



H·A·D NEWS

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

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The January 2024 HAD Meeting

Ken Rumstay

Valdosta State University (Emeritus)

The Historical Astronomy Division held its annual meeting (in conjunction with the 243rd meeting of the American Astronomical Society) on January 7th through 9th at the Ernest N. Morial Convention Center in New Orleans. As noted in our last issue, this was an in-person meeting, with no virtual components.

Our meeting began at 2:00 on Sunday afternoon with a special session organized by former HAD Chair Jarita Holbrook, who made the long trip from Edinburgh to lead it. In "Astronomy During Epidemics and Pandemics" four speakers described the devastating effects of the Covid pandemic on astronomy and on its practitioners. It was a highly informative, but also very sobering session, and we



The HAD banners, portraying famous astronomers from the past, greeted visitors at the entrance to the Exhibit Hall. To their left stood the AAS Quasiquincentennial Exhibit, featuring a timeline of 125 years of highlights in astronomy.



The speakers for Sunday's HAD session "Astronomy During Epidemics and Pandemics." From left to right are Lee Anne Willson, Sarah Tuttle, Elinor Gates, and Jarita Holbrook. The wearing of masks was encouraged throughout the meeting.

thank Jarita for making it possible. Abstracts for these talks, and for all presentations made at our meeting, may be found on the [HAD website](#).

In a sad stroke of irony, three individuals who were scheduled to speak at later sessions were unable to attend, having contracted the virus. In light of the dramatic increase in Covid-19 cases during the fall, the AAS strongly encouraged masking at the meeting, providing masks at the registration table.

After a two-hour break, the Working Group on the Preservation of Astronomical Heritage (WGPAH) held its annual meeting at 5:30 pm, with several members attending via Zoom. The following items were discussed:

Julie Steffen (AAS Chief of Publishing Services) reported on the current status of the Abt archives. This collection of documents from Helmut Abt's years as Editor of the *Astrophysical Journal* is to be transferred to the University of Arizona for safekeeping. She also noted that efforts are currently underway to digitize all past issues of *Sky & Telescope* magazine.

Amanda Bauer, Montgomery Foundation Deputy Director and Head of Science and Education at Yerkes Observatory, described outreach activities at that historic facility.

Ken Kellermann, from NRAO (the National Radio Astronomy Observatory) reported on the status of the Holmdel radio antenna. He noted that, while

the future of this historic instrument appeared to be secure for the immediate future, we should “keep an eye on things.” See the article on page 22 of this issue for updated information.

Next, Ed Krupp from the Griffith Observatory reported on recent activities of the Alliance of Historic Observatories. He noted that this was becoming a “more formal” organization, and that they plan to next meet at the Vatican Observatory. For more information about this organization, visit their [website](#).

Next to speak was Joe Tenn, who updated us on the status of the AstroGen project. Currently over 45,000 individuals are listed! Elizabeth Griffin expressed regret that the important work of data entry was done entirely by volunteers. In response, Wayne Orchiston wondered whether this project could be partially supported by Commission C3 (History of Astronomy) of the International Astronomical Union. Joe said that he would investigate this possibility, and in the meantime encouraged folks to help out if possible. If you would like to volunteer to assist with this important endeavor, please visit the [AstroGen website](#)!

Finally, we were privileged to have journalist Deborah Shapley, the granddaughter of Harlow Shapley, join us online. She reported on the status of the [Harlow Shapley Project](#), which she initiated to disseminate information about her grandfather's multifaceted life and his notable accomplishments.



Sunday evening's reception was held in the cavernous Exhibit Hall of the Ernest N. Morial Convention Center. More than 3,500 individuals attended the AAS meeting, held jointly with the High Energy Astrophysics and Historical Astronomy Divisions. At the extreme lower left one can see portions of the Quasiquicentennial Celebration poster and one of the HAD banners, which greeted guests as they entered the hall.

This website is a treasure trove of interesting stories and old photographs, and well worth visiting!

The final meeting event on Sunday evening was the traditional AAS reception, held in the exhibit hall of the convention center. Upon entering, attendees were greeted by HAD's banners (see the photo on page one) and an exhibit celebrating the AAS's 125th anniversary. Based upon a similar exhibit created for the AAS Centennial meeting in 1999, the two-sided display featured a large timeline of significant events in astronomy (and for the AAS) since 1897. In that year George Ellery Hale organized the First Conference of Astronomers and Astrophysicists in Williams Bay, Wisconsin. This meeting was held immediately prior to the dedication of the Yerkes Observatory on 21 October 1897. The American Astronomical Society traces its origin to that conference.

Several months prior to the New Orleans meeting, AAS Executive Officer Kevin Marvel asked that HAD assist in collecting relevant material from the six AAS divisions. HAD Chair Terry Oswalt spearheaded that process, and the exhibit (prepared by AAS Director of Communications and Marketing Hua Liu) was a great success. The display is reproduced in its entirety on the following two pages, and a [high-resolution file](#) (suitable for printing at original size) may be downloaded from our website.

Continuing on Monday morning, the 10:00 am HAD II special session "AAS 125th Anniversary – Celebrating the History of AAS Divisions" featured speakers from each of the six AAS divisions. Terry Oswalt organized this session, quite rightly thinking it appropriate to celebrate the divisions and their histories at the quasiquintennial meeting.



Jarita Holbrook (left) and Kayla Perkins (at right) staff the HAD table during an afternoon session in the Exhibit Hall. Thomas Hockey contributed a stack of books (seen at left) to be given to new HAD members who joined at the meeting.

We take this opportunity to thank those members of the Solar Physics, High Energy Astrophysics, Dynamical Astronomy, Planetary Sciences, and Laboratory Astrophysics divisions who volunteered to speak at this session. And we look forward to possibly hosting sessions in collaboration with our fellow divisions at future AAS meeting!

Our annual business meeting, the HAD Town Hall, convened at 12:45 pm in Room 215 of the Morial Convention Center. This was the venue for all HAD sessions save for the iPoster session. About thirty members were in attendance; and with a busy agenda the meeting was a bit rushed. A report on the Town Hall begins on page 10.

The sessions for contributed presentations followed the Town Hall. The HAD III session, beginning at 2:00 pm, was intended to feature nine speakers. Unfortunately, three were absent (as noted earlier), which was a great disappointment. As a follow up to the morning session, the first two individuals to speak described some of the additional history which led to the formation of the Division on Dynamical Astronomy and the Laboratory Astrophysics Divisions. The remaining presentations covered a wide variety of topics in the history of astronomy prior to the 20th century.

The HAD IV iPoster session was on Monday afternoon in the Exhibit Hall. These electronic presentations allow for inclusion of media content in a variety of formats, providing tremendous flexibility. They were available for viewing during the entire day when the hall was open, but presenters were expected to be on hand by their monitors from 5:30 to 6:30 pm in order to answer questions and to discuss their subject matter with interested parties.



HAD Chair Terry Oswalt (facing the camera, at left) and Vice Chair J. Allyn Smith (at right) talk with colleagues at the 40+E reception on Tuesday evening. Many HAD members were in attendance at that event!

CELEBRATING THE 125TH ANNIVERSARY OF THE AMERICAN ASTRONOMICAL SOCIETY

1899-2024

25 YEARS



1897 First conference of astronomers and the publication of the *Yorke Observatory*, hosted by **George Ellery Hale**

1899 The Society, initially named the *Astronomical Society of America*, is created at the third conference of astronomers and astrophysicists held at *Yorke*

1900 **Wilhelm Fleming** announces the discovery of white dwarf stars

1910 **Henrietta Swan Leavitt** discovers the relationship between Cepheid variables and their distances in the universe

1912 **Victor Hess** discovers cosmic rays

1914 The Society hosts the "American Astronomical Society"

1915 **Albert Einstein** publishes his general theory of relativity

1916 **Karl Schwarzschild** predicts that black holes may exist

1919 The International Union (IAU) is formed in Belgium

1923 **Edwin Hubble** discovers that the "Andromeda Nebula" and proves the existence of galaxies beyond our own

1927 **Georges Lemaitre** proposes that the cosmos is expanding

1929 **Edwin Hubble** announces that the universe is expanding

1930s The Society sponsors the first intergalactic astronomical observations

1930 **Clyde Tombaugh** discovers the planet *Pluto*

1932 **Karl Jansky** discovers the first radio waves coming from space

1933 **Fritz Zwicky** predicts that matter may exist

1934 The first AAS prize to honor a young astronomer is presented to **Cecilia Payne-Gaposchkin**

1940 The Society hosts its first meeting – 147 people attend and 56 papers are presented

1941 The astronomical journal *Astrophysical Journal* is published by the AAS

1946 The first **Henry Norris Russell Prize** is awarded to **Henry Norris Russell**

1946 The *Sky and Telescope* magazine is launched

1954 The first award of the **Henry Norris Russell Prize** is given to **Adam B. Meinel**

1956 The first parallel meeting of the Division of Astrophysics and the American Astronomical Society is held in Berkeley, California, at AAS 95

1958 NASA is established and the National Space Act is passed

1960 Growth rate of the Society increases from 1,000 members in 1958 to 2,000 in 1965

1960 The first AAS meeting is held in Mexico

1960 Junior and Associate categories are established

1963 **Maarten Schmidt** measures the spectra of quasars, which are active galaxies and are among the most distant objects in the universe

1965 **Arno Penzias and Robert Wilson** discover the cosmic microwave background radiation from the very hot radiation from the Big Bang that created the universe more than 13 billion years ago

1967 The Society hosts its first meeting with simultaneous sessions

1968 The Division for Planetary Science (DPS) is formed

1968 The Society receives three petitions to change its name to "high-energy astrophysics, solar system, and planetary science"

1969 **Apollo 11** lands on the Moon

1970 The first meeting of the Solar Wind Working Group is held in Berkeley, California, at AAS 95

1970 The first HEAD meeting is held jointly with the American Physical Society

1970 **Uhuru**, the first satellite dedicated to X-ray astronomy, is launched from Kenya

1970 Society meetings begin to include planetary scientists

1970 The first **HEAD** meeting is held in San Francisco, California, at AAS 95

1970 The first meeting of the Division of Astrophysics and the American Astronomical Society (DAAAS) is held in Albuquerque

1970 **Vera Rubin and Kent Ford** publish their discovery of the 1:1 resonance of dark matter

1972 The AAS assumes sponsorship of the *Astronomical Journal*

1973 Working Group on the Status of Women in Astronomy (WGWSA) is formed, with the lowest (8%) in the history of the Society

1974 The first **Newton Lacy Pierce Prize** is awarded to **Edwin A. Kravitz**

1974 **Comet Halley** passes through perihelion

1976 The Society hosts its first meeting with simultaneous sessions

1976 The Viking program lands the first two spacecraft on Mars

1977 **Voyager 1 and 2** space probes are launched to explore our outer solar system and beyond

1977 The first **Dirk Brouwer Award for Planetary Science** is awarded to **Stuart Haber**

1978 The first **George Ellery Hale Prize** is awarded to **Engelbert P. Parker**

1978 The **Hubble Space Telescope**, the first large space-based observatory, is launched

1978 The **High Energy Astrophysics Society (HEAS)** is founded

1979 The AAS Executive Office moves to Washington, DC. The annual budget approaches \$2 million. Standing Committee on the Status of Women in Astronomy is established (the present CSWA)

1979 The **Compton Gamma Ray Observatory**, the first large astronomical observatory, is launched

1980 650 people attend the annual meeting in San Francisco, California, at AAS 95. The American Astronomical Society (AAS) is approved

1980 The first **Dannie Heinesen Prize** is awarded to **Joseph H. Taylor, Jr.**

1981 First HEAD meeting is held in Albuquerque

1981 The **Compton Gamma Ray Observatory** is launched

1981 HAD assumes responsibility for publishing notices of the Bulletin of the American Astronomical Society (BAAS)

1983 The first enhanced astronomical satellite, **IRAS**, is launched

1983 The **Hubble Space Telescope** mission to Jupiter is launched. It is the first mission to Jupiter in 1995

1984 First **Harold C. Urey Prize** is awarded to **Joseph M. Showman**

1984 First **HEAD** meeting is held in Albuquerque

1984 The **Compton Gamma Ray Observatory** is launched

1985 First **HEAD** **Rosen Prize** is awarded to **William R. Forman and Christine Jones** for their discovery of the first emission from early-type galaxies

1986 The **Galileo** mission to Jupiter is launched. It is the first mission to Jupiter in 1995

1986 The first **Beatrice Tinsley Prize** is awarded to **S. Jocelyn Bell Burnell**

1988 The **Viking program** lands the first two spacecraft on Mars

1989 The **Hubble Space Telescope** mission to Jupiter is launched. It is the first mission to Jupiter in 1995


1990 The **Hubble Space Telescope** mission to Jupiter is launched. It is the first mission to Jupiter in 1995

1991 HAD assumes responsibility for publishing notices of the Bulletin of the American Astronomical Society (BAAS)

1992 The **Compton Gamma Ray Observatory** is launched

 AAS key activities
 AAS Awards and Prizes
 Scientific events and discoveries
 Scientists and Nobel Prize winners

125 YEARS CELEBRATING THE 125TH ANNIVERSARY OF THE AMERICAN ASTRONOMICAL SOCIETY 1899-2024

1993 The rock Icarus is discovered in the asteroid belt, resulting in the rededication of Pluto as a dwarf planet.

1994 The first HEAD (High Energy Astrophysics Division) meeting is held in Haze, California.

1995 The AAS launches the new *Astronomical Journal Letters*, one of the first journals to offer an online subscription service. AAS journals appear online by 1998.

1997 The Cassini-Huygens mission launches and reaches Saturn in 2004.

1998 2,200 people attend the 100th anniversary meeting with the AAS Centennial Meeting in Chicago.

1999 The Charles X-ray Observatory is launched.

2000 The Space Shuttle *Columbia* is launched and the original Great Observations is launched.

2001 Riccardo Giacconi wins the Nobel Prize in Physics for his work on X-ray astronomy.

2002 The Chandra X-ray Observatory is launched.

2003 The Society celebrates its 100th anniversary with the AAS Centennial Meeting in Chicago.

2004 The Nobel Prize in Physics goes to the discoverers of the COBE satellite (John Mather and George Smoot).

2006 The DDA holds its 10th anniversary meeting in San Francisco.

2007 The first Transient Earth-Moon meeting is held in Honolulu, Hawaii.

2008 AAS journals move to the online-only format, resulting in a 50% increase in subscription rates and a 25% increase in author charges.

2009 The AAS celebrates its 110th anniversary with the 110th meeting in San Francisco.

2010 In collaboration with AAS, the field of astronomy, the AAS creates and takes over stewardship of the United Astronomy Treasures.

2011 Saul Perlmutter, Brian Schmidt, and Adam Riess win the Nobel Prize in Physics for the discovery of the accelerating expansion of the universe.

2012 The Laboratory for Dark Energy and Matter is created at the University of California, Berkeley.

2013 The DDA holds its 15th anniversary meeting in San Francisco.

2014 The first detection of gravitational waves is announced by LIGO.

2015 AAS launches the *AAS News* and *AAS Today* newsletters.

2016 The Nobel Prize in Physics goes to the discoverers of the Higgs boson (Peter Higgs and François Englert).

2017 AAS launches the *AAS News* and *AAS Today* newsletters.

2018 The Nobel Prize in Physics goes to the discoverers of the first exoplanet (Michel Mayor and Didier Queloz).

2019 AAS acquires the *Sky & Telescope* magazine.

2020 The Nobel Prize in Physics goes to the discoverers of the first exoplanet (Michel Mayor and Didier Queloz).

2021 The Perseverance rover and the毅力号 lander are launched to Mars.

2022 The JWST launches and captures the first image of a black hole.

2023 The Astronomical Journal's 175th anniversary is celebrated.

- AAS key activities
- AAS Awards and Prizes
- Scientific events and discoveries
- Scientists and Nobel Prize winners

The high point of our meeting came on Monday evening, when the 2024 LeRoy E. Doggett Prize for Historical Astronomy was presented to Wayne Orchiston. The award was given in recognition of Wayne's many contributions to the history of astronomy, including co-founding the *Journal of Astronomical History and Heritage* and conducting research into the rich history of Asian astronomy.

Wayne and his wife Darune Lingling had spent the better part of two days travelling from Thailand to join us, but by Monday any hint of jet lag was gone! The festivities began at 6:00 with a light supper reception, graciously sponsored by the AAS, for HAD members and their guests.

At 7:00 we proceeded to Great Hall A, where HAD Chair Terry Oswalt presented Wayne with the award certificate. Wayne then entertained us for over an hour; in "It All Began with Tebbutt! The Peripatetic Path from New Zealand to New Orleans" he traced his astronomical career from its beginning as a schoolboy in rural New Zealand, inspired by the writings of Australian amateur astronomer John Tebbutt. A brief summary of Wayne's talk, by new HAD member Alison Crisp, may be found on the [Astrobites](#) website.

