



# H·A·D NEWS

*The Newsletter of the Historical Astronomy Division  
of the American Astronomical Society*

Number 61—62



August—November 2002

## It Is Time for the HAD Election Every Vote Counts!

\*\*\* Ballot is on Pages 3—4 \*\*\*

It is time to select the officers for HAD for 2003—2004. The offices up for election this year are the Vice-Chair (who will become the Chair for 2005—2006) and the two at-large Committee Members. No additional nominations were received since the announcement of the preliminary slate, so the final candidates for election are:

HAD Vice-Chair (Chair-Elect):

**Joseph S. Tenn**, Sonoma State University

**Donald K. Yeomans**, Jet Propulsion Laboratory

One of the HAD Vice-Chair's duties will be to serve as Chair of the AAS Obituary Committee. At the end of the Vice-Chair's two year term, he will succeed to be the Chair of HAD.

HAD Committee Members (at-large):

**John W. Briggs**, National Solar Observatory

**Dennis R. Danielson**, Univ. of British Columbia

**Alan W. Hirshfeld**, Univ. of Massachusetts, Dartmouth

**Craig B. Waff**, Grolier, Inc.

HAD members are to vote for no more than two of the candidates. The two candidates with the greatest number of votes will be selected for the HAD Committee.

Detailed information on each of the candidates can be found in the May 2002 issue of *HAD News*. The official ballot is on pages 3—4 of this issue. Please mark your selections carefully. Questionable or incorrectly marked ballots will not be counted! Ballots will be received by the HAD Secretary-Treasurer and tallied by him. Results of the election will be announced at the 2003 HAD Business Meeting in Seattle, WA, January 6.

You may mail the ballots to the address printed on it, but if you feel comfortable doing so, you may also fax the ballot to (202) 633-9102 or you may also email your choices to [brashearr@si.edu](mailto:brashearr@si.edu). Confidentiality of your selections will be rigorously maintained. The deadline for receipt of ballots is **December 23, 2002**.

## The Chair's Corner

In this combined set of issues of *HAD News* you'll find information about how and when to vote for the next HAD Chair-elect and Committee Members. Please take the time to cast your ballot TODAY. We want a good response for this election. Also, please be aware that nominations for the Doggett Prize close at the end of 2002. We will, however, consider supporting letters and other materials for such nominations through the end of February 2003.

Here is a brief overview of our upcoming meeting in Seattle. We'll have four very interesting HAD paper sessions on Sunday and Monday, 5-6 January 2003. The call for papers netted 18 abstracts that have now been sorted into three oral paper sessions and a display paper session. On Sunday afternoon, 2:00-4:00 pm, four invited papers will be presented on topics in the history of solar research. After a half-hour coffee break, three more papers will examine topics from a much earlier time: astronomical alignments, astrology, and the supernova of 1006.

For Monday morning, 10:00-11:30 am, Woody Sullivan has organized a special session on the "History of Ideas on Extraterrestrial Life," in which there will be four invited oral papers. Then we'll hold our HAD Business Meeting, 1:00-2:00 pm, at which there will be reports by the current officers and the installation of the new officers and committee members. On Monday afternoon, 2:00-3:30 pm, there will be six contributed oral papers in a session entitled, "Biography of 19th- and 20th-Century Astronomers." Last, but not least, we'll have an all-day display session entitled, "American Planetary Astronomers of the 1920s." Of interest for those who will be in town on Tuesday, 7 January, Woody Sullivan has organized morning and afternoon paper sessions on the topic, "The Biology of Astrobiology for Astronomers." After these sessions, Steve Dick will give a special invited talk at 3:30 on "Astrobiology and the Biological Universe."

Whether you're presenting a paper or not, I hope that many of you will come to Seattle in January for what promises to be an inspiring meeting.

Barbara Welther, Chair

## 2003 HAD MEETING (In Conjunction with AAS) January 5-6, Seattle, WA

Please plan on coming to Seattle in January where we will have a splendid program for everyone. And since all of you will be voting for HAD officers, you will want to find out first-hand who our next representatives will be!

