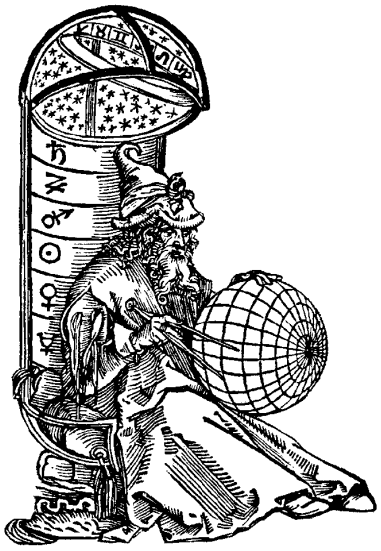

H•A•D NEWS

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

Number 98 * November 2021

In This Issue

William H. Donahue, recipient of the 2022 LeRoy E. Doggett Prize for Historical Astronomy.

William H. Donahue Wins the 2022 LeRoy E. Doggett Prize!

Alan Hirshfeld, University of Massachusetts Dartmouth

The Historical Astronomy Division Prize Committee is pleased to announce that Dr. William H. Donahue is the recipient of the 2022 LeRoy E. Doggett Prize for Historical Astronomy. The Doggett Prize is awarded biennially to an individual who has significantly influenced the field through a career-long effort. In his decades-spanning career, Donahue has made many contributions to the history of astronomy, from antiquity to the early modern period, of which the most significant are his essential translations into English of Johannes Kepler's *Astronomia Nova* (1609) and *Astronomiae Pars Optica* (1604). Translation of complex scientific works such as these demonstrates his extensive scientific knowledge, necessary to understand the technical aspects of the texts, and the linguistic background to read them in the original language and translate them correctly.

Donahue received his BA from St. John's College, Annapolis, Maryland, in 1967, and his Ph.D. from the University of Cambridge, England, in 1973. His dissertation, *The Dissolution of the Celestial Spheres, 1595-1650*, was published by Arno Press in 1981. From 1973 to 1976, he taught in the Great Books curriculum at St. John's College in Santa Fe, New Mexico, leading seminars and tutorials in ancient, medieval and modern literature and philosophy; ancient Greek; music; classical physics; and Kepler's astronomy. For this last, he

translated substantial selections from Kepler's *Astronomia Nova*. In 1976, he left St. John's to organize and teach mathematics and the sciences at the New School of Santa Fe, a completely individualized primary and secondary school. While at the New School, he organized and directed New Mexico's most extensive school outdoor program, including rock climbing, cross country skiing, white water kayaking and rafting, and wilderness survival skills.

In 1981, he left the New School and obtained an individual grant award from the National Science Foundation to complete the translation of Kepler's *Astronomia Nova*, which he had begun while at St. John's (The translation was published by Cambridge University Press in 1992, and in a revised edition by Green Lion Press in 2015). Subsequently, he received grants from the National Endowment for the Humanities for a guided study of Kepler's *Astronomia Nova* and for the first English translation of Kepler's *Optics* (the latter now published by Green Lion), and from the American Philosophical Society for study of the Kepler manuscripts in St. Petersburg, Russia. He has published numerous articles on Kepler in the *Journal for the History of Astronomy* and the *British Journal for the History of Science*. His 1988 *JHA* article, "Kepler's Fabricated Figures: Covering Up the Mess in the New Astronomy", was featured in the *New York Times* science section, and was reported in media worldwide.

From 2005 to 2016, Donahue served as Director of Laboratories at St. John's College, Santa Fe, where he administered the college's unique history-based science program, required of all undergraduates. Upon his retirement from the College in 2016, he was appointed Tutor Emeritus. He is co-director and technical manager of Green Lion Press, which publishes a wide variety of classic texts and translations related to the history of science, mathematics, and ideas.

