPA built warehouse in Guthrie, OK. BOTTOM LEFT Students doing research in the Western History Collections. RIGHT Construction of the Memorial Union Tower, January 3, 1936. Roy E. Heffner Collection, no. V2981

Discovering, Creating, Collaborating: A Model for Academic Excellence

It began as a conversation; we talked about doing a book together, a revisiting of *Oklahoma, a Guide to the Sooner State* (University of Oklahoma Press, 1941). But we quickly realized the enterprise was a massive one. An accomplished team of writers, including the revered historian Angie Debo, had collaboratively created the Oklahoma guide, one of the finest of all the state guides, financed by the New Deal's Works Progress Administration (WPA).

If not a book, then what about a course, we wondered. A course that would turn students into creators of new knowledge about the past and history's continuing role in illuminating the present. And a course focused on a single decade—the 1930s—during which the nation was transformed, politically, economically and culturally, in profound and enduring ways that continue to shape the landscape of the American present.

That course—generously funded by the Office of the President as part of OU's Presidential Dream Course series, and brought to life through the collaboration of the Office of the Provost, the OU Libraries, and the College of Arts and Sciences—*Making Modern America: Discovering the Great Depression and New Deal*, welcomed 50 undergraduates,

while a concurrent companion course with 45 students was offered through the OSHER Lifelong Learning Institute. At our Monday lectures, we saw a wonderful mix of students, ranging in age from about 19 to 90 and a fantastic example of the benefits of an intergenerational learning environment.

In addition to bringing in distinguished guest speakers such as David Levy, David Kennedy, Charles Bullock and Susan Shillinglaw, we also ran a 1930s film series for students and the OU community, featuring classic movies from the era, along with the newsreels and animated shorts that accompanied them when originally shown in an attempt to recreate the movie-going experience of the '30s. Students also traveled to central Oklahoma, up to OSU, and on to Guthrie and Edmond to view the lasting legacy of the New Deal in the built environment of the region.

The course's most important creative enterprise was the digital reconstruction of the built environment of the New Deal at OU, in Norman, Oklahoma City, and other central Oklahoma communities; it features some of the tours along various Oklahoma state highways that appeared in the original state guide and of some landmarks of greatness that have shaped the cultural legacy of the thirties, including



ABOVE Cleveland County Court House, c. 1906. This was later demolished by WPA workers. Norman, OK Collection, no. 8

We had a vision for a course. That vision has become a reality, and a seemingly successful one, only because of the incredible support that the OU Libraries has provided.

an exhibit on John Steinbeck's *The Grapes of Wrath* that was displayed in the OU Memorial Union in March 1940.

Through a series of workshops on archival research—drawing on OU's superb Western History Collections, and the Carl Albert Center for Congressional Research—students learned mapping, field research, oral history, and website building. Our students have acquired the requisite skills to reconstruct the landscapes of the past, and they've done so with impressive energy, enthusiasm, and insightfulness.

The students' achievements to date have been outstanding, but that is the case primarily because their efforts have been built on a remarkable set of human foundations, and the resources of the OU Libraries. We had a vision for a course. That vision has become a reality, and a seemingly successful one, only because of the incredible support that the OU Libraries has provided.

Sarah Clayton, OU Libraries digital scholarship fellow, was our co-instructor for the course. Sarah coordinated all of the group projects and provided the core instruction in exhibit

building, website construction, field research, and digital mapping, not to mention the positive, up-beat outlook that convinced the students that all things are possible. Tara Carlisle, who directs the OU Libraries' Digital Scholarship Lab, provided direction in oral history techniques. Jeff Widener, OU Libraries' GIS specialist, conducted workshops in GIS mapping. Laurie Scrivener, the History Librarian, and Jackie Reese, the Western History Collections Librarian, directed archival research workshops, with the assistance of Professor Emeritus and OU's official historian, David Levy. Carl Albert Center archivists Nathan Gerth and Rachel Henson created a guide to all the CAC's New Deal materials and instructed the students on how to navigate those collections.

A core instructional team of three, with a supporting team of seven, helped us take an idea for a course and turn it into a model for the full integration of library faculty, staff and resources into the curriculum. All of which seems particularly fitting when we consider that William Bennett Bizzell, for whom the OU library is named, wrote the foreword to the Oklahoma guide in May 1941 (just a few weeks prior to his retirement as OU president), the book that provided the original spark for our collaborative enterprise.