The evening came to a close with conversation and socializing over dessert, also courtesy of the AAS.

Happily, enough contributed oral abstracts were received that an additional session on Tuesday morning was required. The HAD V session at 10:00 featured eight talks on a wide variety of subjects. Again, abstracts for all HAD sessions may be found on our [meeting website](#).

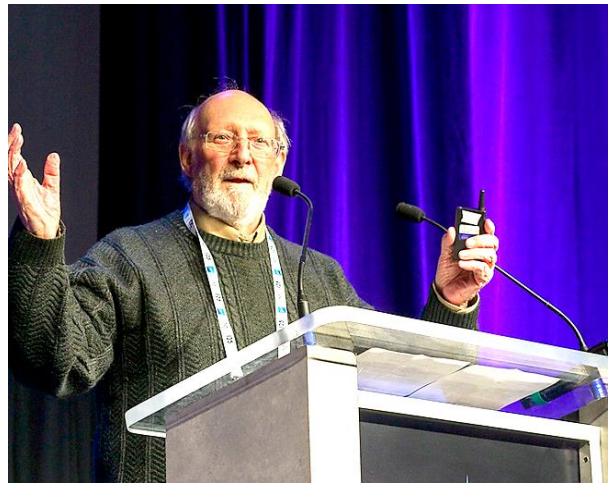
Throughout the meeting, the HAD table at the AAS booth in the exhibit hall was staffed by volunteer members. I would like to thank them all for their dedication in greeting visitors and answering questions. I would especially like to thank Tom Hockey, who donated a stack of books on historical astronomy. These were to be given to individuals who signed up to be new members of HAD. It was a successful venture: we gained nearly a dozen new members! Thank you, Tom!

While the HAD meeting officially ended at 11:30 Tuesday morning, many members regrouped at 6:30 that evening for the annual 40+E reception, sponsored by the AAS. During the festivities Executive Officer Kevin Marvel thanked everyone for their financial support of our society and its divisions. And I would like to thank you as well!

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HAD Chair Terry Oswalt (right) presents Wayne Orchiston with the 2024 LeRoy E. Doggett Prize for Historical Astronomy. Wayne and his wife travelled all the way from Thailand to receive the award!



Wayne Orchiston describes his fascinating, multifaceted career during his Doggett Prize Lecture on Monday evening.



Prior to and after the Doggett Prize Lecture, HAD members and guests enjoyed two lovely receptions sponsored by the American Astronomical Society.



From the Chair

Terry Oswalt

Embry-Riddle Aeronautical University

It's been a busy year for HAD, as the articles in this newsletter will attest. The biggest change this year is that our Secretary-Treasurer for the last eight years, Ken Rumstay, has stepped down, having reached the position's term limit set by the HAD By-Laws. The HAD leadership team will sorely miss his collegiality and attention to detail. We officially expressed our appreciation to him at the New Orleans AAS 243 meeting in January. It is our good fortune that Ken has agreed to continue as editor of the *HAD News* and will continue serving on our leadership team. Susana Duestua, our new Secretary-Treasurer, has some big shoes to fill. She's certainly up to it, having held high-level positions in several organizations, notably the International Astronomical Union. Please extend her a warm welcome.

Our main activity this year was planning a *History of the AAS Divisions* special session at the AAS 243 New Orleans meeting, in parallel with the 125th anniversary of the AAS. We invited the leadership teams of all six AAS divisions to present talks on the history and milestones of their divisions. The response was enthusiastic, and the session was well attended.

Responding to a request from AAS CEO Kevin Marvel, HAD contacted the leadership of all six AAS divisions to request images illustrating their important milestones, with emphasis on the most recent 25 years. Hua Liu in the AAS national office used them to create the special 125th anniversary display that was installed near the entrance of the New Orleans convention center.

The high point of the HAD activities at January's AAS meeting was the awarding of the Leroy E. Doggett Prize, which recognizes a lifetime of achievements involving the history of astronomy. This year's recipient was Prof. Wayne Orchiston. His memorable plenary talk and reception were the first evening prize event ever sponsored by the AAS. I personally hope evening

plenary sessions like this will become a tradition. Congratulations, Prof. Orchiston!

Ken Rumstay has provided an excellent summary of HAD-relevant activities at the January AAS meeting, so let's now focus on the present and a few action items for the coming year.

As of December 31, 2023, there were 665 HAD members, an all-time high. Summaries of our membership growth and a break-down of classes are shown in Ken's column. Over one-third of HAD members (250) are undergraduate and graduate students, the fastest-growing segment of our membership. We owe it to these newest members of our profession to find ways to engage them. HAD should have a presence on social media, don't you think? That's an area where we could use help. At the January HAD Town Hall meeting Alison Crisp, a graduate student at LSU, described her efforts to create an [archive of Arlo Landolt's workpapers](#). Perhaps helping institutions to identify and preserve the most historically and scientifically important materials of our deceased colleagues is another area where we could engage HAD members. Do you know HAD has a travel grant program for students who want to present talks or posters relevant to the history of astronomy? We had no applicants this year—help us get the word out.

Since 2016, HAD has provided the *AAS News Digest* with a peer-reviewed [This Month in Astronomical History](#) (TMIAH) column. Michael Marotta, TMIAH Editor, published twelve issues in 2023. The [HAD website](#), which is being updated by AAS staff member Alex King this year, contains archives of all HAD business documents, reports, abstracts of talks presented at HAD meetings, past issues of *HAD News* and *TMIAH*, links to obituaries of AAS members (including a list of needed obituaries), and links to resources related to the history of astronomy. Have a look if it's been a while since you've visited our web site.

Past Chair Kevin Krisciunas has just convened the selection committee for the bi-annual Donald Osterbrock Award for astronomy books published within the most recent three years. An impressive number of books were nominated this year. The awardee will be invited to the January 2025 AAS meeting. Stay tuned for the outcome.

HAD At-Large member Loretta Cannon, who is a science journalist, just introduced a new HAD-sponsored [H'ad astra historia](#) podcast, hosted by Cosmoquest's [365 Days of Astronomy](#) project. Her first guest is HAD member Dr. Sethanne Howard, discussing the history of women in science. AAS members are encouraged to

participate in this project—contact Loretta (neptunedit42@gmail.com).

Here are a few other action items. This fall, HAD will conduct an election for new officers; let us know if you are interested in being nominated. We will discuss a proposed new HAD prize for popular astronomy writing. We will continue to set aside HAD meeting time for invited and contributed talks relevant to our sister divisions' histories.

Joe Tenn, who has managed the *Astronomy Genealogy Project* for over a decade, plans to retire soon. HAD will assist him in assuring its continuation. We will also assist Jarita Holbrook in soliciting participants and finding a permanent archive for the *Astronomy Oral History Project*.

HAD is your division. Let's hear from you! A Letters to the Editor column would be a good addition to the *HAD News*, don't you think?

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From the Vice Chair

J. Allyn Smith

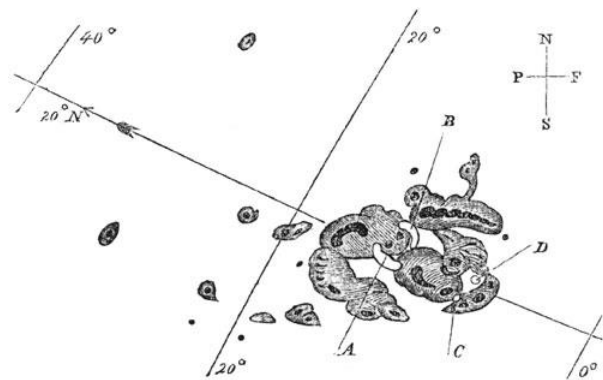
Austin Peay State University

History... We just witnessed one of the strongest, if not the strongest, solar storm in several decades: possibly since the Carrington event in 1859. During the 1859 event, which occurred just prior to solar maximum, there were reports that telegraph wires went haywire; the sending keys sparked; and telegraph papers were set afire. The following day, the American Telegraph Company still could not operate as there was stored current in the lines. Auroral displays were noted as far south as Havana, Cuba and Honolulu. Richard Carrington, the English amateur who witnessed the event, was the first to connect the flare and resultant CME and the auroras. This event triggered a new understanding of our star and helped to kindle the field of Heliophysics.

Most of our electrical grid and devices that we rely upon seem to have survived the flare(s) of 2024, which also occurred just before the solar maximum for this cycle. What will happen the next time, and what would happen in the event of a true Carrington-class monster? Would it be the end of civilization as we know it? How resilient are our electrical devices to withstand this type of event? We can speculate what could happen and what our state of readiness to handle this type of emergency is but, that's not the purpose of this column. Instead, we should take the opportunity to learn from the event and help prepare for the next one.

The images of the resulting aurora from around the world have been spectacular and social media has helped spread them to people who might not otherwise be aware this was happening. Further, social media helped spread (hopefully) some basic science to many of these people and gave several an opportunity to see an aurora for the first time in their lives. Will this be an inspiration for some students to take an interest in science as a possible career? Coupled with the total solar eclipse in April and the annular eclipse last October, astronomy has been in the media a lot lately. Hopefully it will all help motivate future scientists. However, one of the duties/pleasures of scientists, educators and historians is to also look to the past and preserve the hard-won lessons in an effort to save future generations from having to re-learn these... or at least leave them instructions to minimize the trial-and-error.

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Richard Carrington's drawing of a solar flare observed above a large sunspot group on September 1, 1859. The regions labeled "A" and "B" are the two "beads of light" which suddenly appeared shortly after 11:18 GMT that morning. By 11:23 they had disappeared from view, at regions "C" and "D" in the sketch. (Image courtesy Royal Astronomical Society)



From the Secretary-Treasurer

Susana E. Deustua

National Institute of Standards and Technology

Hello all. It's an honor to follow Ken Rumstay as your Secretary-Treasurer. A bit daunting too, as there is much to learn about the workings of the Division. Fortunately, there is the wonderful [Standard Operating Procedures](#) of the Historical Astronomical Division (available on the HAD website). I recently served as vice-president, president, and advisor of the IAU's Division C (Education, Outreach and Heritage), and am happy to be able to concentrate more on astronomy heritage and history. Last month I made the trek from home to New York — to the center line of the solar eclipse. As luck would have it, the clouds blocked the eclipse (though I did get a glimpse of a "moon bite", and experienced the eerie darkness). This led me to ponder on the efforts of Jeremiah Horrocks to make astronomical observations, including the 1639 transit of Venus from Lancashire, UK and that of the 3rd, Earl of Rosse who sited his "leviathan" telescope in the "backyard" of Birr Castle in Ireland. Though neither of these locations are known for their clear skies, sky watching is still possible. Fun fact: Mary Parsons, Countess of Rosse was an excellent photographer and took pictures of the telescope. She was also a blacksmith.

At the January 2024 meeting in New Orleans, I assumed my first task — guardian of the HAD meeting plaque. And I think I'm now ready for the next four years!

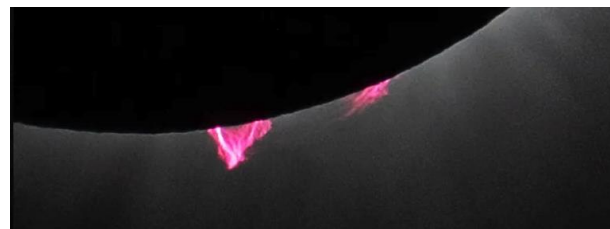
susana.deustua@nist.gov



The HAD plaque, which now resides with Susana, was created by member [Ron Schorn](#) in 1996. HAD's logo was adopted from "The Astronomer", a woodcut engraving by Albrecht Dürer (1471–1528). This illustration appeared on the title page of a 1504 German edition of Messahalah's *De scientia motus orbis*.



During the solar eclipse of April 8th, an impressive prominence was visible on the southern limb. It was clearly visible to the unaided eye as a pinkish spot on the Sun's edge. (Image credit: NASA/Keegan Barber)





Report on the 2024 HAD Town Hall

Ken Rumstay

Valdosta State University (Emeritus)

Before reporting on this year's Town Hall (our annual business meeting), I would like to thank the members of the HAD Executive Committee for permitting me to continue editing our division newsletter! It is a privilege to do so.

The 2024 HAD Town Hall convened at 12:45 pm on Monday, January 8th, in Room 215 of the Ernest N. Morial Convention Center in New Orleans. About two dozen people were in attendance. Chair Terry Oswalt opened the meeting by welcoming everyone and introducing our new Secretary-Treasurer Susana Deustua. Currently employed at the National Institute of Standards and Technology, Susana received her Ph.D. from the University of Michigan at Ann Arbor in 1992. Among her areas of scientific expertise are extragalactic astronomy, cosmology, and absolute spectrophotometric calibration. She is particularly interested in astronomy education and outreach, and has served as President of the International Astronomical Union's Division C (Education, Outreach and Heritage).

After reminding us of that evening's Doggett Prize Lecture by Wayne Orchiston, Terry described some of the division activities of the past year.

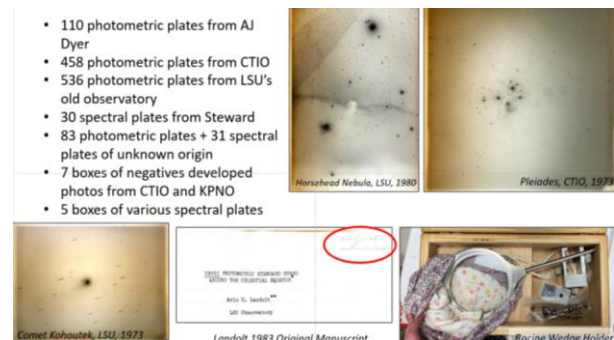


Approximately two dozen members attended the HAD Town Hall on Monday afternoon.

In addition to the routine tasks (filing an annual report, preparing for the current meeting, etc.), Terry noted that a Standard Operating Procedures document for HAD was prepared at the request of the AAS, and that our service of providing AAS member obituaries had been featured in last February's *AIP History Newsletter* (volume 55, No. 1, p. 30). Terry also outlined some of the new initiatives which we plan to pursue in 2024, most notably a podcast series spearheaded by Loretta Cannon (a member of the HAD Committee). In *H'ad astra historia*, Loretta plans on offering three to four episodes per semester during each academic year, bringing you stories from the past. If you have ideas for this new outreach platform, please contact Loretta at NeptuneEdit42@gmail.com.

One of our long-standing goals has been to increase the diversity of our membership, and to get more students and early-career members active in our division. At this point in the meeting, Terry welcomed to the podium Alison Crisp, a PhD student in her final year of studies at Louisiana State University, Baton Rouge. As an undergraduate Alison minored in history, and is keenly interested in the social and political history of space policy and the Space Race. She is currently the editorial chair and administrative co-chair for *Astrobites* (whose table adjoined ours in the Exhibit Hall), and she joined HAD in 2020.

When beloved LSU astronomer Arlo Landolt passed away in January 2022, he left behind a vast amount of material in the form of paper documents, photographic plates, and data in digital format. Since then Alison has been working with James Clem (one of Arlo's former postdocs) to organize and catalogue this material. A list of the plates in this collection, along with an ADS library of the papers that she has been able to associate with those plates, may be found on Alison's website at <https://alisoncrisp.com/historical-astronomy/>.



New HAD member Alison Crisp reported on her efforts to organize and conserve materials left by the late Arlo Landolt.

The conservation of materials such as these is of great concern to the members of HAD and to those of the AAS Working Group on the Preservation of Astronomical Heritage (WGPAH). We were all greatly impressed by Alison’s efforts, especially while completing her dissertation and beginning a job search. Thank you, Alison, and best wishes; we look forward to working with you!

Next to speak was Jarita Holbrook, currently at the University of Edinburgh, who reported on the current status of the AAS [Oral History Project](#). To date over 200 interviews have been conducted, but few of these are publicly available online. The bottleneck has been in transcribing the audio files and correcting those transcripts. They are intended to be archived at the American Institute of Physics’ Niels Bohr Library and [Online Interview Archive](#). Jarita reported however that, thanks to Otter.ai™ speech-to-text transcription software, all of the transcripts are now completed! But human assistance is now needed to correct the transcripts. If you would like to help, please contact Jarita Holbrook at jc.Holbrook@ed.ac.uk.

J. Allyn Smith then went to the podium. As HAD’s Vice Chair it is his responsibility to identify authors to write obituaries for deceased AAS members (and some non-members as well). These are published in the online journal [Bulletin of the American Astronomical Society](#). The officers of the Historical Astronomy Division assumed this duty in 1991, following suggestions made by John Lankford in 1984 and by Steven Dick in 1991. The first set of obituaries was published the following year, in Volume 24, Issue #4 of the *BAAS*.