The Historical Astronomy Division is pleased to recognize our colleague Bill Donahue for his impressive scholarship and his contributions to the history of astronomy. The award will be presented to him at a plenary session of the 239th meeting of the American Astronomical Society, to be held in January 2022 in Salt Lake City, Utah.

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Bill Donahue demonstrates the new functioning replica of Tycho Brahe's Second Equatorial Armillary at St. John's College. The three scales use Brahe's diagonal dot divisions, permitting readings to better than one arc minute. The original was constructed in 1584. Bill reports "We are just beginning to learn how to use this amazing and unique instrument!"

From the Chair

Kevin Krisciunas, Texas A&M University

Prior to the October 15th AAS Division Leaders meeting, the HAD Committee shared ideas with each other regarding what is working well with HAD, what could be working better, and what are our priorities in the larger context of the AAS. One of the nice things about the HAD is that anyone who is an AAS member can be a member of HAD, be they amateur astronomer, educator, student, PhD-level person, or retiree. Not only that, an HAD member may give two short talks at the January meeting of the AAS. You can give two HAD talks, or an HAD talk and a regular science talk in a non-HAD session.

Given that HAD welcomes everyone who wishes to be a member, one might think that we should have no worries in the HAD about discrimination and issues of diversity. Truth be told, we do not have the numbers (yet) to consider whether the level of diversity in the HAD matches that of the Society as a whole. My educated guess is that the emeritus members of the HAD are mostly old White guys, since 40 to 50 years ago young astronomers were mostly young White guys. The demographics have changed significantly over that time, and that's only fair. The number one thing we wish to ensure is that everyone who has a strong interest in astronomy and a certain level of competency has a fair chance to succeed. My professor at the University of Illinois, Jim Kaler, said to me when I was a freshman in college, "If there is something other than astronomy that interests you, my advice is to pursue that other thing, because it's too hard to carve out a career in astronomy." I told him that my highest priority in life was to try to make the most significant contribution I could to astronomy.

These days many young astronomers who have earned PhD's get a postdoc position or two, then end up working as a data scientist. I did the reverse. The day before Christmas the year I turned 23 I saw an ad in the *San Francisco Chronicle* that read: "Wanted – person to fly on NASA research aircraft. Must know FORTRAN. Must be willing to work at night. A knowledge of astronomy would be helpful." I got that job, I figure, because I could write FORTRAN and because I had learned spherical trig from Jim Kaler. I spent five years flying on the Kuiper Airborne Observatory and met many top infrared astronomers, which helped me get my next job working at Mauna Kea for the UK Infrared Telescope and the James Clerk Maxwell Telescope.

It occurred to me that I did not want to be a programmer my whole career, so at age 42 I endeavored to go back to graduate school and earn a PhD in astronomy. I applied to five universities where I knew some of the faculty, but was only accepted by one school. Later on I found out that a discussion had taken place amongst the members of the graduate admissions committee that went something like this: "Well, what about this Krisciunas guy? He's kind of old, don't you think?" It turns out that two of the other members of that committee knew me personally. One noted, "Kevin's been working with astronomers for twenty years, has lots of publications, and more than one book. He could do the work. And besides, what you are implying is against the laws of the United States." There is such a thing as age discrimination, but I didn't want to be the poster boy for that.

To make a long story short, I went to the University of Washington, had a fulfilling and productive time, and according to George Wallerstein I was the first astronomer in seventeen years to earn a PhD in four years. My thesis advisor said he would write me letters of reference wherever I wanted to apply. He predicted, however, that I would never make the short list for a tenure-track faculty position, and he was right on that score. But it turned out OK. I got one postdoc, then a second, then a non-tenured faculty position, and fourteen years later, after teaching roughly 4800 students at Texas A&M, I retired at the end of 2020.

Two of the important and volatile issues we are grappling with in science and society are discrimination and diversity. Many books, articles, and interviews discuss this. I am not qualified to write profusely on the topic. But consider this.