David Wrobel and Keith Gaddie
Presidential Dream Course instructors

View student projects at
newdeal.oucreate.com



ABOVE LEFT Letter from Josh Lee regarding PWA funding for the Business Administration and Science Buildings, January 1936. *University Archives Record Group 03 William Bennett Bizzell, Box 98, Folder 21* ABOVE RIGHT Students researching in the Helmerich Collaborative Learning Center

SUPPORTING UNDERGRADUATE RESEARCH

OU Libraries played an integral role in supporting students' research throughout the course by helping to develop project topics, instructing students on different research methods, providing resources and holding individual consultations with students, and training students on the technology and techniques needed to share their findings on an online platform.

To prepare students to conduct original research, the libraries facilitated weekly workshops focused on different research techniques. During these interactive sessions, students worked with GIS software to create maps, looked through archival documents at the Western History Collections, searched the Carl Albert Center's online resources to find relevant materials, and thought critically about field research and oral histories practices.

These workshops, led by librarians and other experts, were primarily held in library spaces. The Peggy V. Helmerich Collaborative Learning Center classroom provided students with the technological support and a flexible environment necessary to easily shift from traditional instruction to small group work.

After a few introductory workshops, the students were divided into small groups and assigned projects focused on Oklahoma during the 1930s. The library worked with the course instructors to develop research topics that were relevant, engaging, and utilized the resources at OU Libraries.

OU Libraries faculty and staff developed a comprehensive research guide covering all of the material highlighted during the workshops as well as additional resources. Both

the Carl Albert Center and Western History Collections provided guided research assistance and digitized relevant material on request.

The Digital Scholarship Lab hosted weekly drop-in sessions where students could receive one-on-one help with any aspect of the course. During this time, students continued workshop exercises and asked questions about their assignments and the course more broadly. They also received assistance navigating databases, creating digital maps, editing the audio and video files collected during oral histories, and working with the tools needed to create their digital exhibits.

The students approached their research projects with ready enthusiasm and excitement. They took the skills and confidence they acquired during the course to engage with organizations and resources beyond OU including the Oklahoma Historical Society, the Oklahoma City Zoo, and archives of *The Oklahoman*. Overwhelmingly, the students provided positive feedback about their research experiences. Several will continue to work to expand their projects and the larger site during the spring semester.

The students populated an interactive website showcasing their research. By sharing their findings online, the students not only began to develop their own professional portfolios but also created content that will be valuable to researchers and the public.

Sarah Clayton
Digital Scholarship Fellow



ABOVE LEFT Construction of Adams Hall as seen from Richards Hall, April 15, 1936. Roy E. Heffner Collection, no. V3326
ABOVE RIGHT The Western History Collections Reading Room

THE WESTERN HISTORY COLLECTIONS AND MAKING MODERN AMERICA

Two separate course instruction sessions were hosted in the Western History Collections' reading room, which served several purposes. Meeting in the reading room familiarized the students with the space, making it less intimidating for a future research visit, while highlighting potential resources students could use for their class projects. During the first meeting, the librarians explained the basics of archival searching and the specifics of researching at the WHC. The GIS librarian explained photograph analysis, for the class to then use historic images of Norman and OU New Deal projects as examples for practicing photograph analysis.

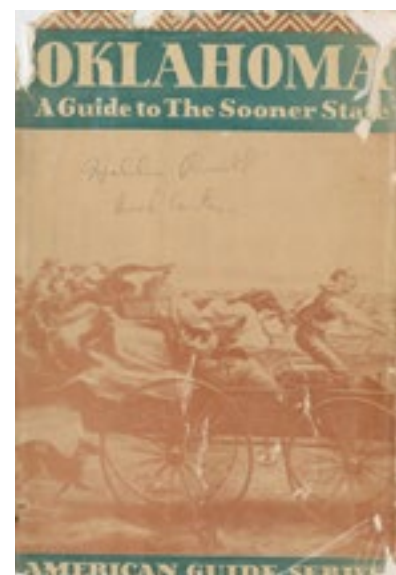
The second visit focused specifically on OU history. Professor David W. Levy, OU's historian, spoke about several useful resources that provide significant amounts of information about OU. The WHC librarian discussed the University Archives and how to use these primary sources for their projects. The students then practiced document analysis by examining selections from University Archives finding aids paired with relevant materials from the William Bennett Bizzell Presidential Papers and the Morris Wardell Collection. This exercise gave the students first-hand experience using a finding aid, examining materials in an archival box, and determining if the information in the documents was useful for their project.