HAD will be meeting in conjunction with the AAS, whose 201st Meeting will be held at the Washington State Convention and Trade Center, 800 Convention Place, Seattle, WA 98101. The early registration deadline is **November 27**. Copies of the final program will only be mailed to those who pre-register, so be sure you do so early. Registration is \$225 before 11/27 and \$285 after 11/27 for members, so save the \$60 and register now! As before, one-day registrations are available at \$120 for members (\$144 after 11/27). Your spouse or guest can also join in the meeting activities for only \$20 additional (\$25 after 11/27). You can register online, and all details can be found at: [www.aas.org/meetings/aas201/prelim/registra.html](http://www.aas.org/meetings/aas201/prelim/registra.html).

The AAS has contracted a block of rooms at the following hotels:

The **Sheraton Seattle** is the headquarters hotel and the site of the Society banquet. (206-621-9000). It is located directly across the street from the Center. Rates are \$128/ single, \$148/ double and \$20 additional person. Please note that the government room per diem is \$143 in Seattle.

**Elliott Grand Hyatt** (206-774-1234): This new downtown hotel has a fresh new definition for luxury and technology that defines hospitality standards in the Pacific Northwest. A limited number of rooms are available at \$128/single and \$148/double. Addition person in room is \$25. The Elliott is located one short block from the center.

**Hilton Seattle** (206-624-0500): A short two block underground (if desired) walk from the Center, the rates for this hotel are \$110/single/double.

All hotel reservations must be made through the Seattle Housing Bureau. Please read the instructions very carefully to avoid problems and extra charges. The Housing Bureau will post an electronic reservation form on their website. You may access it through the AAS website or directly at:

[www.pkghlrss.com/events/5589/5589.html](http://www.pkghlrss.com/events/5589/5589.html)

OR obtain a paper housing form in PDF from the AAS website:

[www.aas.org/meetings/aas201/houseform.pdf](http://www.aas.org/meetings/aas201/houseform.pdf)

The completed paper form may be submitted by fax or postal mail to:

Seattle Housing Bureau  
520 Pike Street, Suite 1300  
Seattle, WA 98101  
FAX: 206-461-5853

The HAD meeting will begin with a special session, HAD I, on Sunday, January 5 from 2:00 to 6:00 pm (location to be determined; coffee break included) on "Special Topics in the History of Astronomy." The papers that have been scheduled for this session are:

**Peter Abrahams:** "Telescopes for solar research; from Scheiner's Helioscopium to de la Rue's Photoheliograph."

**Karl Hufbauer:** "Coronal Research: From Solar Eclipse Spectacle to Stellar Coronae." A historical overview beginning with the resolution of the mid 19th century dispute over the location of the corona, continuing on to the invention of the coronagraph and identification of solar lines, and closing with the first convincing observational evidence for stellar coronae.

**Barbara Welther:** "Donald Menzel: His Founding and Funding of Solar Observatories." As an astrophysicist, Menzel was renowned for his studies of the solar chromosphere. As an entrepreneur who developed observatories, he became celebrated for his tenacity and ability to cope with numerous setbacks in funding and staffing.

**David DeVorkin:** "What is a Theorist Doing in the Stratosphere?" How did Martin Schwarzschild become PI on a project to study the Sun from the stratosphere from an unmanned robotic telescope lofted by a huge balloon? Why did it take a Schwarzschild to do such a thing? What does it tell us about how the profession of astronomy in America changed in the years just before, and in the wake of, Sputnik?

**Eugene Milone:** "Possible Astronomical Alignments and the Interpretation of the Heirothesion at Nemrud Dagh."

**James Evans:** "The Astrologer's Apparatus: Material Culture of an Astronomical Specialty in Greek Egypt."

**Frank Winkler:** "How Bright was the 1006 C.E. Supernova? A Re-examination from 11th-Century Sources."

Monday will begin with the HAD II session, "History of Ideas on Extraterrestrial Life," at 10:00 am and continue to 11:30 (location to be determined). The papers scheduled are:

**Don Osterbrock:** "America's First Carl Sagan: Ormsby MacKnight Mitchel, Pre Civil War Astronomer and Lecturer on the Cosmos."