According to ancestry.com I am 92 percent Baltic (with four grandparents from Lithuania), 7 percent Russian or other Eastern European, and 1 percent Ashkenazic Jew. For over thirty years I have had a sister-in-law who is Black. She and my elder brother have one son of mixed race. In 2006 I married a woman from Chile. Our son has dual citizenship and has spoken Spanish his whole life. What Kevin Krisciunas is is not just one thing. And that goes for every person reading this.

Let me close with a couple open ended questions. In this country and in the AAS should we have a diversity of opinions about "diversity"? I would say Yes, as long as they are expressed tactfully. And do we have a diversity of opinions about diversity? That is a harder question to answer.

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From the Vice Chair

Terry Oswalt, Embry-Riddle Aeronautical University

Greetings, fellow HAD members. I hope you are planning to attend (in person or virtually) the January 2022 AAS 239th meeting in Salt Lake City. If there are enough of us attending in person, perhaps we can have an informal "HAD Mini-banquet" – COVID permitting, of course.

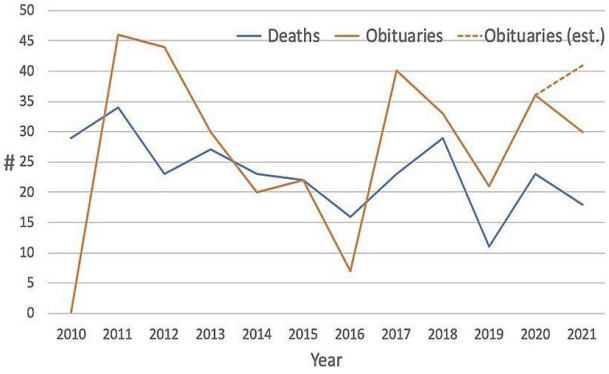
In this second missive as your Vice Chair of the Historical Astronomy Division I'd like to sharply focus on one of the most important but, alas, much-overlooked services HAD provides: paying tribute to astronomical colleagues who have passed on. Long story short: there is an embarrassingly long and growing list of about 100 former AAS colleagues who have not received a proper obituary (https://had.aas.org/obituaries/outstanding-obits).

The figure below summarizes the status of AAS obituaries during the past twelve years (my thanks to Peter Williams and Crystal Tinch of the AAS, who compiled these data). In this figure, a solid blue line traces the year of death among posted AAS obituaries. A solid orange line traces the actual number of obituaries posted in each year. The short dashed line is an estimate for the end of the current year, based on obituaries that are in various stages of preparation now. Because the year of death and year of posting are often not the same, these two curves do not coincide.

During this twelve-year period, an annual average of 27.4 and a total of 329 obituaries were posted in the pages of *BAAS* and/or the AAS HAD website. During the same period, an average of 23.2 deaths per year involving 278 obituaries were posted, suggesting that 329–278 = 51 obituaries were posted later than the year of death. Most importantly, a total of 329+101 = 430 obituaries were needed, equivalent to an average of about 36 obituaries per year. This is about the current year's rate. However, even if this rate can be maintained, it will take at least ten years to clear the backlog of AAS obituaries. We clearly need your help!

The 101 astronomers on the "outstanding obituaries" list were your friends, colleagues, mentors, students, and/or family members. If you knew one of them personally, you are uniquely qualified to summarize their major contributions to the science of astronomy and to provide a glimpse of what they were like as a person. No one who didn't know them could provide a better, more personal tribute. An obituary isn't as comprehensive as a biography, it's a brief tribute. Have a look at recent postings (https://baas.aas.org/obituaries) to get an idea of what is involved.

Every AAS member should participate in this important duty to honor those who trained, mentored and/or collaborated with us over the years. I stand ready to help you get a raw manuscript into the proper format so that it can be posted



AAS obituaries 2010-2021. See text for details.

in timely fashion. A simple MS Word, email or text file will suffice, along with a good photo.