Allyn reported that twenty-one obituaries had been completed during the previous year, but that about

sixty are still needed. Most of this backlog is for AAS members who passed away more than five years ago. Allyn asked everyone in attendance (and we ask everyone reading this!) to please go online, take a look at the list of [needed obituaries](#), and consider writing one. These obituaries are usually published on the *BAAS* website within a few days of submission, and are referenced in the NASA ADS database. Together, they constitute a valuable record of American astronomical activity throughout the years. If you could help in this worthwhile endeavor, please contact Allyn at smithj@apsu.edu.

The meeting then took a solemn turn, as Allyn posted a list of two dozen astronomers who had passed away in 2023:

- | | |
|--------------------------|---------------------------|
| <i>Laurence Auer</i> | <i>Tom Kinman</i> |
| <i>Ted Bowell</i> | <i>Phillip Kronberg</i> |
| <i>Katherine Bracher</i> | <i>Michael Lampton</i> |
| <i>Thomas Corbin</i> | <i>Roger Lynds</i> |
| <i>Terence Dickinson</i> | <i>Dennis Matson</i> |
| <i>Stephen Drake</i> | <i>H. Richard Miller</i> |
| <i>Sam Durrance</i> | <i>Michael Molnar</i> |
| <i>Uri Feldman</i> | <i>Harvey Richer</i> |
| <i>Peter Gierasch</i> | <i>Frank Shu</i> |
| <i>Owen Gingerich</i> | <i>Jan Staff</i> |
| <i>James Hartle</i> | <i>Jean-Pierre Swings</i> |
| <i>Robert Howard</i> | <i>Brian Warner</i> |

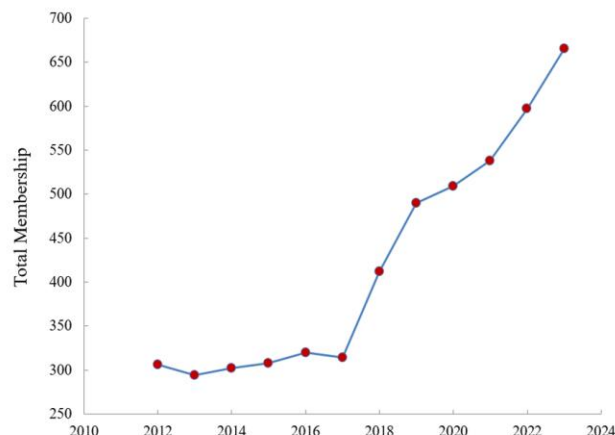
We observed a moment of silence in memoriam.

In my last act as HAD’s Secretary-Treasurer, I then presented the usual membership and financial reports to the assembly. Continuing our growth spurt of the past seven years, we ended 2023 with a record 665 members (see below), nearly half of them students! This growth of our membership was

HAD Membership as of 2023 December 31

#		Member Classification
175	F	AAS Full Member
150	E	AAS Full Emeritus Member
122	GR	AAS Graduate Student Member
128	JR	AAS Undergraduate Student Member
32	AM	AAS Amateur Affiliate
20	HAD	HAD Division Affiliate only
25	ED	AAS Educator Affiliate
2	DA	Division Affiliate (two or more divisions)
5	IA	AAS International Affiliate
3	Staff	AAS staff member
1	P	AAS Patron Member
2	SPS	SPS Member

Total: 665



very favorably noted at the AAS Division Leadership meeting last October.

Financially, HAD is in good shape. Most of our revenue comes from investments, and in 2023 the stock market showed significant improvement over the previous year. The tables below show the end-of-year balances of our three major accounts over a four-year period and a summary of income and expenses for the 2023 calendar year. Many thanks to Kelly Clark, the AAS Chief Financial and Operation Officer, for providing these data!

The second greatest source of HAD’s income is in the form of contributions from its members. We would like to thank all who donated to our division in 2023! Their names appear at right.

*Jennifer L. Bartlett
William T. Bridgman
R. Peter Broughton
Edward B. Churchwell
Brenda G. Corbin
Donald R. Davis
Stanley F. Dermott
David H. DeVorkin
Jon W. Elvert
Thomas R. English, III
Donald E. Groom
Hans J. Haubold
Arnold M. Heiser
Kenneth I. Kellermann
Kerry A. Kingham
Kevin Krisciunas*

*Carol LePage
Stephen P. Maran
John T. Martens
Harold A. McAlister
Liam McDaid
Stephen C. McCluskey
Philip D. Nicholson
Terry D. Oswalt
Kenneth S. Rumstay
Daniel J. Schroeder
Gregory A. Shields
Horace A. Smith
Bella Sullivan
Thomas R. Williams
Robert F. Wing
Donald K. Yeomans*

Balance as of December 31 st	2020	2021	2022	2023*
Operating Account	\$30,992.03	\$36,952.63	\$41,714.24	\$48,613.99
Doggett Prize Fund	\$46,745.21	\$51,385.62	\$46,674.93	\$49,568.60
Osterbrock Prize Fund	\$34,380.29	\$41,224.53	\$42,699.34	\$45,285.63
Total:	\$112,117.53	\$129,562.78	\$131,088.51	\$143,468.22

Historical Astronomy Division				
For the Eleven Months Ending Thursday, November 30, 2023				
	Operating Budget	Doggett Prize	Osterbrock Prize	Totals
Revenue				
Individual Dues	3,301.56			3,301.56
Contributions	1,390.00	687.50	893.11	2,970.61
Interest	659.18	736.86	677.60	2,073.64
Investment Expense Offset	(85.00)	(95.01)	(87.37)	(267.38)
Distributed Market Value	2,741.35	3,064.32	2,817.91	8,623.58
Total Revenue and Transfers	\$8,007.09	\$4,393.67	\$4,301.25	\$16,702.01
Expenses and Transfers				
Domestic Travel	1,107.34			1,107.34
Prize Awards		1,500.00	1,500.00	3,000.00
Prize Certificates			214.96	214.96
Total Expenses and Transfers	\$1,107.34	\$1,500.00	\$1,714.96	\$4,322.30
Surplus/(Deficit)	\$6,899.75	\$2,893.67	\$2,586.29	\$12,379.71
Beginning Balance (Yr.)	\$41,714.24	\$46,674.93	\$42,699.34	\$131,088.51
Ending Balance (Yr.)	\$48,613.99	\$49,568.60	\$45,285.63	\$143,468.22

In light of our viable financial state, membership dues will not be increased at this time, but will remain at their current rates (\$15 for AAS full members and \$20 for Division Affiliates), with no dues assessed for student or Emeritus members.

I ended my report by reminding members of the many resources available on HAD's website and of our publications (*HAD News* and *This Month in Astronomical History*). I also noted that we were soliciting nominations for the 2025 Donald E. Osterbrock Book Prize for Historical Astronomy (nominations were accepted through March 1st) and that we were also seeking proposals for special sessions to be held at our next meeting. HAD is scheduled to meet January 12–14 at the Gaylord National Resort and Convention Center in National Harbor, Maryland. As usual, our meeting will be held in conjunction with the 245th meeting of the American Astronomical Society.

Jennifer Bartlett (Chair of the Working Group on the Preservation of Astronomical History and Heritage) next came forward to report on the status of the AAS Historic Site Designation Program. To be patterned after a [similar program](#) operated by the American Physical Society, the AAS (after a feasibility study was conducted by a WGRAH task force formed in 2021) approved the project in 2023. A permanent committee to oversee this program is now being formulated.

That was a lot to cover in the hour we were allocated! Terry closed the meeting by thanking me for serving as Secretary-Treasurer for eight years. It has been a privilege!

krumstay@valdosta.edu



This year's conference hotel key card featured a dog and a cat posing in front of a nebula. Last year's featured two cats (*HAD News* #101, p.107). I wonder whether some dog-lover might have complained?



The January 2024 AAS Strategic Assembly

Terry Oswalt

Embry-Riddle Aeronautical University

In 2016, the AAS formed a Strategic Assembly. Meeting at least once per year since then, the SA brings together representatives from the AAS Executive Office, Divisions, Committees, Working Groups, Task Forces, and invited guests to provide a venue by which AAS constituencies can report on progress, pool ideas, and help set priorities for the AAS. The most recent SA was held on January 7th in the New Orleans Hilton Riverside, a block from the convention center venue, just prior to the beginning of the AAS 243 meeting. The SA was chaired by AAS President Kelsey Johnson. Terry Oswalt represented HAD at this meeting, which included about 30 participants.

Following introductions, each participant was given time to summarize the recent activities of their respective Division, Committee, Working Group, or Task Force. Oswalt provided a summary of recent HAD activities, which are summarized elsewhere in this issue of the *HAD News*.

Next, AAS CEO Kevin Marvel provided a “report card” on the [AAS Strategic Plan for 2021-6 \(SP\)](#), which contains roughly two dozen primary objectives and many other secondary goals. Completion or significant progress was reported in nearly all areas of the SA. The focus during the coming year will be on increasing collaborations among multiple stakeholders and organizations relevant to astronomy, improving participation of marginalized groups at AAS events, implementation of nomination and review procedures, providing leadership development training, supporting the development of strategies to improve education and retention of undergraduate majors, creation of clear ways for new members to engage and network, improving support and

recognition of volunteers, developing new connections to foundations, partner organizations, amateurs and educators, developing onboarding processes for Division and Committee members, and developing metrics for assessing the effectiveness of AAS governance.

The presentation was followed by a multiple group break-out discussion of the SA participants, which validated the importance of the areas outlined above and emphasized some additional areas such as ensuring better communication channels, engagement of young and amateur AAS members, better documentation on the duties of officers such as Past Chairs of AAS divisions, a preference for hybrid meetings that allow participation of members who lack travel funding, etc.

Just prior to a lunch break Dr. Khoto Mokhele, representing a contingency from the South African Astronomical Society, outlined plans for the summer [2024 IAU General Assembly](#), which will be held in Cape Town. Michael Moloney, director of the American Institute of Physics, summarized the ways this parent organization of the AAS supports astronomy-related initiatives. Some examples include funding of the AAS Heineman Prize, conducting a survey of graduate support in astronomy, and funding of the [Team-Up Program](#) to improve engagement of underrepresented minorities in our profession. He also noted that the Society of Physics Students (SPS) now explicitly includes astronomy.

Following a lunch break, AAS Secretary Alice Monet outlined the schedule of due dates for reports and expectations for Divisions, Committees, Working Groups and Task Forces during the coming year. She then passed the baton to AAS President-Elect Dara Norman, who discussed the need for implementing term limits for at least some Committees, Working Groups and Task Forces whose goals have been accomplished and/or whose need has been superseded. In addition, a rubric has been drafted for how funding is to be requested by and distributed to AAS Divisions.

Reports from AAS Task Forces occupied the midafternoon session. The AAS Climate Change Task Force, headed by Travis Rector, presented the results of their study of AAS meetings. Surprisingly, Astronomy has the largest CO₂ footprint of all the sciences. Next, Steve Unwin, chair of the AAS Meeting Task Force, explained why the AAS decided not to continue hybrid meetings: they are

simply much more expensive, and the level of participation dropped considerably in the post COVID era. Kate Follett, chair of the Early Career Task Force, pointed out that almost one-third of attendees at the AAS 234 New Orleans meeting are first-time registrants—underscoring the need for us to find ways to engage and retain them.

The final session of the SA included a presentation by Bethany John, who outlined how the AAS engages in public policy, governance, and scientific funding negotiations. She urged AAS members to take action through their state and federal representatives on the issue of light pollution, especially the potentially existential issue of satellite constellations. Her presentation also included an outline of the Decadal Survey process, other space diplomacy issues, and political problems affecting international researchers and students. Jason Wright concluded this session by describing the newly rebooted [“AAS Agents Program.”](#) Many more agents are needed if the program is to succeed and HAD members are encouraged to volunteer.

The meeting concluded with a “team building” activity involving astronomical sculpting (below), followed by a general brainstorming discussion of what the AAS should be like ten years from now. More on that later...

terry.oswalt@erau.edu



The winning “astronomy sculpture” at January’s AAS Strategic Assembly



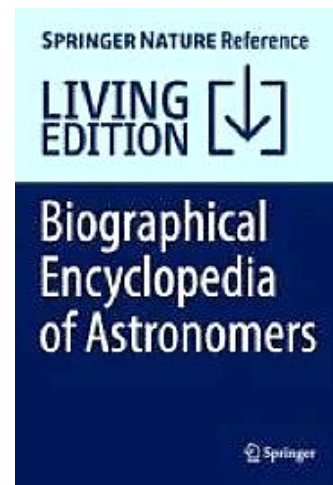
Have You Ever Wanted to Write About...

Jennifer Lynn Bartlett and Phil Nicholson
Co-editors-in-chief
Biographical Encyclopedia of Astronomers

Have you ever wanted to write about one of the astronomers below? Or do you know the best person for the job? Here is your chance to improve the coverage of an astronomer in the third edition of the *Biographical Encyclopedia of Astronomers* (BEAIII). Each individual has a brief (one-sentence) entry in the second edition, but we think he deserves a little more attention. Although BEAII articles are usually about 1,000 words, even a full paragraph about an individual would be welcome. Illustrations or photographs would also improve these articles.

Articles for the 3rd edition appear in the living online version, and are citable, shortly after being accepted for publication. The abstract, or “Impact and Major Contributions” paragraph is freely accessible and discoverable on the Internet. Authors receive the Springer author package of benefits including electronic access to their reference works. If you are interested, please contact the editors for additional information.

jennifer@bartlettastro.com
nicholso@astro.cornell.edu



BEA (2nd edition) Single-line Biographies

Abbo of Fleury (c. 945–1004)
Joseph-Alphonse Adhémar (1797–1862)
Aeschylus (c. 5th cen. BCE)
Andalò di Negro of Genoa (died 1342 CE)
Bartholomaeus Anglicus (c. 13th cen. CE)
Jacob Bartsch (c. 1624 CE)
Bhattotpala AKA Bhatta Utpala (c. 950 CE)
Ernest Clare Bower (1890–1964 CE)
Felix Chemla-Lameche (1894–1962 CE)
Chen Kui (c. 16th cen. CE)
Chia K'uei (30–101 CE)
Joshua Childrey (1622?–1670 CE)
Joseph Crosthwait (born 1681 CE)
Antoine Darquier de Pellepoix (1718–1802 CE)
Emmanuel Diaz the Younger AKA Yang Manuo (1574–1659 CE)
Achille-Pierre Dionis du Séjour (1734–1794 CE)
Nicolaus Engelhard (c. 1738 CE)
William Henry Finlay (1849–1924 CE)
Boris Garfinkel (1904–1999 CE)
Johann Gildemeister (1753–1837 CE)
Ronald Gordon Giovanelli (1915–1984 CE)
Francis Godwin (c. 1566–1633 CE)
Gregory of Tours (c. 6th cen. CE)

Guo Shoujing AKA Kuo Shou-ching (1231–1316 CE)
Hermann the Dalmatian (c. 1143 CE)
Olof Hiorter (1696–1750 CE)
Johannes Honter 1498–1549 CE
Pierre Lacroute (1906–1993 CE)
Duncan Liddel (c. 1587 CE)
Titus Lucretius (c. 99 –c. 55 BCE)
Mahendra Sūri (c. 14th cen. CE)
Robertus Anglicus AKA Robert the Englishman (c. 1271 CE)
Wolfgang Schüler (c. 16th cen. CE)
Seneca (c. 1st cen. CE)
Sima Qian AKA Ssu-ma Ch'ien or Zichang (c. 145–135 to c. 90 BCE)
Sphujidhvaja (c. 3rd cen. CE)
Thierry of Chartres (died c. 1150 CE)
Johannes Vögelin AKA Vogelinius (c. 16th cen. CE)
Max Waldmeier (1912–2000 CE)
George Wharten (1617–1681 CE)
William of Moerbeke (c. 1215–c. 1286 CE)
Chauncey Wright (1830–1875 CE)



We Have a Podcast: *H'ad astra historia* !!

Loretta J Cannon, HAD Leadership
Committee 2023-2025, Science Writer/Editor

Some of you – those who attended the HAD Town Hall at AAS243 in January – learned about our soon-to-be podcast and even helped choose the look for our logo/icon (see the image above). For those of you who haven't heard, *H'ad astra historia* is the official podcast for the Historical Astronomy Division of the American Astronomical Society. We're here to share stories from and about the people who study the stars, planets, and the cosmos. We'll be hearing from individuals who not only study the history of astronomy, but also those who lived it, who were "in the room" during pivotal events within the last 50 years or so.

Astronomy has been called the first science – centuries before Somayaji and Copernicus, even before En'Hedu'anna and Anaxagoras, humans were observing, *remembering*, and recording the objects in the heavens. There was an immediate and direct connection between what they saw in the sky – night or day – and their lives. They took the 'order' of the sky and applied it to themselves and their belief systems. Astronomy and religion were two parts of one whole that explained who they were, what they should do, and why things happened. It's only within the last 400 years (since the Enlightenment) that astronomy grew into a secular endeavor of research, testing, and analysis. Today, astronomers continue the search to understand "*Life, the Universe, and Everything.*" Through *H'ad astra historia*, we want to tell the stories of all of these astronomers.