**JoAnn Palmeri:** "Harlow Shapley's Biological Universe: Cosmic Evolution and its Uses."

**Steve Dick:** "Billions of Planetary Systems: Turning Point at Mid 20th Century." An overview of how the idea of abundant planetary systems went from heresy to acceptance, between 1941 and the early 1960s, including the role of theory and observation. A topic of great interest today!

**Woody Sullivan:** "The Beginnings of American SETI, 1959 1971: From Ozma to Cyclops."

The HAD II session will be followed by the HAD Business Meeting from 1:00 to 2:00 pm. There will be a discussion of finances, future meetings, newsletters, obituaries, Website, membership, and other issues. New officers and committee members will be introduced. The gavel and "Ich Bin HAD" plaque will be presented to the incoming Chair, Tom Williams.

The HAD III session, "Biography of 19th- and 20th-Century Astronomers," will follow from 2:00 to 3:30 pm. Papers scheduled for this session are:

**Lucy Amory, V. Strel'nitski, P. Boyce, R. DiCurcio:** "Meridian Stones: for Form or for Function?"

**Brenda Corbin:** "Etienne Leopold Trouvelot, 19th-Century Artist and Astronomer."

**Tom Williams:** "The Wizard of Puget Sound: Dalmero Francis Brocchi (1871-1955)."

*(continued on page 5)*

## BALLOT FOR 2003—2004 HAD ELECTIONS

**PLACE AN “X” IN THE BOX NEXT TO THE NAME OF THE PERSON FOR WHOM YOU CAST YOUR VOTE.**

**DEADLINE FOR RECEIPT OF BALLOTS: 23 DEC 2002.**

### **HAD VICE-CHAIR (CHAIR-ELECT):**

**(Vote for only one of the candidates)**

**Joseph S. Tenn**

**Donald K. Yeomans**



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### **HAD COMMITTEE MEMBER:**

**(Vote for no more than two of the candidates)**

**John W. Briggs**

**Dennis R. Danielson**

**Alan W. Hirshfeld**

**Craig B. Waff**

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After marking your ballots either:

(1) Mail to: Ronald Brashear, P.O. Box 37012, Dibner Library, NMAH 1041 MRC 672, Smithsonian Institution, Washington, DC, 20013-7012

(2) Fax to: Ronald Brashear, (202) 633-9102

(3) Email your selections to [brashearr@si.edu](mailto:brashearr@si.edu)

**DO ONLY ONE OF THE ABOVE!!! FOR EXAMPLE, IF YOU EMAIL YOUR SELECTIONS DO NOT MAIL YOUR BALLOT.**

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Fold Here

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## HAD 2003 Meeting in Seattle

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**Rudi Lindner:** “Curtis versus Einstein.”

**Roy Clarke and Howard Plotkin:** “UCLA Astronomer Frederick Charles Leonard (1896-1960): From Childhood Prodigy to Mature Obsession.”

**D.J. de Alba-Martinez:** “To be a Priest should be to know Astronomy...”

HAD IV is an all-day poster session on Monday, 6 January. Currently scheduled is:

**Don Osterbrock:** “Four Big-Telescope Planetary Astronomers of the 1920s at Mt. Wilson, Yerkes, and Lick Observatories.”

It may be of some interest to HAD members that on Tuesday, 7 January, there will be special sessions on Astrobiology. To quote from the program, “Astrobiology is an exciting, growing field that has been having an increasing presence in AAS meetings recently. Yet most astronomers know little of the biology relevant to the subject. The goal of these sessions is to be largely tutorial, providing basic background and recent results on key biological aspects of the field. Each talk will be 25 minutes long (plus 5 minutes of questions/discussion) and will be designed so that it all can be understood by the average astronomer. All talks will be given by faculty members of the University of Washington’s (UW) pioneering graduate Astrobiology Program, where we have learned to communicate at a high level, despite disciplinary chasms, by avoiding jargon, not getting lost in details, etc.” The session is organized by HAD member, Woody Sullivan (Univ. Washington).