By the way, you may know that an obituary for one of those on the list has been published elsewhere. In such cases, especially if a long time has elapsed, it may be possible to secure permission to repost an obituary that has been published elsewhere. Let me know of such cases and I'll follow up with the original posting source.

Lastly, please give us feedback on HAD. What is working well? How could we improve? What priorities should we have? Kevin is compiling a list. He, Alan, Ken and I will do our best to identify and support the areas of most interest to the Division.

Take care, and stay well!

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From the Past Chair

Alan Hirshfeld, University of Massachusetts Dartmouth

I want to echo Vice-Chair Terry Oswalt's urgent request for your participation in one of HAD's major activities with regard to the AAS: writing colleagues' obituaries. In my stint as Vice-Chair, I wrote or else arranged for others to write many obituaries of deceased AAS members, some of whom I knew personally, some with whom I had once or twice crossed paths, and others who were marginally or completely unknown to me. In every case, the obituary celebrated the scholarly and educational accomplishments of the individual and highlighted meaningful interactions with colleagues, students, family, and the public. Researching another's life and condensing it to its essentials is both challenging and satisfying. I urge you to join our many past authors from around the world and volunteer to write an AAS obituary. Your participation in this important HAD commitment to the AAS is much needed. Please go to our list of unassigned obituaries at https://had.aas.org/obituaries/outstanding-obits and find the name of a colleague (or two!) and let Terry know that you are joining our effort to provide an obituary for every individual on the list.

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From the Secretary-Treasurer

Ken Rumstay, Valdosta State University

Greeting to all HAD members! I hope you are all in good health and good spirits. As the weather here in southern Georgia has finally cooled to the point of feeling autumnal, I note that I am nearing the end of my sixth year as your Secretary-Treasurer. Thank you for trusting me; it has been a pleasure and a privilege to serve in this capacity.

As you know, we will be meeting in person in conjunction with the 239th meeting of the American Astronomical Society. The meeting venue will be the Salt Palace Convention Center in Salt Lake City, Utah. The schedule is still being finalized, but here is a preliminary listing of events:

Sunday, January 9th

2:00 pm HAD I Special Session
New Views of William Herschel (1738-1822)
(Organized by Woody Sullivan)

6:00 pm Working Group for the Preservation of Astronomical Heritage meeting

7:00 pm AAS Opening reception

The Salt Palace Convention Center in Salt Lake City

Monday, January 10th

10:00 am HAD II Special Session
Centennial of an Eclipse: The 1922 Expedition that Clinched the Case for General Relativity
(Organized by Jay Pasachoff)
11:40 am LeRoy E. Doggett Prize Lecture
(Presented by William H. Donahue)
12:45 pm HAD Town Hall
2:00 pm HAD III Contributed Oral Session
6:00 pm WGPAH Splinter Session
Should the AAS Designate Historic Sites?
(Organized by Jennifer Bartlett)

We will have additional sessions for invited talks in various formats (oral, poster, iPoster, etc.); these have yet to be scheduled. The HAD meeting will almost certainly continue into Tuesday. Please note that the HAD two-day meeting registration fee will cover the entire span of the meeting. I hope to see as many of you there as possible!

I'd like to thank the members of the HAD Prize Committee (Kevin Krisciunas, Sethanne Howard, Liba Taub, and Chair Alan Hirshfeld) for their hard work in selecting our Doggett Prize recipient. It was not an easy decision! And it's not too soon to submit nominations for the 2023 Donald E. Osterbrock Book Prize! The award was established in 2009 in memory of Dr. Osterbrock, who received the Doggett Prize in 2002. Any book copyrighted between 2018 and 2021 is eligible.

As we approach the end of another year, please remember to renew your HAD membership, and make sure your contact information is current. And please consider making a financial donation to HAD, or to its Doggett or Osterbrock Prize Funds. We rely on your generous contributions!