On March 28, 2024, our podcast debuted on the website [365 Days of Astronomy](#)¹. The first episode, [Women in Science History](#), featured Dr. Sethanne Howard, the first woman to earn a Physics degree from UC Davis in 1965; she earned her Master's in nuclear physics from Rensselaer Polytechnic

Institute and her doctorate in astrophysics from Georgia State University. Over her career, she (a) has worked with X-ray satellites at Los Alamos National Laboratory, and with the Compton Gamma Ray Observatory at the NASA Marshall Space Flight Center, (b) managed several NASA satellites and mission programs at NASA headquarters, (c) spent three years at the National Science Foundation as the Program Director for Extragalactic Astronomy and Cosmology, and also Executive Secretary for the international Gemini Telescopes project. In October 2000, she joined the US Naval Observatory as the Chief of the Nautical Almanac Office. Though now retired, she explores the history of women in science and technology. In 2012, she published *The Hidden Giants* – an encyclopedic wealth of knowledge covering 4,000 years of recorded science history and the women who accomplished that work. [Sethanne's website](#) explores those same Women in Science. She currently volunteers her time for three international programs: [Skype a Scientist](#), [Ask a Physicist](#), and [Letters to a Prescientist](#).



As our first guest, Dr. Howard told us about some remarkable, though-rarely-mentioned-in-history, women astronomers. The most remarkable was En'Hedu'anna², and she is "the first astronomer whose name and work we know." She was the daughter of King Sargon, who conquered Sumer and created a unified Akkadian Empire in Mesopotamia. Around 2334 BCE (~4000 years ago), he assigned En'Hedu'anna to be the Chief Astronomer Priestess at the temple-complex in the Sumerian city of Ur, which was the center for religious, scholarly, and commercial pursuits for



"A scene of sacrifice is carved on to one side of this calcite disc; an inscription of Enheduanna appears on the other." (credit: The Penn Museum)

his empire. One of her *many* responsibilities was overseeing the group that monitored the Moon and announced each New Moon, to maintain the lunar calendar. She was also a prolific writer. In those days writing was cuneiform, which was written as couplets (unless it was a list) and inscribed with a stylus on small clay tablets. As such, she is considered the world's first poet though the content of her work included secular topics. Many of En'hedu'anna's writings have been translated and published by Betty De Shong Meador in *Princess, Priestess, Poet* (2009, Univ of Texas Press).

According to an online BBC Culture article, [Enheduanna: The world's first named author](#), this amazing woman

“played an essential role helping bind together the northern Mesopotamian region of Akkad, where Sargon first rose to power, before he went on to capture the Sumerian city-states in the south. She did so by helping meld the beliefs and rituals associated with the Sumerian goddess Inanna with those of the Akkadian goddess Ishtar, and by emphasizing those links in her literary and religious hymns and poems, thereby creating a common system of beliefs throughout the empire. ... [These] hymns En'hedu'anna wrote for 42 temples in the southern half of Mesopotamia highlighted the unique character of the patron goddess to the worshippers in those cities; the hymns were copied by scribes in the temples for hundreds of years after her death.”

She signed her name, so to speak, on her tablets, “The compiler of the tablet (is) Enheduanna ... that which has been created (here) no one has created before.”

Our second episode, [Egyptian Star Clocks with guest Dr. Luna Zagorac](#), is also available. Dr. Zagorac is a postdoc at the Perimeter Institute for Theoretical Physics in Waterloo, ON, Canada (near Toronto). She earned her Bachelor's, with Honors, with a double-major in Astronomy/Physics & Anthropology from Colgate University in Hamilton, NY, and her PhD in Physics from Yale University. She has learned multiple languages, from ancient (Latin, Middle and Late Egyptian) to modern (French, Italian & Arabic) to computer (Pascal, Chapel, & Python). After starting college in 2012, she earned



seven academic awards/honors in just eight years! She's a proficient and prolific science communicator – from presentations at scientific meetings, to talks for the general public, to writing for AAS-sponsored [Astrobites](#) (an online forum of 'Reader's Digest'-versions of published astrophysics articles). Dr. Zagorac currently works on particle cosmology exploring dark matter theory. She is, in her words, “intrigued by gravitating wave-like phenomena in the Universe, from wave dark matter and boson stars to the inflaton condensate and gravitational waves.” And, as you'll learn in April's podcast episode, she loves interdisciplinary approaches to science. I don't want to give away any of the details of the episode, but I will share this – if you've ever seen a documentary on ancient Egyptian pharaoh's tombs that included 'star charts' painted on the ceiling, and you wanted to learn more about that, then be sure to listen to our next podcast!

For future episode guests, I recently had a fun idea. I know that many astronomers are also science fiction aficionados. And who hasn't heard of *Star Trek*? But how many of you are aware that Nichelle Nichols, who portrayed Lt. Uhura in the original series (later promoted to Cmdr. in subsequent films), was asked by NASA in 1977 to help recruit women and minorities for the space shuttle astronaut corps?

According to the 2021 documentary *Woman in Motion: Nichelle Nichols, Star Trek and the Remaking of NASA* (get comfortable, this might take a bit) ...

... At the 1975 Chicago Star Trek convention, Dr. Jesco von Puttkamer, NASA's Director of Science, was included on the panel with the actors. He and Nichelle became friends. But while she was in awe of space exploration and NASA, she didn't see 'herself' in that process. Where were the women and minorities? So she wrote about it and was published in magazines and newspapers and received a good bit of press coverage. Then in early 1977, she was appointed to the Board of Directors for the [National Space Institute](#); and in January she gave a speech to the annual joint board council meeting in which she asked the 3,000 or so mostly white men attending, 'where are my people?' meaning women and minorities. After that,



Nichelle was invited to Washington, to NASA headquarters, to meet with the NASA administrator, Dr. James C. Fletcher, who'd been *in that* audience that day. She saw women and minorities in every level of the organization but wondered why the public didn't know this.³

At this time, NASA was in a transition period. Apollo had ended, Skylab was winding down, but the shuttle program was gearing up and NASA needed talent – “a new class of astronauts.” The Apollo astronauts were white male, often military, test pilots. For the shuttles, they wanted not only pilots but also “mission specialists, people with PhDs, medical degrees, researchers who'd be doing the experiments.” But eight months into NASA's year-long recruitment period, the small applicant pool of 1500 reflected a “legacy of historic discrimination.” They asked Nichelle why no women or blacks were applying, and she told them, “We don't believe you.” Twenty-plus years of racial discrimination and sexist application requirements had created a huge credibility issue. When asked how to fix this, Nichelle told them, ‘You need to get someone immediately, with credibility and high visibility whom people would believe, someone who wouldn't be talking to them if NASA was not serious about who they wanted to recruit.’ And NASA said, ‘What about Lt. Uhura?’ Nichelle agreed, as long as she managed the recruitment campaign, which would help convince potential applicants of NASA's sincerity in seeking a diverse astronaut class. She put her career on hold, and under her company Women in Motion, Inc.⁴, with a NASA grant, she launched a grueling 4-month long recruitment campaign geared toward attracting minority applicants. In February, she started by putting herself through a short version of astronaut training so she could describe the training program when speaking with potential recruits.



Nichelle Nichols with students (credit: NASA)

And on March 1, she was on the road, visiting universities, women's organizations, professional science organizations, the organization of black engineers and scientists, LULAC (League of Latin American Citizens), and communities of Asians, blacks and Spanish-Americans, and the Organization of Black Pilots – luckily many of these groups had their annual meetings scheduled during her recruitment campaign. She told people about the difference between a military application and a civilian application to NASA, which encouraged/allowed active military personnel to apply through civilian channels. She made Public Service Announcements that were shown in Primetime (because she was Uhura), and she was on local and national talk shows, including *Good Morning America* on June 14. The application deadline of June 30, 1977 was quickly approaching.

Six months later, in January 1978, the [first class of Space Shuttle astronauts](#) were announced! Over Nichelle's intensive 4-month recruitment campaign, the applicant pool had grown from only 1500 to 8000, women applicants increased from less than 100 to 1649, and minority applications increased from 35 to 1000. NASA was so impressed with the new applicant pool, they expanded the 1978 astronaut class roster from 25 to 35. The new class included six women and four minorities. And on September 17, 1978, in Palmdale, CA, the first space shuttle was rolled out. It was the *Enterprise*! And Nichelle along with many of her fellow *Star Trek* actors, plus Gene Roddenberry, were invited to witness the rollout. While the *Enterprise* never carried a full crew on its successful test flights, *Columbia* (flight STS-5) carried the first four space shuttle astronauts in November 1982. It wasn't until June 1983 (STS-7) that Dr. Sally Ride became the first American woman astronaut in space, and in August 1983 (STS-8), Guion Bluford became the first African American astronaut in space. In recognition of her immense effort and spectacular results, in October 1984 Nichelle Nichols was awarded NASA's distinguished Public Service Award and Medal, presented to her by her friend Dr. Judith Resnik, one of the 1978 astronaut class.

An integrated astronaut corps meant not only enjoying the benefits but also experiencing the tragedies that are involved when working in outer space. No one alive then⁵ will ever forget watching the shuttle launch (STS-25) on the morning of January 28, 1986, when *Challenger* broke apart 73 seconds into its flight.



Challenger crew: (back) Ellison Onizuka, Christa McAuliffe, Gregory Jarvis, Judy Resnik, (front) Michael Smith, Richard Scobee, Ronald McNair (credit: NASA)

Two years and eight months later, in September 1988, the new shuttle *Discovery* launched, and they were back in space. In April 1990, a different *Discovery* crew (STS-31) placed the [Hubble Space Telescope](#) into orbit, a crew that included pilot Charles Bolden Jr and mission specialist Dr. Kathy Sullivan. In December 1993, (STS-61) *Endeavour* launched, carrying new ‘glasses’ for Hubble⁶ (see RIGHT, credit: NASA). Shuttle crews carried out five Servicing Missions to Hubble; the last was in May 2009, and there won’t be any more as the Space Shuttle program ended in July 2011.



I do want to add one thing. Not all astronomers are science fiction fans, and they don’t have to be. So if you know someone who isn’t, please don’t tease them or make them feel bad. *Everyone* gets to choose for themselves what they like or don’t like, it’s part of what makes each of us such interesting and unique people! But you don’t have to be a fan of science fiction to remember, admire and respect Gene Roddenberry’s vision of a future for *all* peoples of the Earth, embodied in the Vulcan term at the heart of their philosophy: IDIC, Infinite Diversity in Infinite Combination.

If you think back, if it weren’t for Gene Roddenberry’s idea about a ‘Wagon Train to the Stars,’ Nichelle Nichols wouldn’t have been cast as Lt. Uhura, and there wouldn’t have been a *Star Trek* convention where she met Dr. Jesco von Puttkamer, and she wouldn’t have recruited all those talented and amazing Space Shuttle astronauts. And if it weren’t for the Space Shuttle program, how would Hubble have been fixed, *if* it had been successfully launched in the first place?

Can you imagine the state of astronomy today if we hadn’t had Hubble up there peering into the darkness for the last 34 years?! How many of you reading this have relied on data from Hubble for your research? How many of you were inspired to study astronomy because of Hubble?

More specific to today’s story . . . Were you on a college campus back in the spring of 1977 when Nichelle Nichols visited, and were you inspired to study astronomy as a result? Alternatively, after seeing the women and minorities chosen for the first Space Shuttle astronaut class in 1978, were you inspired to enter the field of astronomy?

If you answered ‘yes’ to any of these questions, please contact me, I want to hear your story!

OR if you have a different story to tell, from *your* history in astronomy when you were “in the room” for something amazing, or a story you found from the history *of* astronomy, let’s talk!



Loretta J Cannon
H’ad astra historia podcaster
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NOTES

- ¹ 365 Days of Astronomy is a production of [CosmoQuest](#).
- ² En’ signified her title/position as Astronomer-Priestess, and her name Hedu’anna means ‘Ornament of Heaven.’
- ³ This was almost 40 years before the book and film *Hidden Figures* that introduced us to the women of color who worked for NASA during the Apollo program.
- ⁴ Nichols established Women in Motion, Inc. in 1975 to produce educational materials using music as a teaching tool.
- ⁵ I was in my living room, almost ready to leave for my job as office manager for an advertising agency. I still cry when I see footage and hear, “go for throttle up.”
- ⁶ Watch the PBS NOVA episode *Invisible Universe Revealed* that tells the story of Hubble’s faulty mirror and how it was fixed; the show includes the first stunning, vision-corrected images.



Wolbach Library Closes

Jennifer Lynn Bartlett

The Wolbach Library, located at the Center for Astrophysics | Harvard Smithsonian (CfA), closed permanently on March 22nd. [Losing this astronomical library is a tragedy](#). Imagining a world-class research facility without a library is difficult. Although the Harvard University Library System may fill the needs of most CfA staff, its closing is a loss to the astronomy and astrophysics community. My thoughts are especially with the staff who have been laid off; they are consummate professionals.

Librarian [Joyce M. Rey-Watson \(1922–2001\)](#) created the Wolbach Library in 1974 by consolidating the separate Harvard College Observatory (HCO) and Smithsonian Astrophysical Observatory (SAO) Libraries. Before this, the two libraries existed as separate facilities within the CfA. In 1992, the library administration also unified under a single head librarian and staff. The HCO collection dates to the late 1800s, when observatories exchanged scholarly works to disseminate knowledge. Astronomical material from Smithsonian collections in Washington, D.C. formed the original SAO library in the late 1950s. Consequently, the Wolbach Library housed one of the world's largest astrophysical collections of current and historic publications and artifacts.

As a leading astrophysical library, Wolbach also provided valuable services to the astronomical community at-large. Its librarians curated the [Astronomy Thesis Collection on Zenodo](#) and the [Unified Astronomy Thesaurus \(UAT\)](#), which the American Astronomical Society owns. By dismissing the library staff, CfA is also terminating support for these projects that benefit the whole community.

Although Rey-Watson was among the [NASA Astrophysics Data System \(ADS\)](#) founders, the closure of the Wolbach Library does not directly



The circulation desk at the now-shuttered Wolbach Library. Signs posted on the desk and door read: "Wolbach Library is closed as of March 22, 2024. For library assistance, please email asklib@fas.harvard.edu."



The reading room at the Wolbach Library, prior to closing



The Wolbach Library stacks

affect NASA ADS. She also helped bring SIMBAD (Set of Identifications, Measurements, and Bibliography for Astronomical Data) access from France to the United States. The ability to query simultaneously two databases hosted on separate continents was a major early ADS triumph. Two other founders were Michael Kurz and [Stephen S. Murray \(1944–2015\)](#), CfA staff scientists.

NASA funds ADS as an essential open science infrastructure for astrophysical research. In fact, NASA directed ADS to expand to support planetary science and heliophysics fully; in the past, ADS provided its best effort in these fields. In addition, ADS is to undertake similar support for earth science, and to cover NASA-funded research in the biological and physical sciences. [NASA Science Explorer \(SciX\)](#) is the name for the expanded collections and enhanced multi-disciplinary search engine. As part of the expansion, ADS also hired a project scientist for astrophysics. ADS established this position to ensure that the requirements of its core astronomy users continue to be met. In addition, new services should benefit current users as well as those in the new disciplines. The history of astronomy is essential to our current understanding of the universe and ADS should continue to support historians as well.

Previously, NASA ADS collaborated with Harvard Libraries on scanning the historic literature of astronomy and continues to scan materials to fill in the gaps in its electronic holdings. If you have material that is missing from ADS, please contact ADS at <https://ui.adsabs.harvard.edu/>. However, a scan is an observation of a resource and not a substitute for the item itself. Because the quality of scans can be inconsistent, re-scanning with improved technology may be warranted if a physical copy continues to exist. Having scanned material available through ADS makes it more Findable and, if copyrights permit, more Accessible. It cannot completely replace the experience of working with the physical item for all needs. The presence of an electronic surrogate in ADS should not be grounds to destroy all physical exemplars.

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Reflections on the Closing of Wolbach Library

Sara J. Schechner, Harvard University

News of the closing of Wolbach Library first reached me when a journalist for *Physics Today* contacted me for comment. I soon found myself in a swirl of emails and Internet postings filled with shock, dismay, unhappiness, and anger.

The decision was made by Lisa Kewley, the Director of the Harvard-Smithsonian Center for Astrophysics (CfA), apparently “in secret” (according to a knowledgeable source) and without consultation from stakeholders, such as library users or Wolbach Library staff to learn what they did for the community. There was no formal press release; the announcement was made in a CfA-wide email at 11 am on 23 January 2024 with Q&A scheduled for 2 pm the same day. The reasons given for the closure of the library—jointly operated by the Smithsonian Astrophysical Observatory (SAO, 80%) and the Harvard College Observatory (HCO, 20%)—were largely financial:

- The Harvard Library has staff expertise in research services and collections development relevant to the CfA.
- The Harvard Library already manages the digital journal subscriptions of the CfA.
- The Harvard Library has suitable preservation-quality storage facilities available for sensitive and historical items.
- The Harvard Library can provide services at a level that cannot be provided by the current level of staffing at the Wolbach Library.
- Integration avoids duplication of services that are provided by the Harvard Library.
- Due to the scale of the Harvard Library, there are significant cost savings to both SAO and HCO budgets through integration and avoiding duplication of services.
- The library space can be reimagined and utilized according to CfA needs based on a CfA-wide consultation process.