Throughout the course, students visited the WHC for research assistance. Manuscript collections related to the Works Progress Administration, particularly the Federal Writers' Project, provided primary source material for students as they worked on the second major project, reconstructing tours from *Oklahoma: A Guide to the Sooner State*. The

WPA Historic Sites and Federal Writers' Project Collection contains the material for the original 1941 publication, which students were able to use to support their tour reconstruction efforts.

Students were exposed to primary sources in different formats by examining photographs, books, manuscripts, and university archives. These resources helped them dig deeper into their topics and see historic events and objects from a new perspective.

Visiting a special collection helped ease students' fears about conducting archival research and introduced them to a new, quiet study space for working on other class assignments. It also raised awareness of resources that can transcend this course, informing them of unique resources that may be helpful throughout their academic careers at the University of Oklahoma.



Jacquelyn Reese
Western History Collections Librarian



LEFT Assorted books by Wai-lim Yip RIGHT Wai-lim Yip.

Chinese Literature Translation Archive: Recent Acquisitions

There are few writers who have been more central to the development of transpacific Chinese-English poetry and poetics than Wai-lim Yip, Professor Emeritus at University of California, San Diego. His works in English, including *Ezra Pound's Cathay*, *Chinese Poetry: An Anthology of Major Modes and Genres* and a career-spanning collection of essays—*Diffusion of Distances: Dialogues between Chinese and Western Poetics*, have been basic reading for American poets and students of Chinese poetry for decades.

In Chinese, his footprint is even larger. Not only have his translations of English modernist poetry inspired generations of poets in mainland China, Hong Kong, and Taiwan, but his own poetics and poetry can be credited with having transformed some of the fundamental elements of Chinese poetic syntax and prosody. Yet Yip's scholarly works may have been even more influential in China with dozens of titles published over the years in Taiwan and the People's Republic of China.

In 1981, Wai-lim Yip gave a series of foundational lectures on East-West poetics at Beijing University, which the well-known Chinese scholar Yue Daiyun heralded as "a creative new start" for Chinese poetics. In fact, these lectures could also be considered as the birth of an entirely new discipline, one he coined as "Comparative Poetics." In March 2008, a conference on Yip's poetry took place where nearly 40 scholars presented their papers on Yip's work. The conference was jointly organized by the Institute of New Chinese Poetry of Beijing University, and the Research Center of Chinese Poetry of Capital Normal University in Beijing. While Yip may have worn many hats over his long and productive career, one need only peel back a layer or two from any of his works to find the bedrock of translation. Therefore, the importance of Yip's

gift of his English-language papers to the OU Libraries' newly established Chinese Literature Translation Archive cannot be overstated. Yip's papers include rare first editions of his early works, unpublished book manuscripts, syllabi, course readers, correspondence and more.

The OU Libraries' Chinese Literature Translation Archive was officially established in 2015, with the seed collection of America and Germany's most prolific literary translators from Chinese—Howard Goldblatt and Wolfgang Kubin. The Goldblatt collection includes over 6,000 volumes from Goldblatt's personal library as well as other important papers including correspondence between him, as the translator, and numerous Chinese authors from across China, Taiwan and beyond. His collection also contains artifacts by other translators, editors, publishers and key figures within world literary production and circulation.

The Wolfgang Kubin collection provides a material foundation for reconstructing the history of Chinese poetry, and poets, in Germany from the mid-1980s to the present. Brought to life through correspondence, poetry, calligraphy, notes, translations, memorabilia and news clippings, among other holdings, the mission of the archive is to change the way we study world literature by granting scholars the concrete textual material they need to rigorously study the process of translation through various historically specific networks, linguistic and cultural negotiations. The archive, which will include significant digital components in the near future, will allow scholars in China or elsewhere around the world to access the materials housed at OU.

Jonathan Stalling
Curator, Chinese Translation Archive and Collections

DIGITIZING THE CHINESE TRANSLATION ARCHIVE

A priority upon the receipt of the Howard Goldblatt and Wolfgang Kubin collections by the University Libraries was to begin digitizing items, including handwritten items in English and in Chinese, and several large calligraphy pieces on rice paper. The handwritten items were scanned with ease, but the rice-paper items presented some challenges.