I must end on a sad note. The lead story in this issue of *HAD News* is, of course, the awarding of the Doggett Prize to William Donahue. He was nominated by Noel Swerdlow, Professor Emeritus of History, Astronomy and Astrophysics at the University of Chicago and a visiting professor in Humanities and Social Science at the California Institute of Technology. In 1988, the year in which he published his book *The Babylonian Theory of the Planets*, Dr. Swerdlow received a MacArthur Foundation "genius grant."

I regret to report that on July 24th Dr. Swerdlow passed away at age 79, a result of complications from leukemia. His obituary may be found at https://baas.aas.org/pub/2021i0328/release/1 .

The Going of Andrew

R.M. (Bert) Petrie (former Director of the Dominion Astrophysical Observatory)

Andrew McKellar (1910–1960) was a Canadian astronomer who first detected the presence of molecular matter in interstellar space, and found the first evidence of the cosmic radiation left over from the Big Bang. This humorous poem, written by Robert ("Bert") Petrie (1906–1966), describes McKellar's activities in preparation of attending a symposium at which he was to give a paper. The symposium to which McKellar was invited was held at Yerkes Observatory during the celebration of the supposed semi-centennial anniversary of the AAS (Dates: 1947 September 3-6).

A copy of this poem was given to Beverly Lynds, while she was living in Victoria, BC in 1959 by its author, who was then Director of the Dominion Astrophysical Observatory. She shared the poem with us last spring and we are delighted to include it here. Dr. Lynds states "I have enjoyed this poem over the decades and appreciate the fact that it gives a glimpse into how 'astronomy was done' in the 1940s."

Andrew McKellar (1910-1960) was known around the world as one of Canada's best astronomers. He is the subject of the poem which appears on the next page.

THE GOING OF ANDREW

"With apologies to Longfellow"

From the land of the Dakotas
From the Big Chief Otto Struve
Went the message to the westward,
To the land of mighty forests,
To the place where rushing waters
beckon home the shining salmon.
Came the summons from the Yerkes.
"Come and sit with us in council
At the Pow-wow in September
On the shores of Lake Geneva.
All the braves have smoked the peace pipe
Squaws and wise men have foregathered
Even from the place called Harvard."
To this summons Andrew answered,
Answered by the white man's airmail,
Seven cents it cost to send it.
"I will come and sit among you,
Round your campfires tell the magic,
Of the stuff above the heavens.
All the secrets of the red stars,
Isotopes and carbon thirteen."
Potent was McKellar's magic,
In the darkness he would labor,
Silently he worked in darkness,
Perched for hours upon a ladder,
Muttering forbidden phrases
To the beast that eats up starlight.
Coaxing from the glass-that-gathers,
Secrets to confound the wise men.
But a madness seized McKellar
Many moons he dilly-dallied,
Said there was no rush about it,
Said there was no bloody hurry,
He would turn the sand glass backward,
He would stop the sun god's progress
As Jehovah did for Israel.
At the ending of the eighth month
In the dying days of summer,
Suddenly the madness left him
Just a week before the meetings.
All the tribe was quickly gathered
to the wigwam on the mountain.
Awful was McKellar's hurry
Awful was the darkroom's frenzy,
Awful was the deep disorder
Of his notes upon the table.
"Hell," cried Andrew, "ere the sun god
Comes once more to bring daylight
I will have the paper written,
And the typist will be tortured
Till the manuscript is copied.
There's no need to study tracings
I will look upon the spectra
With an eyepiece from my pocket.
With the pictures in my briefcase
I can tell a wondrous story."
Hurriedly he wrote the opus
On the backs of purchase orders.
Hurriedly the typist hammered,
Blew her nose and cursed all wise men.
Hurriedly the plates were garnered,
cut, and stuffed in little boxes.
Hurriedly he left the mountain,
All his wisdom placed about him,
Writ on little scraps of paper.
Hurriedly he caught the ferry
With his briefcase crammed with knowledge.
Thus departed A. McKellar.