[Kewley’s email, 23 January 2024]

Some details were misrepresented, according to sources. For instance, the Harvard Library was only hosting the journals, which still had to be paid for by the Observatory; Wolbach staff had already been cut back; and it was misleading to say that the Harvard Library had staff expertise in astronomy or its history. In fact, the closing does not recognize the great loss of institutional knowledge held by the librarians who lost their jobs.

With Wolbach closed, the books formerly on open shelves have been relocated. Those originally belonging to HCO have gone to the Harvard depository and can be requested by readers. The SAO volumes have been sent to cold storage at Iron Mountain. Historical and rare items, such as the daguerreotypes, logbooks, and materials of Project PHaEDRA, have gone under the watch of the Plate Stacks, which will remain on site as a special collection in the Harvard Library system. Other manuscripts, rare books, and objects like William Cranch Bond's life mask were to be relocated on a case-by-case basis to the Houghton Library or the Harvard University Archives, which already preserves the records of the HCO, its directors, and staff, including individuals like Annie Jump Cannon. This latter change would be a good thing because it would reunite papers that were arbitrarily divided and put them in the care of professional archivists.

What will happen to the library space now emptied of books? I am told it may become a lunch space, offices, or an auditorium.

It is a shame that Wolbach Library has closed, but its books and records were not thrown away as some have feared; they were relocated to other collections, with the HCO items still accessible on the Harvard campus. The bigger loss, to me, seems like that of a garden or grove that drew people to it where they could explore, study, and converse with like-minded individuals, be guided by knowledgeable gardeners, and become informed and refreshed. The plants are now dispersed, and the garden will become office space.

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Wilson Park to Preserve Horn Antenna

Jennifer Lynn Bartlett, Chair, WGRAH

First the good news: Holmdel Township in New Jersey has officially acquired the horn antenna through which Arno Penzias and Robert Wilson first detected the Cosmic Microwave Background (CMB) radiation. By isolating this residual signal from the Big-Bang creation of the Universe, they started a new field of precision cosmology. On January 23rd, Mayor Rocco Impreveduto announced this success along with township plans to create a surrounding park named for Nobel Laureate Wilson on January 23rd. The instrument and its nearby control shed ("building 3") have been a National Historic Landmark (NHL) since 1990, but potential development projects threatened it in recent years. In 1992 Bell Laboratories, under Penzias, donated the receiver system, which they had especially designed to measure weak background signals, to the Deutsches Museum, Munich, Germany.

The township has purchased approximately 35 acres around the horn to be used for open space, recreation, and education for a price of \$5.5 million. However, the seller, Crawford Hill Holdings LLC, agreed to donate \$750,000 back to the township; these funds will pay for preservation of the antenna and for other site improvements, such as repaving roads. The current estimate for the cost of converting the site into a park with a visitors' center is \$1.68 million, for which the township is applying for grants and loans.

In a [letter](#) to former Mayor Domenico J. Luccarelli last year, AAS president Kelsey Johnson stated the importance of this instrument in the development of our field and asked the Holmdel leadership to preserve this iconic receiver. The Working Group on the Preservation of Astronomical Heritage (WGRAH) is delighted that the future of the horn antenna is securely in the hands of its community, which is proud of it and its legacy.

Now, the sad news: Arno Allen Penzias died on January 22nd in San Francisco; he had Alzheimer's disease. [Penzias and Wilson shared one-half of the 1978 Nobel Prize in Physics](#) for the discovery of the CMB radiation using the Bell Laboratories horn antenna in Holmdel.

Penzias was born on April 26, 1933, in Munich to a middle-class Jewish family, shortly after Adolf Hitler (1889–1945) was appointed Chancellor of Germany. At age six, Penzias left Germany for England on a 1939 Kindertransport; his parents entrusted him with caring for his younger brother, Gunter. Fortunately, the family was eventually reunited in England. From there, they sailed together to the United States, arriving in 1940.

After attending Brooklyn Technical High School, Penzias entered City College of New York. Although he started as a chemistry major, he switched to physics, graduating in 1954. He worked for two years as a radar officer in the Army Signal Corps before pursuing graduate studies at Columbia University. His research assistantship was in microwave physics at Columbia Radiation Laboratory under Nobel Laureates Isidor Isaac Rabi (1898–1988), Polykarp Kusch (1911–1993), and Charles Hard Townes (1915–2015). He built a maser amplifier for radio astronomy under Townes's direction for his doctoral work.

Penzias joined Bell Laboratories immediately after completing his doctorate in 1961 and worked there for thirty-seven years. After he and Wilson detected the faint 3-degree CMB, evidence of the Universe's explosive beginning, they turned their attention to molecular spectroscopy. With their millimeter-wave receiver on the National Radio Astronomy Observatory (NRAO) Kitt Peak radio telescope, they were joined by [Keith Jefferts \(1931–2014\)](#) to discover an unexpectedly strong signal from carbon monoxide (CO) in the direction of the Orion Nebula and to detect Deuterium-Carbon-Nitrogen (DCN), the first deuterated compound, opening another new area of radio astronomy research. Because only deuterium is exclusively created during an explosive event at the beginnings of the Universe, its cosmic abundance supported the "Big Bang" interpretation of their earlier CMB findings.

Eventually, Penzias moved into management. His promotion to Vice President of Research coincided with the break-up of the Bell System monopoly in 1981. He led the growth of Bell Laboratories as it adjusted to its new role under AT&T.

In 1995 Penzias joined New Enterprise Associates, a Silicon Valley venture capital firm, where he advised the staff on communications technology proposals. He eventually expanded his role to information technology, broadly, and to energy

alternatives. He enjoyed supporting innovative ideas and helping craft them into viable products. WGPAAH joins the astronomical community in conveying our condolences to the extended Penzias family as they mourn the loss of Arno.

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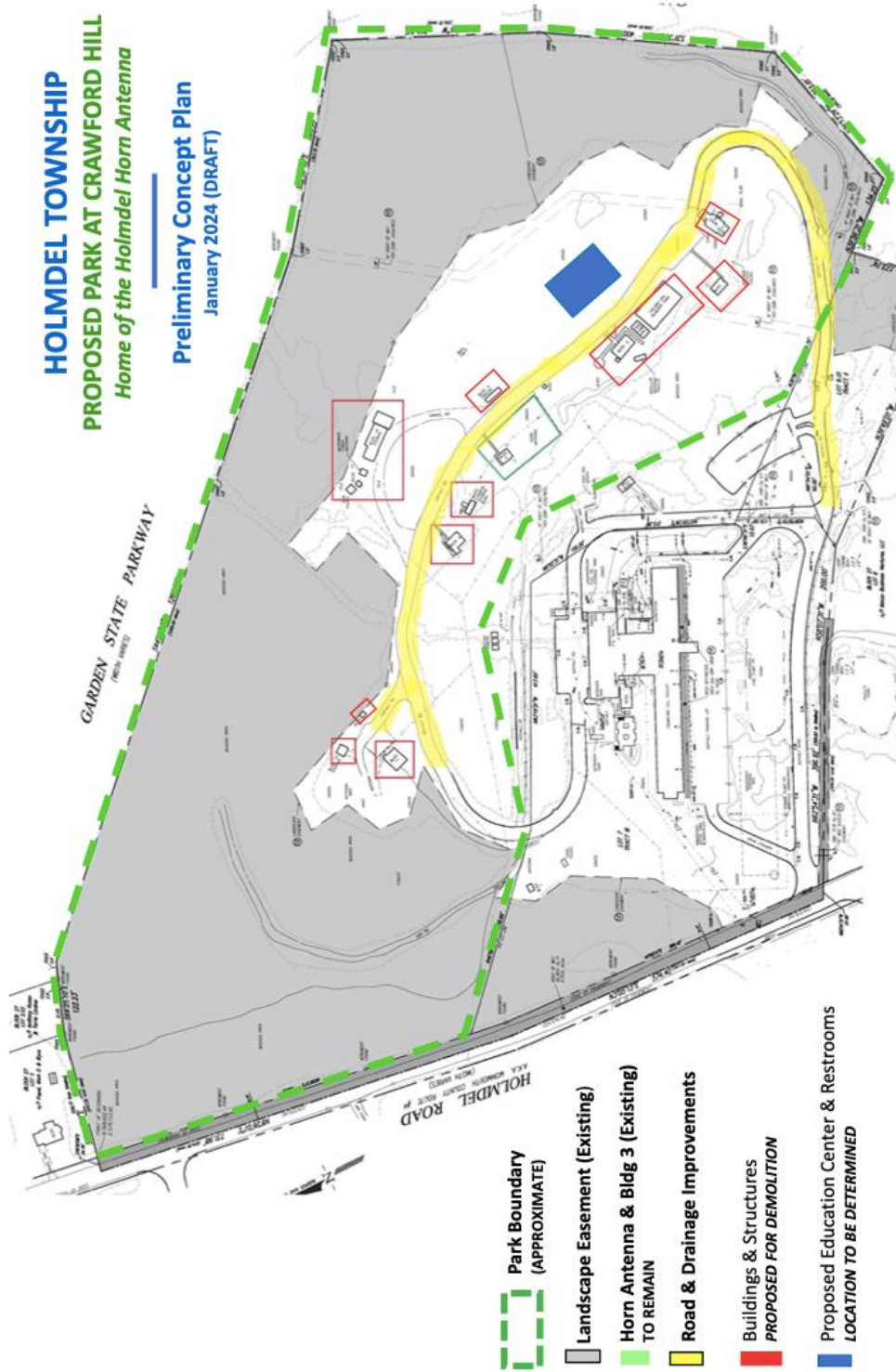
Close-up view of Holmdel Horn showing identifying sign, stairs, and equipment cab, c. 2023. (Image courtesy Jonathan Schilling (CC-SA 4.0), via Wikimedia Commons https://commons.wikimedia.org/wiki/File:Holmdel_Horn_Antenna_close-up_with_20-foot_sign.jpg)



Arno Penzias with equipment (Photograph courtesy of AIP Emilio Segrè Visual Archives, *Physics Today* Collection).



HOLMDEL TOWNSHIP
PROPOSED PARK AT CRAWFORD HILL
Home of the Holmdel Horn Antenna
Preliminary Concept Plan
 January 2024 (DRAFT)



January 2024 plans for Wilson Park on Crawford Hill (Image courtesy of Holmdel Township <https://www.holmdeltownship.com/DocumentCenter/View/5298/Holmdel-Twp-Crawford-Hill-Horn-Antenna-Park-Concept-Plan-Preliminary-202401?bidId=>).



French Astronomer visits Louisiana: Laval's Excursion of 1720

Peter Broughton

HAD I been able to attend the recent convention in New Orleans, I would have liked to have spoken of the astronomical observations that Antoine de Laval carried out in the Gulf of Mexico in 1720. I would like to take this opportunity to do so on these pages.

Just a mile north of the New Orleans Convention Center is the city's historic French quarter. The streets laid out by the first colonists in 1718 still form the grid in that district. Two years later, Antoine François de Laval (1664–1728), a Jesuit royal professor of hydrography and mathematics based at the Marseilles observatory, was sent on an official expedition to the Gulf of Mexico with the intention of improving maps of the southern reaches of “La Louisiane,” the French-controlled territory that then extended from Canada to New Orleans.

Laval was a well-qualified observer, having contributed many articles on astronomical and physical topics to *Mémoires de l'Académie* and *Mémoires de Trévoux*. The title page of his *Voyage de la Louisiane* (<https://gallica.bnf.fr/ark:/12148/bpt6k109888x/f128.item>) gives an indication of the breadth of his interests.

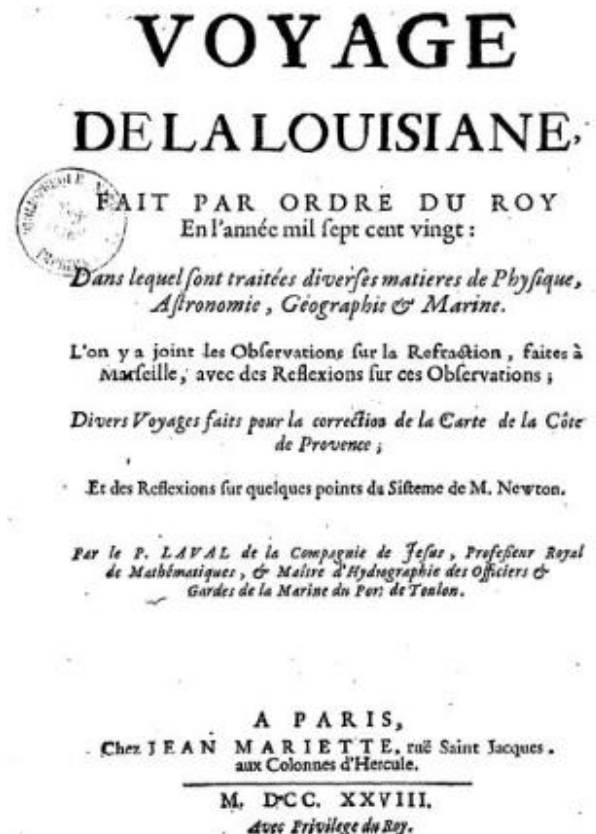
From the contents of this book we learn that two naval ships, *Henri* and *Toulouse*, were selected for the expedition and that Laval was “mathematician” on board the latter. His equipment, used for astronomical observations, included a clock which indicated seconds, a 3-foot quadrant to which a telescope was attached, a telescope of 18 feet focal length raised on a mast by pulleys, and a magnetic compass of 6 or 8 inches in diameter. Maps by Pieter Goos (1616–75) and a planisphere supplied by Cassini, showing Halley's lines of magnetic variation, guided the expedition; ephemerides from

the *Connaissance des temps* and by Maraldi helped with astronomical observations and their reduction.

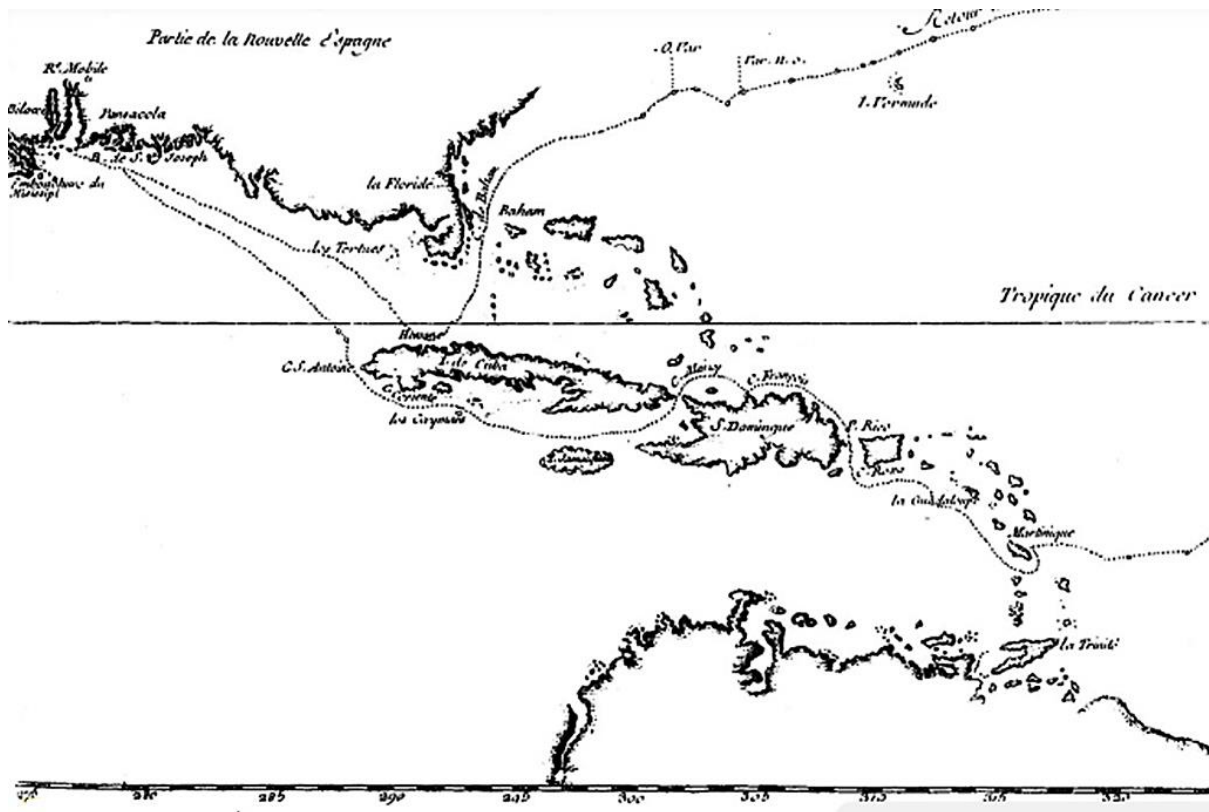
The two ships set out from Toulon, France, on 10 March 1720 and reached Funchal, Madeira, their last port-of-call before crossing the Atlantic. The transatlantic voyage lasted from 17 April to 15 May when they stopped at the island of Martinique. As shown on the map on the next page, they followed the chain of islands in the Caribbean, reaching Santo Domingo (Haiti) on 25 May.