Session One - 10:00-11:30

**John Baross** (School of Oceanography, UW) -- Definition and Origin of Life

**Roger Buick** (Dept. of Earth and Space Sciences, UW) -- Earliest Evidence for Life

**David Stahl** (Dept. of Microbiology, UW) -- The Tree of Life

Session Two - 2:00-3:30 Tuesday 7 Jan. 2003

**James Staley** (Dept. of Microbiology, UW) -- The Metabolisms of Life

**Jody Deming** (School of Oceanography, UW) -- Microorganisms in Extreme Conditions

**Peter Ward** (Dept. of Earth and Space Sciences, UW) -- Mass Extinctions

There will also be an invited talk on Tuesday afternoon (exact time & location to be determined) by HAD member **Steve Dick** (USNO), on “Astrobiology and the Biological Universe.” This illustrated powerpoint lecture will give a historical overview of how we arrived at our current belief that cosmic evolution may have resulted in life and intelligence in the universe. It will show how our astronomical world view has changed over the last century, recall the opinions of astronomical pioneers like Russell, Shapley and Struve on life in the universe, and show how planetary science, planetary systems science, origins of life studies and SETI have combined to form a new discipline. Astrobiology now commands \$50 million in direct funding from NASA, funds 15 Astrobiology Institute members around the country and four affiliates around the world, and seeks to answer one of the oldest questions in astronomy.

## Now Is Already Yesterday

Andre Heck, Observatoire Astronomique  
Universite de Strasbourg, France

For more than a quarter of a century, I have been compiling directories gathering together all practical data available on astronomy-related organizations:

from amateur associations to professional societies,  
from university departments to international agencies,

from scientific committees to consultants,

from planetariums to public observatories,

from publishers to software producers,

from manufacturers to dealers and distributors,

and so on. Besides astronomy and space sciences, many related fields are also covered when justified. See Heck (1997) and the references quoted therein for a detailed history and for a comprehensive description of the directories. The successive editions {See [vizier.u-strasbg.fr/~heck/ahdir.htm](http://vizier.u-strasbg.fr/~heck/ahdir.htm) for a complete list.} can be considered as (almost) yearly snapshots of the astronomy-related world.

Beyond its paper versions (see Heck 2000a for the latest one called *StarGuides*), the compilation has also been made available as a database, *StarWorlds* {See [vizier.u-strasbg.fr/~heck/sfworlds.htm](http://vizier.u-strasbg.fr/~heck/sfworlds.htm) (about 6500 entries)}, that can be queried via the web. It is complemented by another database of individual homepages of astronomers and related space scientists called *StarHeads* {See [vizier.u-strasbg.fr/~heck/sfheads.htm](http://vizier.u-strasbg.fr/~heck/sfheads.htm) (about 6000 entries)} and linked to NASA’s ADS service, and by a searchable multilingual dictionary of abbreviations, acronyms, contractions, symbols, etc., called *StarBits* {See [vizier.u-strasbg.fr/~heck/sfbits.htm](http://vizier.u-strasbg.fr/~heck/sfbits.htm) (about 200,000 entries)}.

The implementation of those databases by the European Space Agency, the European Southern Observatory and Strasbourg Astronomical Data Center have been throughout the years strong incentives to continue and always improve these time-consuming compilations. This is not only for the benefit of the best possible communication within the astronomical community, as well as between it and the outside world, but also as historical records for the future.

A number of ‘sociological’ studies have been published from the data listed in the master files for *StarGuides/StarWorlds*. They investigate characteristics of astronomy-related organizations, such as geographical distributions, ages and sizes. See Heck (2000b) for a review of these.

Going on along those lines, I launched a couple of years ago a series of edited books entitled *Organizations and Strategies in Astronomy* {For a general presentation, see [vizier.u-strasbg.fr/~heck/osabooks.htm](http://vizier.u-strasbg.fr/~heck/osabooks.htm) and related links.} (in short OSA Books), published by Kluwer and gathering together contributions on the sociology and on the contemporaneous history of the astronomy community. Two volumes have already been published (see Heck 2001 for the most recent one). The third volume is in press and the fourth one is in preparation.