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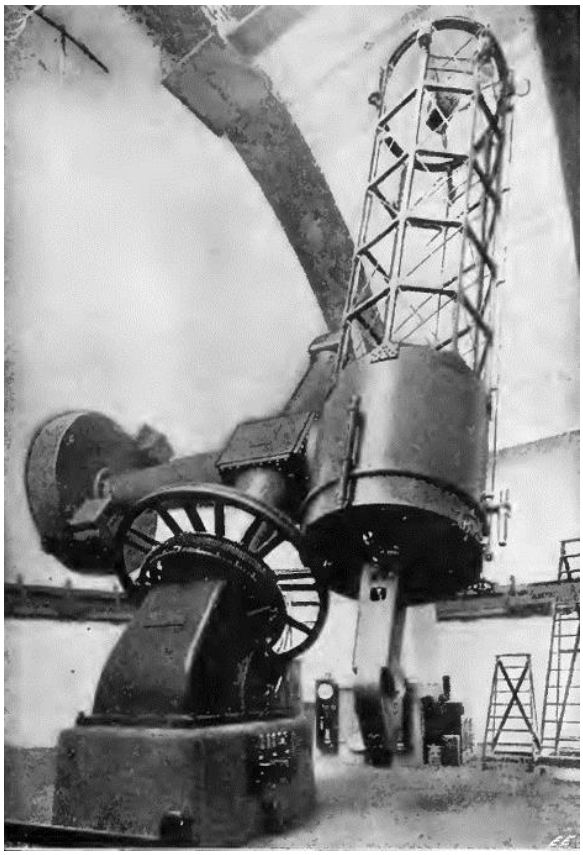

The 72 inch Plaskett reflecting telescope at the Dominion Astrophysical Observatory saw first light in May 1918.


Status Report on the *Biographical Encyclopedia of Astronomers, 3rd edition*

Philip Nicholson, Cornell University and Jennifer Bartlett

The *Biographical Encyclopedia of Astronomers* (*BEA*) is pleased to report on our progress over the past six months and since the last issue of *HAD News*. The Project is led by Editors-in-Chief Philip Nicholson of Cornell University and Jennifer Bartlett, working with Barbara Wolf of the reference book team at Springer Publications. Our section editors are Virginia Trimble of the University of California-Irvine, Jordan Marché II of the University of Wisconsin-Madison, Wayne Orchiston of the University of Southern Queensland, Robert "Bob" Gehrz of the University of Minnesota, Joseph "Joe" Veverka of Cornell University (ret'd), Gerry Gilmore of the University of Cambridge, Marc Lachièze-Rey of the University of Paris Diderot, and Ralph Wijers of the University of Amsterdam. Thomas Hockey of the University of Northern Iowa and Editor-in-Chief of BEA I and BEA II is consulting editor on BEA III.

The Third Edition will contain approximately 350 new articles, as well as revisions to about 100 existing articles where it is deemed necessary. The new entries will fill gaps in the Second Edition and extend the coverage of the Encyclopedia from individuals born prior to 1920 through those born in 1950. New entries will include only individuals deceased by the end of 2020, although no existing articles will be deleted. It will be published both in print and as a searchable e-book, as well as in a new on-line format where individual articles can be easily updated.

So far, almost 1100 suggestions have been received from the community, including approximately 300 predating the 20th century. Of these, just over 300 have been selected for inclusion in *BEA III* and another 150 are still under consideration. The largest cohorts are radio astronomers (70) and pre-20th century astronomers (66). Among these are several individuals, chiefly from the 19th and early-20th centuries, for which we are soliciting help in identifying potential authors:

Ahnert, Paul Oswald (1897-1989) [Germany]

David, Martin Alois (1757-1836) [Czech Republic]

Divan, Lucienne (1920-2015) [France]

Eddie, Lindsay Atkins (1845-1913) [South Africa]

Gyllenberg, Knut Anton Walter (1886-1952) [Sweden]

Ichinohe, Naozo (1878-1920) [Japan]

Kwon, Geun/Keun (1352-1409) [Korea]

Nyren, Magnus (1837-1921) [Sweden, but worked in Russia]

If any HAD member is interested in writing a short biography for any of the above, or knows of a colleague who might be, please contact one of the undersigned.