Laval stayed with the Jesuit fathers at Cape François (*Cap-Haïtien*). There he found the latitude on three successive days to be 19°45'10", 19°45'40", and 19°45'38". With the Sun near the zenith, he found the observations difficult but regarded the last of these values to be the most reliable. (For comparison, Google maps indicate the latitude of the cathedral there to be 19°45'41".)

Extensive cloud cover during this time of year permitted Laval only one brief opportunity to try to fix his longitude by observing the emersion of Jupiter's satellite Io on 1 June at 7^h47^m28^s local mean [“vrai”] time (reckoning from noon).



Title page of Laval's *Voyage de la Louisiane*

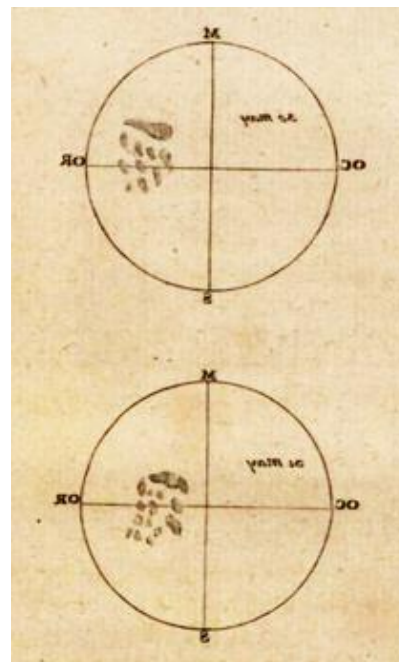


Western part of a map from Laval’s *Voyage*. The longitude scale at the bottom increases eastward from 275°, eventually reaching 360°, the zero point, coinciding with Tenerife. The latitude scale, not shown in this excerpt, runs linearly from 5° N along the bottom of the map to 23½° N (Tropic of Cancer) and beyond. Consistent with Laval’s observations, the difference in longitude between C. François and the mouth of the Mississippi is about twice what it should be. Other maps in the book include various harbors and more detail near the mouth of the Mississippi.

Comparing his result with HORIZONS, a modern ephemeris (<https://ssd.jpl.nasa.gov/horizons/>), we find that Laval’s longitude would have been about a degree and a half east (or about 150 km) of his presumed location. Considering that the penumbral end of emersion lasted about five minutes, the brief glimpse Laval had with his very awkward telescope, and the vagaries of keeping accurate time, this was a reasonable result.

During the nine days he was on Haiti, no night was clear enough to make any extended observations of the stars or planets. But, while observing the altitude of the Sun in order to regulate his clock on the morning of 30 May, Laval noticed a large number of sunspots and made a drawing.

The following day, at 6:30 in the morning, he made another drawing of the sunspots, noting that he had not seen so large or so many. [“Je n’en n’avois pas vû de si grandes, & en si grand nombre.” p.71] However, he noted he was no more content with



Laval’s drawings of the Sun on 30 and 31 May 1720

his observation than he had been the previous day. [“Je n’ai pas été aujourd’hui plus content qu’hier des observations que j’ai faites des taches du Soleil: je ne les donne pas.” p.71] He seemed to imply that he was unable to make measurements on these two days but on 1 June he did so by timing the transit of the spots across a wire in his eyepiece. He concluded that the largest spot was 1’20” from the Sun’s eastern limb. I will return to his sunspot observations later.

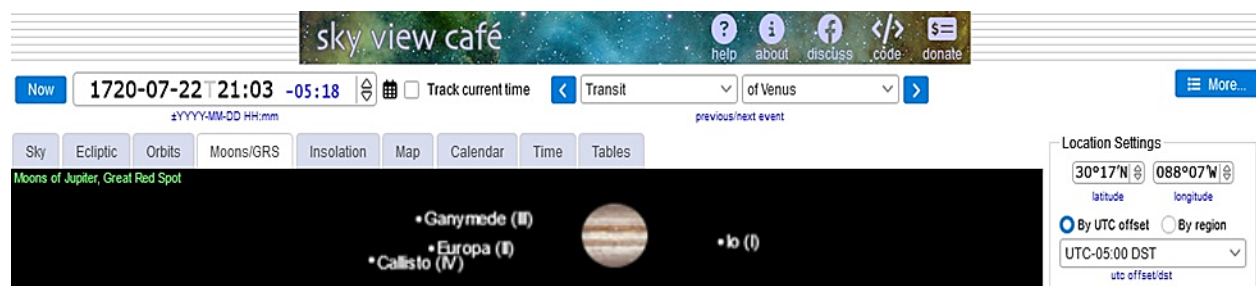
Laval’s next port of call was Isle Dauphine (now Dauphin Island, Alabama) on 1 July. The sky was cloudy for the next nine days, but eventually he was able to determine his latitude twelve times. On nine of these occasions, he measured the altitude of the sun and made allowance for its semi-diameter, refraction, and the dip of the horizon. The other three were based on altitudes of Antares and Saturn. On the basis of all these observations, Laval concluded that the latitude of Isle Dauphine was 30°17’00” (we would say 30°17’04” with a standard deviation of 16”). For comparison, the present latitude of what is called North Point of Dauphin Island is 30°17’03” and its longitude is 88°07’09”. He persisted in trying to observe Jupiter’s satellites, describing their positions relative to each other and to the planet, hoping to observe an eclipse or occultation. As an example, on 22 July at 8^h27^m30^s, he said that the third satellite was in conjunction with the second at a diameter of Jupiter from its eastern edge. The third was approaching while the second was moving away. The fourth satellite was to the east of the second by a half-diameter of Jupiter, making an isosceles triangle with the second and the third, while these two formed the base. The first satellite was moving away from Jupiter towards the west and a diameter away. There was “Etoile de l’aîle de la Vierge” below Jupiter, and another above. These two stars, along with Jupiter formed an obtuse scalene triangle with the second star twice as far from Jupiter as the first. These two stars filled the field of view, which was 15’51”

with the 18-foot telescope (the separation of 13 Vir and Eta Vir was actually about 19.5’ in 1720.) How the satellites might have looked is shown in the simulation below, but 35 minutes later, in which case the inferred longitude would have been nearly 9° too far east.

On 24 July, Laval tried one last time to observe the first satellite emerging from Jupiter’s shadow. At 7^h57^m47^s, he doubted that he would see it as clouds surrounded Jupiter, which was very low in the west, but by 8^h2^m23^s he was certain that the satellite had left Jupiter’s shadow. He said that it was then about a semi-diameter from Jupiter (actually 0.45 of Jupiter’s diameter) and appeared so distinctly that one would be able to establish the time of emersion as 8^h00^m00^s. Using this time along with the HORIZONS ephemeris, his longitude would have been 103°07’, about 15° too far west. However, from Laval’s description, it seems that the emersion could have occurred much earlier; he relied, nonetheless, on his erroneous assumption to establish the longitude.

By the end of July, the expedition left for home, arriving in mid-November. Plans of some harbours enroute, and several good determinations of latitude were the successes of the expedition, unlike the dubious longitudes.

And what of the sunspots? While Laval did comment on their unusual size and number, they seem inconceivably large in the two drawings that he made. Perhaps an explanation can be found in the narrow field of view referred to above: he certainly would not have been able to see the entire solar disc at once, so perhaps the disc in the drawings is not the solar disc, but rather his field of view. Since these images predate Thomas Robie’s observations at Harvard by a couple of years, it is possible that Laval’s (such as they are) are the earliest in the western hemisphere. On their own they are likely of little use, but (as Laval’s comments hint) he was an assiduous observer of the Sun since 1699, so maybe collectively his work

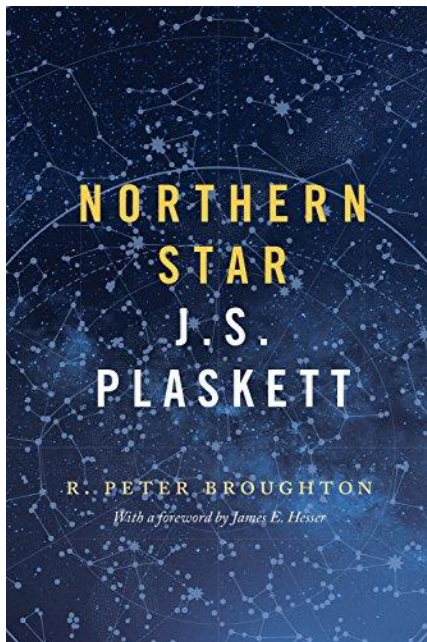


What Laval would have seen when he observed Jupiter on the evening of 22 July 1720.

might be valuable. In a 2021 paper published in the journal *Solar Physics* (<https://doi.org/10.1051/swsc/2020035>), Hayakawa *et al.* say that little is known about the recovery of solar activity following the Maunder minimum (1645-1715). They pay special attention to the observations of Johann Christoph Müller in 1719-20. Two of his beautiful drawings, reproduced in that paper, were made just days before Laval's.

In the last three centuries, little has been written about Laval, and even less in English. A century ago, Florian Cajori mentioned Laval ("The Mathematical Sciences in the Latin colonies of America," *The Scientific Monthly* (1923), 194-203 <https://www.jstor.org/stable/6340?seq=6>). Though his work is not always reliable by modern standards, Cajori was a pioneer in the history of mathematics. He actually started his teaching career at Tulane University before moving on to Colorado College and then to the University of California, Berkeley. More recently, in 1967, T.F. Mulcrone, wrote an article, "Antoine de Laval, S.J. at Dauphin Island (1720)," for the *Alabama Review* and, in 2001, a brief biography (in *Diccionario Histórico de la Compania de Jesús*) on which I have relied for details of Laval's life.

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R. Peter Broughton received the 2023 Donald E. Osterbrock Book Prize for Historical Astronomy for his book *Northern Star: J.S. Plaskett* (University of Toronto Press, 2018). This award was reported in the [October 2022 issue](#) of *HAD News*.



Up The Decade!

Virginia Trimble, UC Irvine and
Michelle Pan, Independent Scholar

Michelle Pan, who will begin her freshman year at Stanford in August 2024, and Virginia Trimble, who began her freshman year at UCLA in February 1961 (each at the age of 17) are taking a look at assorted aspects of the seven Astronomy and Astrophysics decadal surveys. A first paper., now to be found on arXiv and in *BAAS* (<https://baas.aas.org/pub/2024i006/release/1>) concentrates on what became of the prioritized projects over the subsequent years. The short answer is that about one-third were carried out with (mostly) US federal funding within fifteen years of being identified; another third happened later or with mostly state, private, and/or foreign funding; and about a third were never done (and often we would not want them now). The very top priorities really were all worth having (though of course one cannot do a placebo-controlled experiment on things like this).

Paper I also includes some numbers, especially for the 2010 and 2020 surveys, for people involved, numbers of women, and h indices for chairs and committee averages. Here is a preview of Paper II, wherein we plan to say more about gender distributions, something about minorities, institutions represented on committees, panels and all, and ages of leadership, as well as taking a brief look at whatever became of the 32 universities listed in the first, 1962 (Whitford) report as offering or planning to offer PhDs in astronomy. We were surprised by some things we found.

Each decadal survey report was published by the US National Academy of Sciences and none has an official author, but each is widely referred to by the surname of the steering committee chair, from the Whitford report (actually published in 1964) to the Harrison-Kennicutt report (2021). In between with nominal years were Greenstein (1970), Field (1980),

Bahcall (1990), McKee-Taylor (2000), and Blandford (2010). That VT's Google-write insists on calling him Blindfold just shows that it hasn't met him.

AGES OF THE MEMBERS OF THE PRIMARY REVIEW GROUPS WHATEVER

These have been called panels and steering committees in various reports, and are generally the only group listed at the front of each report. Chances are many of our colleagues suppose that the Whitford Report was compiled by a bunch of old fuddy-duddies, and that leadership has gradually been handed over to the younger generations who will actually be using the prioritized facilities. This turns out not to be entirely the case. First, we need to define "ages" in a way that can be determined from openly available information, since we don't want to pry uninvited. Thus a person's age here means the nominal report year (1962, 1970, 1980, etc.) minus the year of birth, in the way that ages of horses increase by one on New Year's Day. There are some "decline to state" astronomers and some who are not currently Wiki-ized or otherwise easily found online. For them, we have assumed that PhDs were earned at age 24 and first papers on ADS published at age 21, as was the case for author VT. We then arranged the ages from largest to smallest and determined the median, which is what is reported here, not yet for all the report teams. Anyone not found with a Wiki, with a PhD on Astrogen, or a publication on ADS was assumed to be younger than the smallest age determined for that panel. We reached the median with real "horse ages" or limits to them for all the panels examined so far.

Here are the results - number of lead panel members in parentheses, followed by ages listed from large toward small, and a median:

Whitford (8): 58, 57, 55, 43, 37, 36, 32, 31. Median 40, and the three youngest were radio astronomers.

Greenstein (23): 68, 64, 61, 57, 56, 53, 52, 51, 46, 45, 45, 45. And we have reached the median at 45 (members under 45 now include both optical and radio astronomers).

McKee-Taylor (15): 60, 59, 58, 58, 58, 58, 57, 56, 51, 49, 46, 46, 43, 42, with a median of 57.

Harrison-Kennicutt (20): 69, 68, 67, 64, 60, 57, 55, 55, 52, 51, 48, with the rest not yet determined, but we have hit the median at 49.

We have many birth years for the Bahcall panels but have not yet ordered them and still need to hunt

out the colleagues who were part of the Field and "Blindfold" (oh let Google win occasionally) committees, but a strong trend toward handing over to early career astronomers is not obvious.

If anyone who was on any of these steering groups (etc.) would care to share their birth years with us, this would be much appreciated.

WHATEVER BECAME OF?

The Whitford report listed 32 universities that were awarding PhDs in astronomy or were planning to do so in the near future. Happily, all 32 institutions still exist. For Harvard, Princeton, UC Berkeley, Caltech, and Chicago you probably knew this, though Case Institute of Technology experienced a merger and is now part of Case Western Reserve University, home of the Warner & Swasey Observatory. Thirty-one still have at least a few astronomers on their faculties, some in joint departments. The exception is Georgetown University in Washington, DC, which in 1963 was predicting 40 astronomy graduate students for 1966. But it eventually closed its astronomy department (which had some impressive alumni) completely, transferring its journals and books to the University of Maryland. Among the things we plan to check on is whether at least one person from each of the 31 has been on one of the 2010 or 2020 teams. There were no Historically Black Colleges or Universities among the 32, though Howard was starting a program fairly early. More details in this territory are also on our "to do" list.

WOMEN AND MINORITIES

The Whitford team was "zero for eight" on both counts, consisting entirely of men of roughly white appearance. Greenstein upped the ante, with one woman, Elizabeth Roemer, and one Mexican-American, Guido Münch (Greenstein's Caltech colleague), both on the Planetary panel. Here are the numbers for women (as determined by first names and a bit of spot checking by author Pan). The total number of actual individuals on the Bahcall team is a little uncertain, but the preface says "more than 300", and we are using that. Each line is coordinator's name, number of women (on steering panel plus number on committees) and percent:

Whitford: 0 of 8 (0%)

Greenstein: 0 + 1 of 91 (1%)

Field: 2 + 8 of 143 (7%)

Bahcall: 1 + 31 of 300 (11%)

McKee-Taylor: 3 + 14 of 131 (13%)

Blandford: 6 + 32 of 187 (20%)

Harrison-Kennicutt: 75 of 184 (41%)

An effort was made to correct for folks on more than one panel (etc.). Such double dipping was no longer allowed for the last two surveys.

The early teams included a few of the best-known black astronomers of the times: Arthur B.C. Walker, George Carruthers, and Benjamin Franklin Peery. A moderate number of Asian-Americans (as identified by surnames) appear in the intermediate years. And we have been told that each panel of the most recent two teams has included at least one astronomer from an underrepresented minority, but have not attempted to verify this and have no reason to doubt it.

Author Trimble has the impression that the Greenstein and Bahcall teams included the largest percentage of Jewish astronomers, astrophysicists, and related experts. This is probably not a good year in which to look harder at that topic.