The overhead scanner the Digitization Lab uses for large items has a black scanner platform. While digitizing these items, we discovered that the rice paper was just translucent enough for the black scanner platform to darken the scan. We tried slipping acid-free white paper behind the rice paper item to make the rice paper appear much lighter, but the edge of the rice paper and the paper's texture were harder to distinguish. Though we ended up scanning against a black background the resulting scanned images clearly show the black calligraphy and red stamps, the texture of the rice paper, and the distinct edge that contrasts with the black platform.

Both technically simple and technically challenging digitization are worthwhile to the extent they create opportunities for scholars to engage with primary sources beyond the constraints of a particular place and time. When high-quality digital images of documents are made accessible online, scholars can begin to do all sorts of previously impossible work.

Unique items, like the large calligraphy pieces on rice paper, become better known and studied once they are accessible digitally, sometimes even for the first time. Once digitized, large collections of related works such as translation notes or letters between colleagues become subjects of scholarly study and the focus of digital scholarly tools for annotation, collaboration and more. Specific digitized items can be

When high-quality digital images of documents are made accessible online, scholars can begin to do all sorts of previously impossible work.

cited in published works with permanent identifiers that will lead to the digital images. The content of printed and typewritten documents can be extracted and associated with the digital images, and for handwritten documents, people can add careful transcriptions. This work makes the contents of those documents accessible for additional deep study through computer-aided full-text searching, text mining, and deep text analysis to examine connections among many documents.

The initial digitization of the Goldblatt and Kubin collections was like the first ink on a calligraphy brush. It enables consideration of the possibilities — in the depth of those particular collections, the present and future extent of the Chinese Literature Translation Archive at OU, and potential scholarship that the archive and any further digitization could enable.

We are excited to welcome Wai-lim Yip's gift into the collection and look forward to making this important work accessible far and wide.

Barbara Lauferweiler
Digitization Lab Coordinator

LEFT Gu Cheng, Wolfgang Kubin Collection. RIGHT Su Tong, Howard Goldblatt Collection.





ABOVE Johannes Hevelius, *Firmamentum Sobiescianum sive Uranographia* (Gdansk, 1690)

Galileo's World Travel Log: Fall 2015

Galileo's World is an exhibition without walls, combining physical exhibits across OU's three campuses with rich digital resources that create a lasting virtual experience to enable global access to resources long after the exhibits close. This spring, we open the final new location and four new exhibits, all of which explore the universe since Galileo. The success of the exhibition so far has shown that creative, bold ideas and strategic partnerships can create academic opportunities that advance library excellence. As we reflect on *Galileo's World* so far, take heart that this is only the beginning of OU Libraries' exhibitions.

Highlights of the exhibition from 2015 include the Bizzell Memorial Library open house held on Sept. 5. Occurring on the first home football game day, visitors were greeted to a new vision of OU Libraries special collections. Welcomed by Joe Taylor's decorative screen and OU artifacts of the history of science curated by OU's Dr. Indestruco, Stu Ryan, the renovation of the 5th floor sets the tone for an exhibit that encourages admiration and interaction. Similar opening events at each of the six locations this fall introduced OU Libraries special collections to new audiences and has prompted an overwhelmingly positive response that we hope to continue into the new semester and throughout the duration of the exhibition.

The Sept. 25 opening forum at the National Weather Center featuring NASA astronaut Lee Morin, along with the NASA Jet Propulsion Lab speaker series continuing through 2016, explores the sense of possibility from Galileo's day to modern space exploration. And as audience engagement suggests, might just be inspiring a new generation of explorers.

A concert series hosted by the OU School of Music connected the contribution of Galileo's father, Vincenzo Galilei, to the creation of the Italian opera and the profound role the humanities have in inspiring scientific advancement. The series concluded with a spectacular finale event, a performance of Monteverdi's first great opera, *Orfeo*, accompanied by the Accademia Filarmonica. This inspiring performance showcased the talents of hundreds of OU School of Music faculty, staff and students and served as the perfect culmination to the series, proving that creative expression can inspire innovation in any field.

Don't miss any of what's coming next. Galileo.ou.edu is our travel log for this adventure. Visit the exhibit pages to see photos from some of the special events, additional resources, new and upcoming events, and more.

Read on for a look at what is opening this semester.