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#### Acknowledgements

My gratitude goes to all persons and organizations who contributed over the past quarter of century to the very substance of the resources presented here, by returning questionnaires, by providing relevant documentation, by participating in the various procedures of maintenance, validation and verification of information, by contributing chapters for the OSA Books or otherwise.

#### Bibliography

Heck, A. 1997, Electronic Yellow-Page Services: The Star's Family as an Example of Diversified Publishing, in *Electronic Publishing for Physics and Astronomy*, Kluwer Acad. Publ., Dordrecht, 211-220.

Heck, A. 2000a, *StarGuides 2001 -- A World-Wide Directory of Organizations in Astronomy, Related Space Sciences and Other Related Fields*, Kluwer Acad. Publ., Dordrecht, xiv + 1224 pp. (ISBN 0-7923-6509-7).

Heck, A. 2000b, Characteristics of Astronomy-Related Organizations, *Astrophys. Sp. Sc.* **274**, 733-783.

Heck, A. 2001, *Organizations and Strategies in Astronomy II*, *Astrophys. Sp. Sc. Library 266*, Kluwer Acad. Publ., Dordrecht, x + 292 pp. (ISBN 0-7923-7172-0).

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### Herbert C. Pollock Award for 2003

The Dudley Observatory announces the competition for the Herbert C. Pollock Award for 2003, which offers up to \$5000 to support an innovative project in the history of astronomy or astrophysics. Applications are due by Nov. 8. 2002. The purpose of the Award is to provide encouragement and support for an innovative project in the history of astronomy or astrophysics, to be undertaken by a faculty member, research associate, or postdoctoral associated with a college, university, nonprofit research institution or observatory located in North America

For details regarding eligibility, application procedures and other information, see the Dudley Observatory web site,

[www.dudleyobservatory.org](http://www.dudleyobservatory.org).

## ASTRONOMY AS A MODEL FOR THE SCIENCES IN EARLY MODERN TIMES?

International Symposium, Munich, 21-23 March 2003

This conference intends by means of various methodological approaches and newly interpreted sources to determine how far astronomy since Regiomontanus (1436-1476) played a leading part in the science of early modern times, i.e. where it was studied, and to what extent it was understood and developed, and what direct and indirect influence it exerted on the various branches of science and levels of society. Thus the conference has as its aim, above all, an interdisciplinary discussion. Contributions will be not only from the history of science and technology, but also from the history of general culture and philosophy of science.

Among the topics to be considered are:

- How was the Copernican doctrine promulgated? In what circles of early modern society was it discussed?
- How far did astronomy influence the development of other sciences (in particular scientific endeavours of discovery and cartography)?
- How did astronomy develop in comparison with other branches of knowledge, e.g. anatomy or botany, that were also enriched by new empirical discoveries?
- To what extent was astronomy the model for exact, mathematically based science?
- How did astronomy influence the construction of scientific instruments?
- How did astronomy influence the art of the Renaissance (e.g., through the introduction of perspective)?
- What importance did astronomy have for the development of new political models in early modern times?

We plan two workshops in connection with the conference:

- On collection and edition of sources on the astronomy of the early modern period; the present state and prospects of the research
- The establishment and use of new electronic media (in particular data-banks and internet) in the history of astronomy in the early modern period

Full details on the conference are at  
[www.ign.uni-muenchen.de/astro.htm](http://www.ign.uni-muenchen.de/astro.htm)

Historical Astronomy Division  
of the American Astronomical Society

Chair: Barbara Welther, [bwelther@cfa.harvard.edu](mailto:bwelther@cfa.harvard.edu)  
Vice-Chair: Thomas R. Williams, [trw@rice.edu](mailto:trw@rice.edu)  
Secretary-Treasurer: Ronald S. Brashear, [brashearr@si.edu](mailto:brashearr@si.edu)  
Past-Chair: Virginia Trimble, [vtrimble@uci.edu](mailto:vtrimble@uci.edu)  
At-Large Committee Members:  
Brenda Corbin, [corbin.brenda@usno.navy.mil](mailto:corbin.brenda@usno.navy.mil);  
Thomas A. Hockey, [Thomas.Hockey@uni.edu](mailto:Thomas.Hockey@uni.edu)