SHEAR NUMBERS AND HOME INSTITUTIONS

Much of what can be said about recent changes in astronomy (etc.) is more, More, MORE! Whitford recognized a professional community approaching 1000 American astronomers. It is now 10,000 or more (AAS memberships; IAU memberships; each corrected for under-represented groups). This growth has been accompanied by explosions in numbers of published papers, numbers of authors per paper, and to a considerable extent in numbers of universities, colleges, and all with astronomers on their faculties and staffs. There is a sense in which the two most recent decadal surveys were also the largest, because they invited “white papers” from the entire community, in support of various kinds of research. Hundreds of these were submitted, some with enormous (overlapping) numbers of authors.

The official decadal review teams have not grown correspondingly (perhaps for budgetary reasons, though we do not personally know this). The largest team was that of the Bahcall report for the 1990s, with more than 300 individuals involved. One panel (Benefits to the Nation) itself had 30 members (including Whitford, Greenstein, and Field, chairs of the past reviews). It never met in person (though most of the smaller panels did), and happily conducted its business with postage stamps (which cost more than 3 cents by then, but not much more). That panel also acknowledged by name input from 88 additional non-member colleagues.

Where did all these people, and the somewhat smaller numbers on later teams, come from? Many from the places you would expect (we are in the process of trying to figure out how to sum things appropriately), but also a few from USWND@H (University of South-West North Dakota at Hoople, the home of P.D.Q. Bach). Or, as happened when University of Maryland President “Curly” Byrd tried to persuade Theodore von Karmann to relocate, “Mr. Byrd, where is Maryland?”.

So, just about 60 different home institutions for both the Field and the Harrison-Kennicutt groups. Forty-four for Greenstein, eighty-some for Bahcall, and some still to be counted. The largest numbers of people came from the obvious places (allowing for some name changes, mergers, and splits), with approximate ties among Harvard-Smithsonian CfA, Princeton, and Caltech. An overall surprise has been the smaller percentages of astronomers (etc.) whose home institutions are or were private observatories (Hale, Lick, etc.), national observatories (NRAO, NOAO, or its most recent name), and national laboratories (LANL, JPL, NRL, GSFC....), with the percentage of participants giving university affiliations increasing correspondingly. We are not sure whether this is a reflection of demographics of the community as a whole or some change in how things should be prioritized.

We wish to extend our hearty thanks to Dr. Helmut Abt, who donated his copy of the Whitford report to an earlier incarnation of this project, and to the late Dr. Jesse Greenstein, who sent copies of both volumes of the 1970 survey documents to author VT, perhaps when he figured out that Elizabeth Roemer was not the only female astronomer in the world. Special gratitude also to the late John N. Bahcall, who asked author VT to chair his Benefits to the Nation panel (which, because everything else had already been settled, sent her skipping down the hall singing “Cinderella gets to go to the ball!”) without which she would probably have had no interest in these topics. Given the trends in ages of panelists over the decade, VT predicts that author Pan will serve on the decadal review for the 2060s, and chair it for the 2070s.

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This Month in Astronomical History

Ken Rumstay
Valdosta State University (Emeritus)

Our online column *This Month in Astronomical History* (<https://had.aas.org/resources/astro-history>) is now in its eighth year, having first appeared in July 2016. Each month, when a new article is posted online, an announcement appears in the American Astronomical Society's *News Digest*. We would like to take this opportunity to list the columns which have appeared since the last issue of this newsletter.

*The Great Paris Exposition of 1900 Part Two:
La Grande Lunette*

May 2024, written by Ken Rumstay

*The Great Paris Exposition of 1900 Part One:
Le Grand Globe Céleste*

April 2024, written by Ken Rumstay

Ewen and Purcell and the 21-cm Band

March 2024, written by Michael Marotta

Kuiper Discovers Miranda

February 2024, written by Michael Marotta

White Dwarfs: Discovery and Challenge

January 2024, written by Michael Marotta

Comet Kohoutek, Skylab, and More

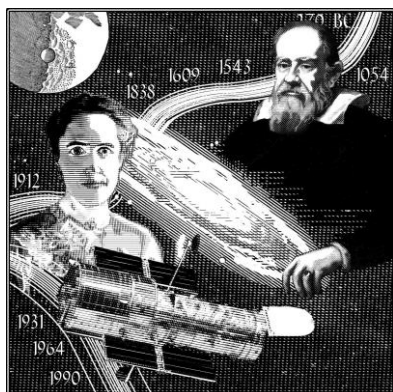
December 2023, written by Stephen Maran

*50th Anniversary of Pioneer 10's Encounter
with Jupiter*

November 2023, written by Kristine Larsen

We owe a tremendous debt of thanks to this column's editor Mike Marotta, who has spearheaded it for nearly four years. If you would like to contribute a feature article, please contact Mike at mike49mercury@gmail.com.

krumstay@valdosta.edu



Drawing by former *This Month in Astronomical History* editor Jason E. Ybarra, prepared for this website.

News From HAD Members

Ken Rumstay
Valdosta State University (Emeritus)

We are always glad to hear from our members, and have recently received the following items of information which we are glad to share.

I would like to start by thanking Loretta Cannon, current At-Large member of the HAD Committee, for volunteering to serve as Assistant Editor for *HAD News*. Her proofreading skills are matchless, and I am grateful for her help and guidance!



Jim Lattis (Department of Astronomy, University of Wisconsin Madison) has organized a special session on Historic Observatories for the June AAS meeting. That meeting will be held at the Monona Terrace Convention Center in Madison June 9–13.

Session 318, “Historic Observatories: Current Activities and Potential for Education, Public Outreach, and Research”, is scheduled for 2:00–3:30 pm CT on Wednesday, June 12th. The session will consist of six talks. The program (with abstracts for all talks), may be found on the meeting [block schedule](#). In his session description Jim states:

For the present purposes, and as a working definition, a “historic observatory” refers to an older astronomical research observatory that has survived into the modern era with its original scientific capacities largely intact but also largely irrelevant to current scientific investigations.

For details, contact Jim at lattis@astro.wisc.edu.



An updated and expanded guide to science fiction with reasonable astronomy, compiled by astronomy educator and longtime HAD member Andy Fraknoi, is available free online. The 23-page guide is organized by topic; so, for example, all the stories that feature reasonable depictions of black holes are in one place. Some 44 astronomy (and related physics) topics are covered, including the lives of astronomers. For students (or educators) on limited budgets, this new version includes 88 links to published stories that are available free on the Web. The guide is found at <http://bit.ly/astronomyscifi>.



In previous issues of *HAD News**, Hans Haubold (Office for Outer Space Affairs, United Nations,

* [April 2023](#), p. 23 and [November 2023](#), p. 12

New York and Vienna) has written on the life and work of American physicist Albert A. Michelson, and of plans to republish the extended proceedings of the Potsdam Michelson Colloquium held in 1981. This volume is to be dedicated to his daughter Dorothy Michelson Livingston, who published the first and only available comprehensive biography of her father in 1973. Hans reports:

We are still working on a comprehensive website along the timeline used in:

<https://storage.googleapis.com/kudos-pro-assets/manually-uploaded-outputs/Haubold-1974-2024rev11.pdf>

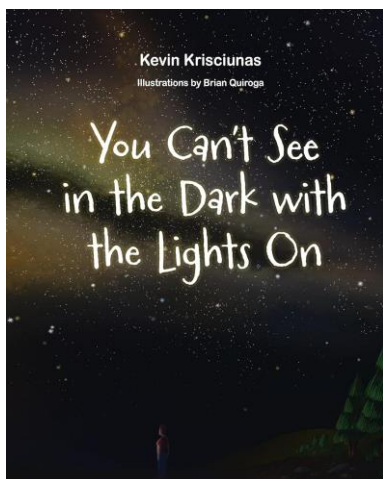
https://storage.googleapis.com/kudos-pro-assets/manually-uploaded-outputs/Haubold-AMM_HJH_1982_2012_CMSS.pdf

We are working from Potsdam (Germany), Palai (India) through New York (USA) and Vienna (Austria) showing education, teaching, and research pursued in the past 50 years focusing on Michelson 1881/1981, solar neutrinos, and 20 UN/ESA/NASA/JAXA workshops around the world. We still need two months to finalize this website.

We wish you all the best in this endeavor, Hans, and eagerly await the completed work!



Kevin Krisciunas, our Past Chair, shared with us that his book *You Can't See in the Dark with the Lights On* (2024) is now available. Intended for children, it tells the story of a young boy who discovers that, once one leaves the lights of the city and suburbs and gets out into the country on a clear, moonless night, the night sky can be magnificent! Published by Kendall Hunt (ISBN 979-8385118038), the 34 page paperback volume is illustrated by Brian Quiroga.



As a long-time member of DarkSky International (formerly the International Dark-Sky Association), I am very grateful to Kevin for writing this!



Virginia Trimble wrote to provide an update on an article she wrote for *HAD News* three years ago. It involves Arthur Stanley Eddington and Charles John Agnew Trimble:

First, I'm not a traceable relative of either (8th cousin the closest possible), but in the June 2021 issue of the HAD newsletter, I wrote about Eddington and mentioned CJA Trimble, who was apparently ASE's best friend from undergraduate days at Trinity College (Cambridge) until ASE's death in 1944. I wondered how close together their rooms had been at Trinity.

The answer has surfaced, with hearty thanks to Nicolas Bell, the current Trinity archivist, and Prof. (emeritus) Sir Martin, Lord Rees of Ludlow, the current Astronomer Royal of England and past master of Trinity College, who relayed my question. Both were undergraduates there 1902–05. Eddington lodged for the three years in room C1 Bishop's Hostel and Trimble for the same three years in room B7 New Court. In case you don't carry a map of Trinity College with you, archivist Bell explains that these are less than a one minute walk apart (though possibly he walks faster than your humble paragrapher).



An important paper, “[Astronomy’s Photographic Glass Plates: Demonstrating Value Through Use Cases](#)”, has just been published in the open access journal *Science and Technology Librarianship*. The work of ten authors (many of them members of HAD and of the Working Group on the Preservation of Astronomical Heritage), this paper provides several examples of how astronomical photographic plates, many dating back to the late 1800s, still provide important information in current scientific investigations. Many cases are also cited in which these archival materials have been used in ways — artistic and educational — never anticipated by their creators.

This paper makes a strong case for the need to protect and preserve these valuable plates for future generations, and we are grateful to the authors for presenting it. The paper may be freely accessed and downloaded as a [pdf file](#) from the [Issues in Science and Technology Librarianship](#) website.



In the course of a fairly recent discussion on the HASTRO-L listserv, on the subject of astronomers writing about the history of our discipline, member Alan Agrawal reminded us of an excellent article that David DeVorkin had written in 2013 for the book *Organizations, People and Strategies in Astronomy. Volume 2* (Venngest, 2013; ISBN 978-2954267715). The article, titled “History is Too Important to be Left to Historians” is well worth reading. David has graciously made it available for downloading as a [pdf. file](#) from the HAD website. I strongly recommend it. Thank you, David!



In the [May 2020 issue](#) of *HAD News* (p.14), former HAD Chair Pat Seitzer (along with Matie Hoffman and Dawid Van Jaarsveldt, of the University of the Free State in South Africa) described a visit to the Boyden Observatory. Pat briefly described the site’s history:

In 1927 Harvard moved its Boyden Observatory from Arequipa, Peru, to Maselspoort, some 20 km northeast of Bloemfontein in the Free State. In 1976 the Observatory was given to the University of the Free State, which continues to operate it today for outreach and research purposes. Historic telescopes still in use include the 60-inch Rockefeller reflector and a 13-inch Clark refractor. A small museum has exhibits on the rich astronomical heritage of the Bloemfontein area and historical aspects of South African astronomy.

The observatory is managed by the Physics Department of the University of the Free State, and [The Friends of Boyden](#) assist the observatory as a public support group.

Pat Seitzer is an International Patron of the Friends of Boyden. On May 2nd, he was invited to formally open the Lamont Hussey Observatory Exhibit in the Naval Hill Planetarium. The Planetarium is housed in the Observatory's former dome.



That’s all for this issue! If you’d like to submit an item for the fall issue of *HAD News*, please send it to me at krumstay@valdosta.edu or to Susana Deustua at hadsec@aes.org.

krumstay@valdosta.edu



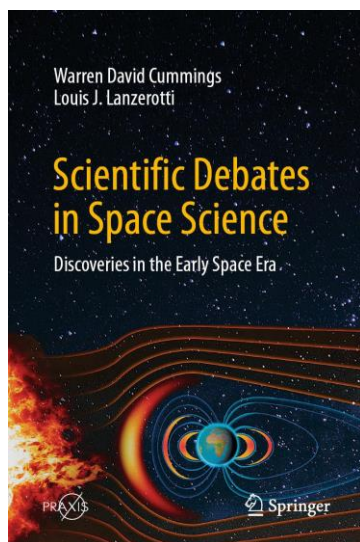
Pat Seitzer (with his back to the camera) cuts the ribbon, opening the Lamont Hussey Observatory Exhibit at the Naval Hill Planetarium. All images on this page are reproduced with permission by the Friends of Boyden.



Visitors examine an exhibit describing the discoveries made by double star observer Alfred A. Rossiter (1886 – 1977).



A scale model of the Naval Hill Planetarium was presented to Pat and his wife Patricia during their visit.



Book Review

David DeVorkin, Smithsonian Institution

Scientific Debates in Space Science: Discoveries in the Early Space Era, by Warren David Cummings and Louis J. Lanzerotti (Switzerland: Springer Praxis Books, 2023; ISBN 978-3031415975), pp. xix+264. Illust./bibliography/index. \$84.99 (hardcover), \$64.99 (ebook). (<https://www.interabangbooks.com/book/9783031415975>).

The authors, both well-known practitioners of the art and practice of the space sciences, provide fascinating insight into the nature and consequence of debates arising from disparities between theoretical prediction and observation, and between competing theories moderated by observation, in the early NASA era. How were data from space missions interpreted and debated, and, most of all, how did data from space missions help to resolve debates? They focus on specific problem areas, some eight in all, primarily in heliophysics and the planetary sciences, and one in gamma-ray astronomy.

The problem areas the authors have chosen, as they state, were “influenced by our own experiences as space scientists during the past 60 years” and they came to know “virtually all the protagonists that are featured in this book.” (p. xi, xii). Thus I offer brief introductions.

W. David Cummings, a graduate of the Department of Space Science at Rice University (PhD 1966), 66), explored the characteristics and influence of

the Earth’s magnetosphere. Then he took faculty positions at UCLA in Planetary and Space Science and Grambling State University. For 31 years, he served as Executive Director of the Universities Space Research Association (USRA) and is the author of the book *Evolving Theories of the Origin of the Moon* (2019).

Louis J. Lanzerotti earned his PhD in particle physics from Harvard (1965), working in the cyclotron laboratory. Afterwards, he accepted a job with Bell Telephone Laboratories, where he remained for most of his career. Later, he became a Distinguished Research Professor with the New Jersey Institute of Technology, participating in the use of the ATS-1 satellite to explore the diurnal effects of the magnetosphere. Prolific in the field of magnetospheric physics, he has participated in a wide range of research, including planetary missions. Active in promoting alliances between physicists and geophysicists, he has served on both the Committee on Solar and Space Physics (CSSP) and the Space Science Board (SSB) of the National Research Council. In both positions, he was charged with advising NASA in matters relating to solar-terrestrial and space-plasma physics. He was the founding editor of *Space Weather* in 2003, stepping down in 2014; more recently, he has been a board member of the USRA. All the while, Lanzerotti was active in local politics, serving on the Township Committee of Harding in Morris County, New Jersey, from 1993-2014, and as mayor from 2007-2009 and 2013.

Given their interests, the first two subjects Cummings and Lanzerotti cover in detail are the solar wind, and the nature of the Earth’s magnetosphere. After brief historical commentary on solar-terrestrial interactions, they plunge into the debate between Eugene Parker and Joseph Chamberlain over the nature of the solar wind, and how direct measurement by satellites and space probes led to consensus. Here, as in subsequent chapters, they offer assessments employing dicta set down by a name who needs no introduction to historians of astronomy: Arthur Stanley Eddington.