Fred Jones Jr. Museum of Art

Galileo's World: An Artful Observation of the Cosmos

Jan. 22, 2016 - Apr. 3, 2016



Featuring Galileo's *Starry Messenger* (*Sidereus nuncius*; Venice, 1610) alongside a replica of Galileo's telescope on loan from the Museo Galileo in Florence, this exhibit explores the relationship between art and astronomy.

In *Starry Messenger*, Galileo published the first observations of the heavens made with the telescope, reporting discoveries unknown including vast numbers of previously undetected stars, mountains on the moon and four satellites of Jupiter. OU's holding is the only extant copy to contain Galileo's handwriting; the title page bears his inscription to a friend who was a poet in the Medici court.

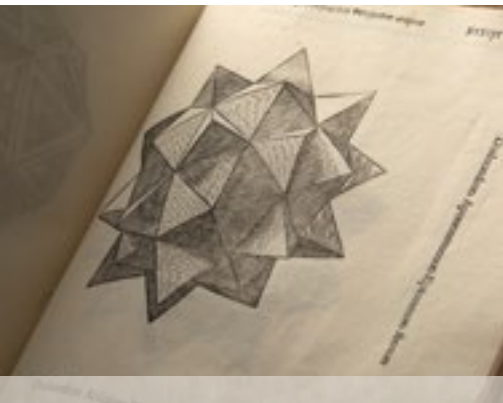


The sensational telescopic discoveries of the *Starry Messenger* were made possible by Galileo's training and experience in Renaissance art. Galileo's scientific discoveries occurred in the context of a specific artistic culture which possessed sophisticated mathematical techniques for drawing with linear perspective and use of light and shadow. When Galileo peered through his telescope and discovered mountains on the moon, his observations were those of an artist, as well as an astronomer. Contemporaries without artistic training were not able to see what Galileo saw; they were able to look but not to see.

The section "Galileo and Art" explores the story of perspective drawing by Leonardo da Vinci to Galileo. Books by Luca Pacioli, Albrecht Dürer, Lorenzo Sirigatti and others are on display alongside numerous works of art from the museum's holdings.

A section on the study of the moon explores the original space race. Galileo's *Starry Messenger* ignited the 17th century race for the moon – not a race to go there, but a

TOP Jean Baptiste Nolin and Arnoldus Deuvez (after Vincenzo Coronelli), Paris, 1693/ c. 1800. MIDDLE AND BOTTOM Galileo Galilei, *Sidereus nuncius* (Venice, 1610; "Starry Messenger").



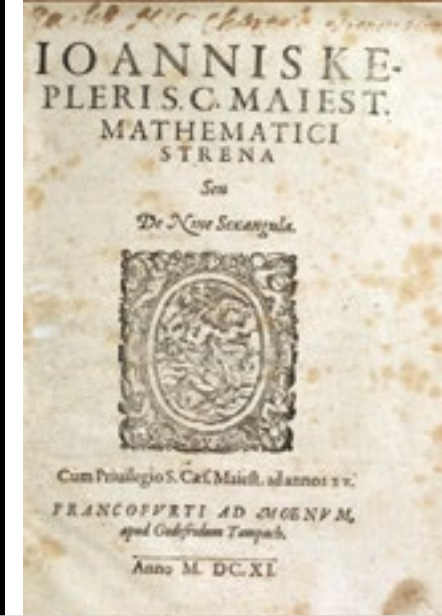
race to map its surface. To stare directly at a full moon is blinding at night; surface detail is entirely washed out. To map the moon, one must examine the terminator, or shadow line, night-by-night as it passes across the face of the moon. Light moves back and forth, first one way and then the other, casting shadows in both directions at opposite phases. The lunar map gradually emerges as a composite representation of many individual topographical studies. From the Renaissance to the dawn of the modern age, art and science have been a crucial pairing in the representation of the moon.

When Galileo observed the belt and sword of Orion the Hunter, and the Pleiades star cluster on the back of Taurus the Bull, the background of night gave way before his eyes. His telescope revealed an astonishing number of unexpected stars never seen before. The 17th century star atlases of Johann Bayer and Johann Hevelius, the 18th century atlas of John Flamsteed, and the 1801 atlas of Johann Bode each combined state-of-the-art scientific observation of the cosmos with appreciation for the aesthetic dimension of the sky at night. They are complemented by Kepler's depiction of the supernova of 1604, hand-colored sections intended for a celestial globe by Coronelli, along with holdings from the museum's collection.

Science and art are the foundation of astronomy. Throughout time and across cultures looking up has meant looking within and looking beyond. This exhibit encourages visitors to discover what they can see when looking at the sky at night.