We are also trying to identify the author of the existing entry for Abraham Sharp (1653–1742), which has been misattributed to Philip Edwards. Again, if you wrote this piece or know who did, please contact one of the undersigned.

In addition, it is not too late to submit new names for possible inclusion in *BEA III*. We are especially interested in securing more articles on astronomers from Asia (from Japan to Iran), Eastern Europe, Africa, and Latin America, as well as female astronomers. Most varieties of astronomer are eligible for inclusion, with the exception of solar and space physicists, upper atmosphere scientists, laboratory geochemists and individuals who were primarily physicists or geologists.

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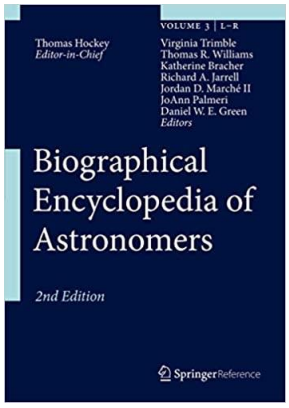


Stepping into a River of Observations

Jennifer Lynn Bartlett, U.S. Naval Academy

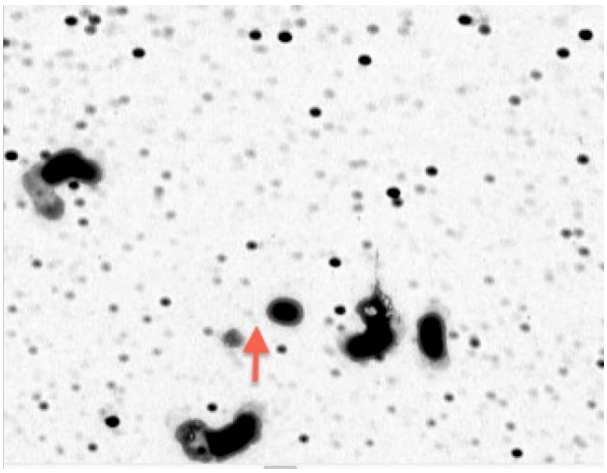
Heraclitus (c. 500 BCE) "says you could not step twice into the same river." Each time you dip your foot into the flow, you touch different water. With every step you take, you too are maturing. What is true of rivers is also true of stars. Any observation we record captures the sky as it appeared in that moment, never to be repeated. While changes in the sky may be imperceptible to the unaided human eye, time domain astronomy is revealing both the predictable and unpredictable changes that occur when multiple observations at different times are compared. Phenomena may be flickers on the order of a fraction of a second or evolutions maturing over decades. For instance, the Zwicky Transient Facility (ZTF)[2] records nightly changes while the Digital Access to a Sky Century @ Harvard (DASCH)[3] detected variable stars with periods of decades.

Modern sky surveys, such as the on-going ZTF and Legacy Survey of Space and Time (LSST) in preparation, are generating such vast quantities of observations that new techniques in machine learning and big data are necessary to analyze them. Even so, these productive investigations can only advance their temporal baseline forward one second at a time. As noted in two Astro2020 white papers[4,5] our ability to extend the temporal baseline backwards is limited by our ability to discover and decipher the observations of our predecessors.

The International Glass Plates Group led by Barbara Kern (University of Chicago Libraries) is taking a fresh look at the opportunities and challenges posed by astronomical photographic plates. The growing group has more than thirty-five members from a range of specialties. Many participants are archivists and librarians to whom such collections have been entrusted as the technology gave way to electronic recording. Consequently, interest in making the plate contents accessible embraces not only their continuing scientific value but also their identity as historic artifacts, the evidence they provide of how science was accomplished, their connections with the people who used them, and their aesthetic potential.