Website: [www.aas.org/had/had.html](http://www.aas.org/had/had.html)

*HAD News* is published (hopefully) in February, May, August, and November, and sent to all individual members of the Historical Astronomy Division of the American Astronomical Society. The deadline for receipt of articles, news items, and announcements is the first of the month prior to the month of publication. Please send contributions as plain text in email or as email attachments in Microsoft Word to Ronald Brashear at [brashearr@si.edu](mailto:brashearr@si.edu).

## Sixth Biennial History of Astronomy Workshop

The Sixth Biennial History of Astronomy Workshop will be held at the University of Notre Dame on 19-22 June 2003. The Biennial History of Astronomy Workshops typically attract about 60-65 scholars interested in the history of astronomy. Comfortable and economical accommodation is available in the dormitories of Notre Dame, and provide an intimate setting for a weekend devoted to scholarship. This year's invited speaker will be Harry Collins, from the Centre for the Study of Knowledge Expertise and Science at Cardiff University. One change in the typical schedule for the workshops is that Prof. Collins will give an opening address on Thursday evening, which will be followed by breakout sessions on Friday morning.

The program co-chairs of the workshop issue a call for proposals for work-in-progress papers, poster papers, and organized sessions. Work-in-progress papers must address a topic in the history of astronomy, but a wide variety of time periods and approaches will be acceptable. Due to time constraints, we shall judge proposals on a more competitive basis than in previous years. Graduate students reporting on their dissertation projects and speakers who did not present a paper at the last workshop will receive preference. Papers will be selected in order to present a balanced schedule, with coverage of different chronological periods and historiographical approaches. Presentations will be strictly limited to twenty minutes. It is suggested that oral presentations should take ten to fifteen minutes, which will leave some time for questions and discussion. Those who wish to present work-in progress papers should submit an abstract of not more than 250 words which states clearly the topic to be covered, the current state of scholarship on the subject, and the author's own approach.

Rather than presenting a paper orally, a poster paper may be constructed for display throughout the workshop. Please note that poster papers should take advantage of the poster format, and should be visually appealing and convey information to the viewer through images (photos, diagrams, tables, etc.) and succinct text. Poster paper proposals should not be more than 250 words and should state clearly the topic to be covered and the current state of scholarship on the subject. They should also include a statement regarding how the topic benefits from a visual presentation.

Session proposals should state the theme of the session, as well as who has been contacted regarding participation in the session. The time for sessions will be limited, and a significant portion of each session should be devoted to discussion. Sessions can last between 1 and 2.5 hours; please indicate in the proposal how long the session will need to be.

Abstracts will be posted on the workshop web page prior to the meeting. Full papers may also be posted by arrangement; if presenters choose to post their paper on the web, they are encouraged to modify their presentation so that it is not simply a recitation of the posted paper.

All speakers are expected to register for the conference and pay

the registration fee. We cannot offer travel grants of any kind. Proposals for sessions and work-in-progress papers are due by 1 February 2003. Proposals for poster papers are due by 1 April 2003. Proposals should be sent to each of the program co-chairs, preferably by e-mail, but hard copy is acceptable. Send abstracts to:

Marc Rothenberg, 8533 Milford Ave., Silver Spring, MD, 20910, E-mail: Josephhenr@aol.com

and

David DeVorkin, 9611 West Bexhill Drive, Kensington MD, 20895, E-mail: David.DeVorkin@nasm.si.edu

and

Rudi Paul Lindner, Department of History, 1029 Tisch Hall, The University of Michigan, Ann Arbor, MI 48109-1003, E-mail: rpl@umich.edu

Please note that no person may submit more than one proposal for a work-in-progress paper, but that the same person may submit a proposal for both a work-in-progress and a poster paper.