ABOVE LEFT Luca Pacioli, *Divina proportione* (Venice, 1509)
ABOVE RIGHT Johann Hevelius, *Selenographia* (Gdansk, 1647)
BELOW RIGHT Johann Bayer, *Uranometria* (Ulm, 1661), and (bound with) Johann Bayer, *Explicatio characterum æneis uranometrias imaginum* (Ulm, 1697)





LEFT Maria Cunitz, *Urania propitia* (1650) RIGHT Johannes Kepler, *Strena* (1611)

National Weather Center

Galileo and Kepler

Jan. 29, 2016 - Aug. 31, 2016

The Kepler space telescope launched in March 2009 to search for terrestrial planets around other suns. One month later, five Jupiter-like planets had been discovered. The Kepler telescope has now discovered more than 1,000 confirmed planets.

OU's Kepler collection includes all 11 major works published during his lifetime and a large number of his minor works.

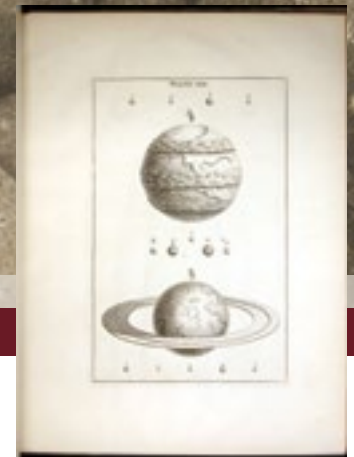
In a public letter, the *Conversation on the Sidereus nuncius*, Kepler expressed support for Galileo's telescopic discoveries. Galileo replied, "I thank you because you were the first one, and practically the only one, to have complete faith in my assertions." But Kepler went further, speculating that the moon and Jupiter might be inhabited, and that explorers from the Earth might be able to visit them. This is the earliest work by a modern astronomer to entertain the possibility of space travel.

Another work on display is Kepler's *New Astronomy* (1609). By analyzing Tycho Brahe's observations of Mars, Kepler put forward what are now regarded as his first two laws. Just as fundamentally, he changed the paradigm from focusing on orbs, or solid spheres, to orbits, the actual path a planet takes as it moves through space.

Prior to Newton, perhaps half a dozen astronomers accepted Kepler's three laws. Galileo was typical in his skepticism toward Kepler's accomplishments. Yet one beautifully illustrated book is an exception; *Urania propitia* (1650) clearly demonstrated that Kepler's laws were more accurate than anything that had come before. Written by Maria Cunitz, one of the first astronomers to endorse Kepler's astronomy, Cunitz recast Kepler's planetary predictions into a form equally accurate but much more convenient and easy to use. In an age when women were not admitted to European universities, Cunitz became one of the most accomplished mathematical astronomers of her generation.

Kepler's contributions reached far beyond the realm of astronomy, to meteorology, mathematics, geology, mineralogy and crystallography. Kepler published the *Strena* (1611), an extremely rare 24-page pamphlet investigating the snowflake, as a New Year's greeting for a friend. Kepler distinguished the way organisms grow, by differentiation, from the growth of crystals like the snowflake, which occurs by accretion. The work stimulated inquiry in mineralogy for the next century. As recently as 1998, Thomas Hales provided a mathematical proof of what became known from this book as "Kepler's conjecture" about crystal packing.

Through these and other books, the *Galileo and Kepler* exhibit introduces the remarkable scientist whom Immanuel Kant called "the most acute intellect ever to have lived."



Galileo and Space Science

Jan. 29, 2016 - Aug. 31, 2016

TOP LEFT Giovanni Domenico Cassini. *Martis circa axem proprium* (Bologna, 1666) TOP RIGHT, ABOVE RIGHT Wright, Thomas. *An original theory or new hypothesis of the universe* (London, 1750) ABOVE LEFT Galileo Galilei, *Dimostrazioni* (Rome, 1613)

Galileo's discoveries with his telescope created a new era for investigations of the sun, planets, space and stars. Galileo's observations of sunspots proved the corruptibility of the heavens. He persuaded others of this argument by employing the most appropriate data visualization technology of the day—a long sequence of full page copper plate engravings of the solar disk. With Galileo, detailed visual representations became essential to space science.