In his continuing debates with James Jeans over just about everything, Eddington devoted the latter part of his legendary* August 1920 Presidential Address to the British Association (titled “The Internal Constitution of the Stars”) to the question: “what is

* For this reviewer, at least. Eddington’s address included much vivid speculation, including the fear that sub-atomic energy, if it drives the stars, could serve the “the well-being of the human race-or for its suicide,” In the same address, Eddington also predicted the angular diameter of Betelgeuse, which made it possible for Francis Pease to apply Michelson’s stellar interferometer on the 100-inch to confirm that, indeed, stars were black bodies that behaved according to the laws of modern physics.

the touchstone by which we may test the legitimate development of scientific theory and reject the idly speculative.” From there, he colorfully described guidelines for protagonists for observation and theory, or between theory and theory, for how to arrive at a resolution. Cummings and Lanzerotti adapt Eddington’s guidelines to set the stage for evaluating the space science debates they cover. Briefly, (1) does the speculator apply rigorous theory? (2) Does the speculator reveal all assumptions? and, most important, (3) does the speculator remain open minded defending their theory, treating it as an “adjustable engine,” as opposed to a “finished building?” (p. 9)

For each of their eight episodes, Cummings and Lanzerotti provide brief preambles covering the pre-history of the debates, then launch into the debates themselves, often providing colorful commentary about the participants, and then evaluate the debates using Eddington’s criteria. The Parker/Chamberlain case gets high marks. Subsequent debates garner a range of grades, mixed and nuanced. They dealt with the structure of the magnetosphere, comets as a continuing source of the Earth’s water, how the Moon was created, the nature and depth of lunar dust, the evolutionary consequences of Chicxulub, the size of the solar system, and sources of gamma-ray bursts. Only in two cases were there extenuating circumstances, such as the influence of prestige and exaggeration. Among the several messages conveyed by the authors, most frequent was how space-borne observations settled the debates.

I found this book thoroughly enlightening on the question of how debates have been resolved and how scientists, at least the authors, evaluate the process. However, I winced a bit at the authors’ description of the “Early Space Era” because it implies that space science began with Sputnik. The authors do provide a preamble, a section called “The Beginning of Space Science,” mentioning the balloon flights of Victor Hess and his observations of the existence of a flux of charged particles from space. But they misconstrue the era of scientific ballooning, referring to it as conducted only by “hot air balloons.” They briefly note the V-2 era, describing only the V-2 Panel’s deliberations over what should be done once satellites were available. Oddly, they state that the Panel held some ten meetings before the deliberative meeting in 1956, anticipating the International Geophysical Year (IGY). In fact, by then they had held over forty meetings, debating the most effective uses of

payloads on rockets, ranging widely from geophysical studies to solar and extra-solar questions. While these minor flubs concerned the reviewer, given his efforts at understanding the origins of the space sciences, they should not lessen the value of this book to the wider historical and scientific astronomical communities. Maybe their next book will cover debates that were never settled?

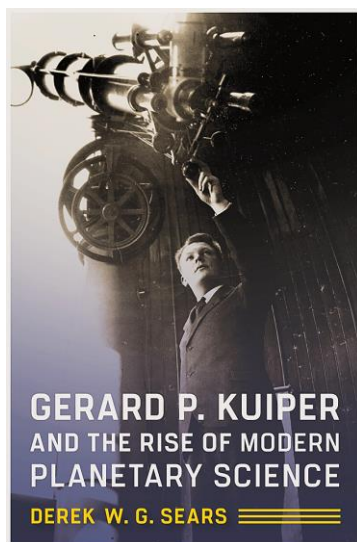
DeVorkinD@si.edu



David DeVorkin received the LeRoy E. Doggett Prize for Historical Astronomy in January 2008. Here, he receives the award from Donald Yeomans (at left), Chair of the Doggett Prize Committee, and HAD Chair Sara Schechner.



David has been a member of HAD since its beginning in 1981, and served as its Chair during the period 1997–1999. He helped man the HAD table at the 2020 meeting in Honolulu. Thank you, David, for reviewing this book!



Book Review

Michael E. Marotta, AAS Amateur Affiliate

Gerard P. Kuiper and the Rise of Modern Planetary Science, by Derek W. G. Sears (University of Arizona Press, 2019, ISBN 978-0816539000), pp. 368. \$41.01 (hardcover), \$42.75 ebook).

This book deserved more attention than it received when it was released. Reviews appeared in the *Journal of Astronomical History and Heritage* (vol. 22, no. 3), the *Journal of the British Astronomical Association* (vol. 129, no. 6), and *Observatory* (vol. 139, p. 217-218). Those probably would have been enough to satisfy Kuiper, whose own focus was on his work and its importance to his peers.

Regardless of their claims to objectivity and distance, biographies are easily differentiated into support or condemnation. This one is supportive, even enthusiastic. We assume that astronomy is about “the stars” but it is really about people and we are more strongly attracted to some than to others. The narrative here is as much about Kuiper’s interactions with his colleagues as it is about his development of planetary astronomy.

The text is enhanced with over 170 photographs plus other illustrations, line drawings, and charts. As an example of the depth of research, the photograph of Carl Sagan in 1951 came from the Beauford H. Jester accession of the State Preservation Board in Austin, Texas. (Jester was governor of Texas from 1947 to 1949 and made education an important agenda in his administration.) Certainly a valid source, it is not one usually associated with Sagan’s career. Many

photographs came from Dale Cruikshank among other private archives.

Starting with his time at the Lick Observatory, Kuiper chose to send his papers to the *Publications of the Astronomical Society of the Pacific*. I believe, though Sears does not state this, that Kuiper’s status allowed the ASP to print his submissions directly with a minimum of peer criticism. “As with his student work, everything was published. To the young Kuiper, publication gave him a voice, a way to map his progress, and it enabled him to participate in the grand discussion that was astronomy research.”(p. 19) That grand discussion is the reason why this book is also about Kuiper’s collaborators along the arc of his career as he moved from Lick to Harvard and from there Yerkes and McDonald before establishing the Lunar and Planetary Laboratory and the Lunar and Planetary Institute at the University of Arizona. Even though he served twice as the Director of the McDonald Observatory, Texas just was not big enough for him. Finally in charge of his own department and his own destiny, Kuiper expanded and extended his investigations, collaborating closely with JPL/NASA in preparation for the landings on the Moon.

Two facts serve as the foci that define the course of Kuiper’s life: he is credited with the launch of modern planetary astronomy; and he was difficult. Kuiper’s professional collaborations were often marred by his insensitivity. He placed external facts above other people’s feelings. His plethora of personal conflicts over professional differences involved Nobel laureate Harold Urey (most famously), as well as Subrahmanyan Chandrasekhar, Geoffrey Burbidge, and Otto Struve. However, it is also true that Kuiper was aware of those perceptions by his community.

While at the Lick Observatory, 1933-1935, he had already locked horns with Willem Luyten. Luyten coined the term “white dwarf” in 1922. He was an expert on double stars. When Kuiper published his own reviews of the most current announcements, conflict with Luyten was inevitable. Luyten complained to Robert Aitken, director of the Lick Observatory. Later, after Kuiper moved to the University of Chicago, William H. Wright was the new director at Lick, and Wright sent Kuiper copies of the letters that Luyten had sent to Aitken. Derek Sears found those letters, recopied in Kuiper’s hand in the archives at the University of Arizona. The

congruencies in their personalities must have been obvious to Kuiper but it did not change him.

Luyten hectored Kuiper again in 1956 on the origin of the solar system and the nature of Pluto (p. 132-134), charging that Kuiper plagiarized the work of H. P. Berlage. Sears looks at the (thin) evidence and concludes that even if Kuiper had known about Berlage's work, he did not cite it because he did not use it: Kuiper preferred to keep his own counsel on how solar systems are formed as failed binary stars.

Throughout the book, Sears mentions that Kuiper had no patience for working with students. "For a scientist as successful as Kuiper, and having spent so long on the faculty at the University of Chicago with such abundant resources, the number of research students he graduated is remarkably small." (p. 125). In support of that, Sears offers a quote from a letter written by Tom Gehrels to Dale Cruikshank. Gehrels was Kuiper's second doctoral candidate, after Daniel L. Harris and before Carl Sagan. Gehrels wrote that at Chicago he learned more from working with Nancy Roman and that after joining the LPL, he avoided Kuiper (p. 125).

Kuiper could also be a relentless supporter. In 1949, graduate student Albert Shatzel drew some criticism and the memoranda crossed the desk of Chandrasekhar. Kuiper wrote a two-page letter in defense of Shatzel (p. 123-124). Kuiper knew Shatzel's work firsthand. In 1949, Shatzel worked with Harris to measure the light curves of asteroids for Ingrid Groeneveld who coauthored that paper with Kuiper (p. 160).

Kuiper was sensitive to the international ramifications of his work. He knew that science must be open and anything that created suspicions should be avoided. So, he bristled at the suggestion that during World War II and the early Cold War, he had been a spy for the United States. That being as it may, Kuiper's own account of his rescue of Max Planck apparently changed a bit in his retellings but never took on the proportions drawn by others (p. 84). Similarly, he never referred to the torus where Pluto is found, first proposed as a special volume of the solar system by Kenneth E. Edgeworth, as "the Kuiper belt."

Overall, the story here is readable by anyone with a general interest in astronomy. Derek Sears edited *Meteorics and Planetary Science* from 1992-2002 and authored three books: *The Nature and Origin of Meteorites* (Institute of Physics (Adam Hilger) in the UK, 1978; Oxford University Press in the US, 1979); *Thunderstones: A Study of Meteorites Based*

on Falls and Finds in Arkansas (University of Arkansas Press, 1988) and *Origin of Chondrules and Chondrites* (Cambridge University Press, 2005). The address of his website is <https://dsears.hosted.uark.edu>.

A couple of flaws in the editorial production should be noted. While at the University of Chicago and working at the McDonald Observatory, which was operated by the University of Texas, Kuiper took on his first doctoral candidate, Daniel Lester Harris III (1919-1962). Harris's dissertation was on the satellite system of Uranus. Harris was the assistant when Kuiper was at the telescope for the discovery of Miranda (see *This Month in Astronomical History: February 2024*. "Kuiper Discovers Miranda" <https://aas.org/posts/news/2024/02/month-astronomical-history-february-2024/>) In the book, Harris appears as Daniel E. Harris III (p. 114), conflating him with astronomer Daniel E. Harris (1934-2015). Also, Otto Struve is missing from the Index.

Further Reading

Dale Cruikshank wrote a 30-page biography for the National Academy of Sciences available here: <https://www.nasonline.org/publications/biographical-memoirs/memoir-pdfs/kuiper-gerard.pdf>.

Two other former students, George Coyne and Alan Binder, joined Cruikshank in a special memorial to Kuiper that was included in a comprehensive history of the Lunar and Planetary Laboratory, *No Longer Points of Light*, available online here: <https://www.lpl.arizona.edu/about/history/points-of-light>

The entry for Gerard P. Kuiper in the *Biographical Encyclopedia of Astronomers* (Springer) was written by Virginia Trimble.

mike49mercury@gmail.com



We thank Mike Marotta for this insightful review. Mike edits our online *This Month in Astronomical History* column.

What's New in the JAHH

Ken Rumstay

Valdosta State University (Emeritus)

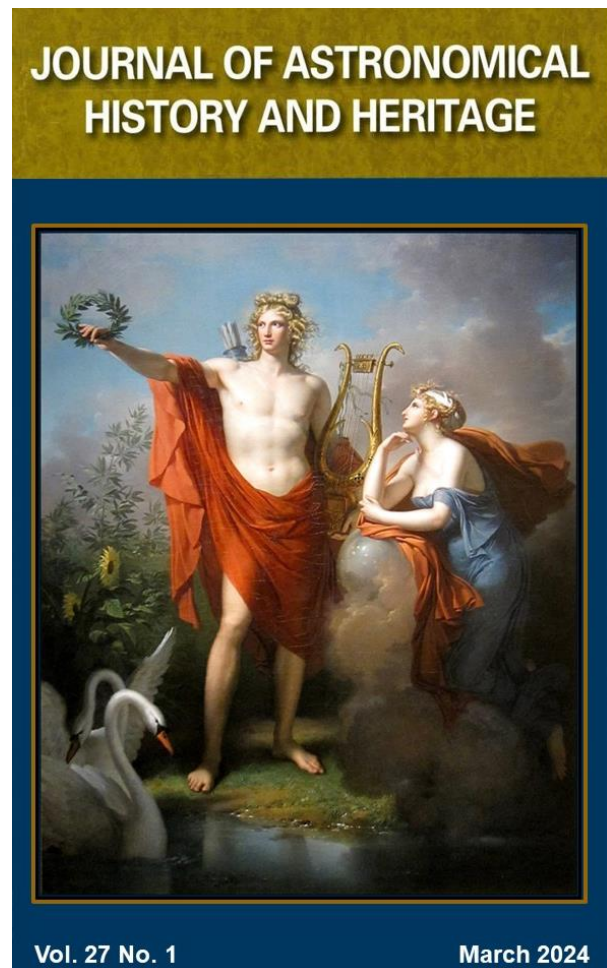
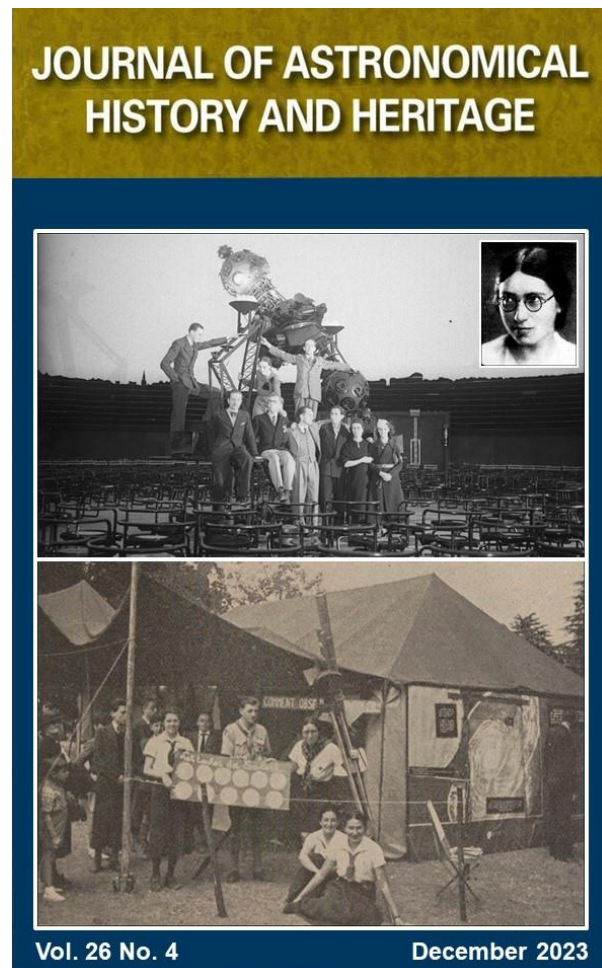
I doubt that anyone reading this would need reminding that Dr. Wayne Orchiston received HAD's 2024 [LeRoy E. Doggett Prize](#) for Historical Astronomy! If you do, please refer to [last month's issue](#) of *HAD News*. The award acknowledged not only Wayne's extensive research into the history of Asian astronomy, but also the tremendous service he has provided to our field by founding (along with John Perdrix) and editing the *Journal of Astronomical History and Heritage*.

Founded in 1998, the *JAHH* is published quarterly, in March, June, September, and December. It is a

completely open-access online journal; there are no subscription fees or page charges. All issues are freely available online at the [JAHH website](#).

While the Historical Astronomy Division is not officially associated with the *JAHH*, a number of HAD members are, of course, involved in its production — they serve as authors, editors, and reviewers. If you would like to contribute to this fine journal in any capacity, please contact Wayne at jahh.editor@gmail.com.

As a service to our readers, the Tables of Contents for the December 2023 and March 2024 issues are reproduced on the following pages.



Front covers of the December 2023 and March 2024 issues. The December cover features images from an article (pages 816–832) by Yaël Nazé about Reysa Bernson, a French female amateur astronomer. She was the very popular public face of France's first planetarium, set up in 1937 at the World Exhibition in Paris. The front cover of the March issue shows Charles Maynier's 1798 oil painting "Apollo, God of Light, Eloquence, Poetry and the Fine Arts with Urania, Muse of Astronomy". It appears in HAD member Clifford Cunningham's article "Tycho's conversation with Urania, and other engagements with the Muse". That article appears on pages 105–126 in the March issue, and the original painting may be viewed in the Cleveland Museum of Art.

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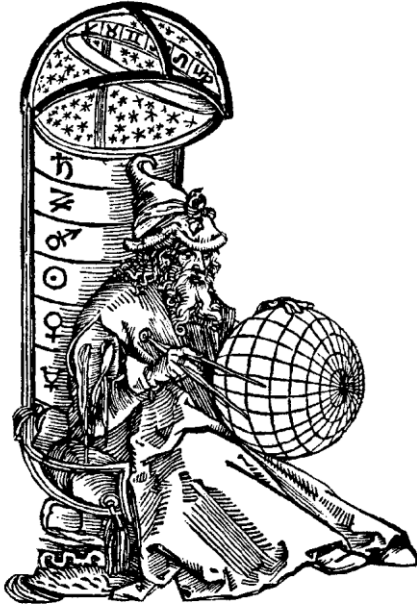
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Historical Astronomy Division of the American Astronomical Society

HAD News #103, May 2024, edited by Ken Rumstay. Please send comments or contributions for the next issue to krumstay@valdosta.edu or to hadsec@aaas.org.

A complete version of this newsletter, with color photographs and active links, may be found on our website at <https://had.aas.org/sites/had.aas.org/files/HADN103.pdf>.

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