For more information on the workshop, see the web page at:

[www.nd.edu/~histast4](http://www.nd.edu/~histast4)

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## Harvard Science Historian Publishes Results of Unprecedented 30-Year Census of Copernican Masterpiece

(From Harvard-Smithsonian Center for Astrophysics Press Release) Owen Gingerich, a Research Professor of Astronomy and of the History of Science at Harvard University and senior astronomer emeritus at Smithsonian Astrophysical Observatory, has completed a feat unique in the annals of bibliography—a survey and census of more than 600 sixteenth-century copies of the landmark book *De revolutionibus* by Nicholas Copernicus. Gingerich's survey has led to new understanding of how scientists communicated in the late 1500s. The survey also has provided new insights into the extent of the Roman Inquisition's censorship of science in the days of Galileo. The work is titled, *An Annotated Census of Copernicus' De revolutionibus*, and is published by Brill Academic Publishers

First published in 1543, Nicholas Copernicus' *De revolutionibus orbium coelestium* introduced the world to the concept of a heliocentric, or sun-centered, universe. In it, Copernicus detailed how the motions of the sun, moon, planets, and stars could be explained if the earth orbited the sun—a revolutionary idea when most scientists were sure that all celestial objects revolved around the earth.

Starting in the 1970s, Gingerich began surveying all known copies of this work from its first two printings in 1543 and 1566. He compiled his results into *An Annotated Census of Copernicus' De Revolutionibus*, which describes the provenances, annotations and margin notes, and condition of all surviving sixteenth-century copies of this major Renaissance text. The completed census eventually included 277 copies of the first edition and 324 of the second.

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“I began this census to gain new insights about Copernicus at the 500th anniversary of his birth in 1973, but the project took on a life of its own as I gradually began to realize how much we could learn about the early reception of Copernicus’ radical ideas. Radical not for us, but for those 16th-century skeptics, and that’s of course what makes it so interesting,” says Gingerich. “The final results of my census give us new understanding of that scientific revolution in the making.”

The compilation of Gingerich’s census took three decades; the worldwide cooperation of librarians, dealers and collectors; and hundreds of thousands of miles of travel. It will serve as a landmark reference for scholars, historians, librarians and collectors for decades to come.

The mountains of data that Gingerich collected enabled him to study the pattern of Roman censorship and the extent of Papal influence on the European continent. Interestingly, he found that censorship of Copernicus’ work was more local than might have been expected.

Catholic church authorities were displeased by passages in Copernicus’ text that seemed to contradict Scriptural teachings. But, the Inquisition decided not to ban *De revolutionibus* outright because its observations might be needed in the future to adjust the Gregorian calendar. Instead, a Papal decree in 1620 demanded alterations in ten specific places in the text. Those alterations emphasized that the heliocentric theory was hypo-

thetical and not intended to be a real description of the physical world. Gingerich found that about 60 percent of the copies of *De revolutionibus* in Italy at the time of the decree were “corrected.” However, virtually none of the copies outside Italy were touched. Clearly, the rest of the continent viewed the Copernicus controversy as a local dispute.

Gingerich also studied notes made in the margins by the books’ original owners, who included many top scientists of the time. He found a pattern of multiple copies of the most important annotations, demonstrating the existence of a silent network that connected sixteenth-century astronomers. “It was the sixteenth-century equivalent of e-mail,” says Gingerich.

The compilation of this census took Gingerich all over the world, from the Soviet Union just after the fall of the Berlin Wall to the witness stand in the Federal District Court in Washington. His testimony at the latter helped lead to the conviction of a thief who stole a copy of *De revolutionibus* from a library collection. “Unfortunately, because of thefts, I hold the dubious distinction of having seen more copies of the first edition of Copernicus’ work than can now be located,” says Gingerich.

Gingerich is now working on a book describing his 30-year quest to conduct this census. He will account the many trials, tribulations and adventures involved in the compilation of *An Annotated Census*, a few of which are briefly described in a chapter of the 2002 National Geographic book *Beyond Earth*. Gingerich’s next book will be published by Walker Publishing.

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