In the late 20th century, spaceships and planetary probes began to reach the moon and other bodies of the solar system. Voyages from Earth include the Galileo mission to Jupiter and the Cassini spacecraft to Saturn, which carried the Huygens planetary probe. These missions bear the names of early space scientists. Galileo, Cassini and Huygens, architects of planetary science, provided the first sketches of the moon, Mars, Jupiter and Saturn. Others investigated the Earth in relation to the cosmos, discerned additional planetary satellites, and discovered unexpected solar system objects.

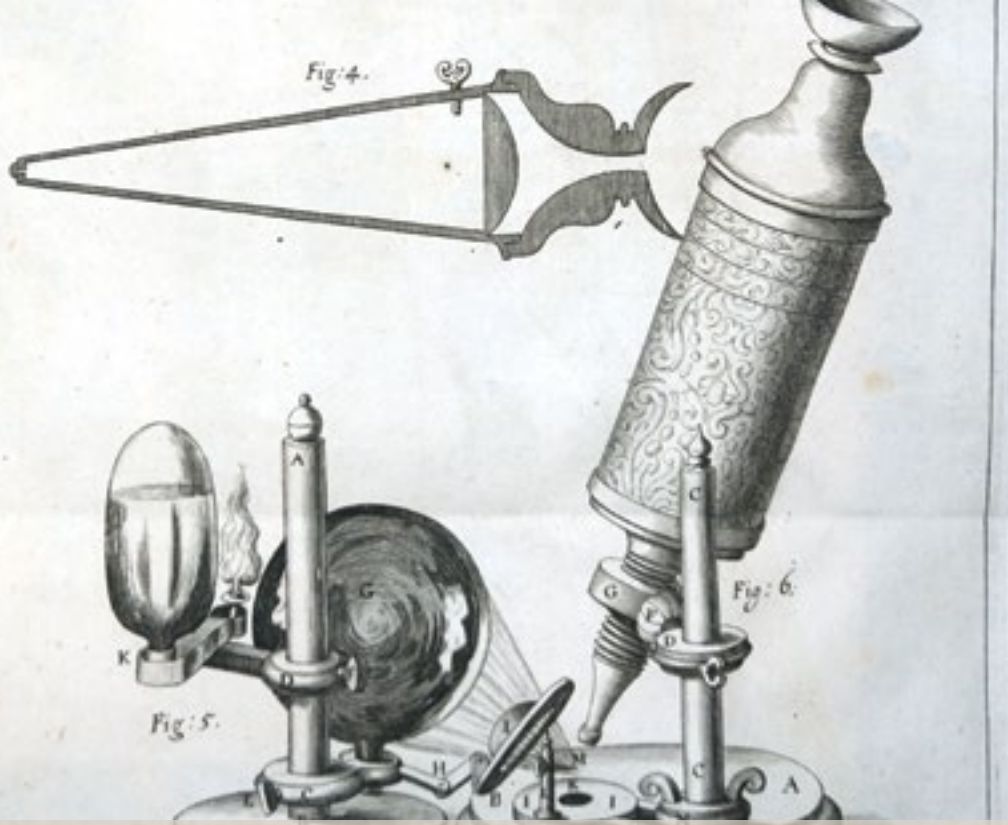
Newton integrated Galileo's terrestrial physics and Kepler's laws of the heavens into a universal theory of gravitation, prompting new reflections on the nature of the universe itself. The example of "nebulae" illustrates these changes. The word "nebulae" meant "clouds" to Latin meteorologists, yet it came to refer to misty clouds in the heavens revealed by telescopes but not easily resolved. Some of these nebulae came to be understood as vast clouds of interstellar gas, sites of the birth and death of stars. Others came to be known as galaxies in deep space, constantly receding in

every direction from our own Milky Way. Developments like these might seem to vindicate Copernicus who wrote, "So vast, without any question, is the divine handiwork of the most excellent Almighty," in *De revolutionibus* censored by the Inquisition in 1616.

Galileo discovered more than 100 unsuspected stars when he turned his telescope toward Orion the Hunter and Taurus the Bull. Ever since, the number of known stars has continued to increase. Ptolemy described 48 constellations in the *Almagest*; currently there are 88 officially-recognized constellations.

Galileo and Space Science includes first editions of Galileo's *Letters on Sunspots* (1613), an early edition of Newton's *Principia* (1729), the earliest detailed sketches of Mars, the earliest hypotheses about galaxies, and other works illustrating the legacy of Galileo in space science by Huygens, Halley, Cassini, Flamsteed, Messier, Bode, Herschel and Hubble.

The National Weather Center's monthly lecture series, cohosted by the College of Atmospheric and Geographic Science and NASA's Jet Propulsion Lab, brings senior research scientists and planetary experts to campus for both a technical talk for OU faculty, staff and students, as well as a public lecture engaging a wide and diverse audience. These lectures, aside from being an amazing educational opportunity, have also led to a valuable partnership with JPL, further exposing the University of Oklahoma and OU Libraries as a resource for cross-disciplinary and innovative approach to academics.



LEFT Robert Hooke, *Micrographia* (1665) RIGHT Francesco Stelluti, *Persio* (1630).

Sam Noble Museum

In *The Assayer* (1623), Galileo announced that he had created a new instrument, “a telescope accommodated for viewing things very close.” It had two lenses, one concave and one convex, mounted in a rigid tube. A fellow member of the Academy of the Lynx, Johann Faber, named it a microscope. G.B. Ferrari, author of *De florum cultura*, which contains the first microscopic plant illustration, called Galileo’s new instrument the “Lincean explorer.” This invention to magnify the minute is one of the most impactful inventions to modern science.

The centerpiece of the exhibit is one of only six extant copies of the *Apiarium* (“On Bees,” 1625), the first published report of observations made with a microscope. In this poster-sized work, Prince Federigo Cesi, founder of the Academy of the Lynx, and Francesco Stelluti, a member of the Lynx, used Galileo’s microscope to study the anatomy of the bee. The text includes classical references to bees as well as new knowledge, integrated in a tabular outline. The title area shows four ancient coins depicting bees, and the crest of the Barberini family, showing three bees.

Early microscopes are displayed alongside spectacularly illustrated works from the classical age of microscopy. As an instrument of discovery, the microscope revealed unsuspected worlds of surprising wonder and complexity. Through the microscope, familiar objects disclosed strange forms. The

Through the Eyes of the Lynx: Galileo and Microscopy

Feb. 6, 2016 - Aug. 31, 2016

common flea, and other observed specimens, appeared as if they were fantastic creatures from another world. These works captured them in detailed illustrations many thousands of times larger than real life.

Microscopists experimented with optics and mounts and tried a variety of simple and complex designs. In some cases, the more complex designs best served the purposes of refined intellectual entertainment while the simple designs proved more effective in conducting research. Eventually, innovations in microscopy led to research traditions in areas as diverse as embryological development, human anatomy, and the extraordinary complexity of life.



LEFT John Hunter, *The natural history of the human teeth*, 3rd ed, (London, 1803). RIGHT Hildegard of Bingen, *Physicas* (Argentorati, 1533)

Robert M. Bird Library, OU-HSC

Galileo and the Health Sciences

Aug. 7, 2015 - Apr. 15, 2016

The Bird Library exhibit on *Galileo and the Health Sciences* is divided into two sections: the first, *Galileo and Anatomy*, was displayed in Fall 2015; the second, *Galileo and Health Care*, is on display for the spring semester.

Galileo studied medicine and was once called as an expert medical witness in a trial. A friend of Galileo's, a physician in Venice, invented a device to measure the pulse. Galileo inscribed an OU copy of a first edition to another physician in Venice. One of the leading physicians of the Renaissance recommended Galileo for a university position. Publication of Galileo's *Dialogue on the Two Chief Systems of the World* (1632) was held up for years due to an outbreak of plague. Galileo's daughter served the health care needs of many, including Galileo. A physician-engineer follower of Galileo applied the physics of the lever and other simple machines to the working of the musculoskeletal system.

In this exhibit, vignettes from Galileo's world and the history of medicine illustrate a variety of health care resources and practitioners, including the following: life cycle care, women's health, pre-natal care, birthing and midwifery, pediatrics, sports medicine and exercise science, epidemiology, contagious disease, preventive medicine, health and wellness, surgery, chemotherapy, data visualization, psychology, nutrition, pharmaceutical preparation, medical commerce, horticulture, government regulations and management, hygiene and health, dentistry, medical education and professional formation.

Explore this exhibit to discover connections between Galileo's world and the world of the Health Sciences at OU today.

SAVE THE DATE
Galileo's World Symposium

Feb. 25, 2016

THE
EARTH



PLATE XXX.

ABOVE Wright, Thomas. *An original theory or new hypothesis of the universe* (London, 1750)

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