While photographic plates tend to dominate discussions of legacy data, they are not the only format worth exploiting. If anything, the earliest generations of digital data may be more threatened as the media on which they were recorded degrade and the equipment for reading them ceases to function. In 2019, the AAS and NOIRLab began an

Yerkes photographic plate vault volunteer Frank Mills prepares to examine an archival wide-field plate. It measures 12×12-inches with a useful field of view of about 125 square-degrees (image courtesy Wayne Osborn).



Detail of a 1921 photographic plate taken at Yerkes Observatory showing Pluto. After Pluto's discovery in 1930, astronomers searched for pre-discovery images to help in determining its orbit. Pluto and three reference stars are marked as described by F. E. Ross (1930, *Astronomische Nachrichten*, **239**, 117)[7]. Image courtesy Wayne Osborn.

archival collaboration that includes migrating data taken at Kitt Peak National and Cerro Tololo Inter-American Observatories between 1993 and 2004. The data on approximately 10,000 obsolete exabyte tapes will be converted to an estimated 4 million more-easily read FITS files. Among these observations are the original images that first revealed the effects of dark energy on the expansion of the Universe. Although work on this project stalled in 2020, the partnership will hire a new archival fellow now that pandemic restrictions are easing.[6]

The Working Group on the Preservation of Astronomical Heritage (WGPAH) is pleased with these exciting developments. Efforts like these will unlock the potential of legacy observations and will enable the study of the astronomical time-domain over more than a century. Our revisiting and reusing these images of the past sky is like our stepping into their rivers a second time.

wgpah-chair@aas.org

[1] Graham, Daniel W. "Heraclitus." In *The Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta, Summer 2021. Metaphysics Research Lab, Stanford University, 2021. https://plato.stanford.edu/archives/sum2021/entries/heraclitus/

[2] https://www.ztf.caltech.edu/

[3] https://projects.iq.harvard.edu/dasch

[4] Pevtsov, Alexei, Elizabeth Griffin, Jonathan Grindlay, Stella Kafka, Jennifer Bartlett, Ilya Usoskin, Kalevi Mursula, et al. "Historical Astronomical Data: Urgent Need for Preservation, Digitization Enabling Scientific Exploration." *Bulletin of the AAS*, White Paper submitted to ASTRO2020 Decadal Survey, **51**, no. 3 (May 31, 2019):8. https://ui.adsabs.harvard.edu/abs/2019BAAS...51c.190P/abstract

[5] Lattis, James, Wayne Osborn, Jennifer Lynn Bartlett, Elizabeth Griffin, Thomas Hockey, Stephen McCluskey, Terry Oswalt, Alexei A. Pevtsov, Sara Schechner, and Virginia Trimble. "Preservation of Our Astronomical Heritage State of the Profession White Paper for Astro2020." *Bulletin of the AAS*, State of the Profession White Paper for Astro2020, **51**, no. 21 (September 1, 2019): 12. https://ui.adsabs.harvard.edu/abs/2019BAAS...51g..21L/abstract

[6] Steffen, J. & Hunt, S. 2021, "Tapes and Papers: An Astronomical Heritage Archival Project of the American Astronomical Society and NSF's National Optical-Infrared Astronomy Research Laboratory," *BAAS* accepted; presentation slides available at https://zenodo.org/record/4839077

[7] This paper is available at https://ui.adsabs.harvard.edu/abs/1930AN....239..117R/abstract

2022 Notre Dame Workshop

Sarah Reynolds, Indiana University, Bloomington

The Fifteenth Biennial History of Astronomy Workshop (NDXV) will be held 2022 June 8-12 at the University of Notre Dame in Indiana, with a planned one-day trip to the Adler Planetarium.

The theme for NDXV is Communicating Astronomy. How is astronomical knowledge and expertise communicated, both within and beyond the astronomical community? Communication might include means of transferring or transmitting data between astronomers and other practitioners—involving issues of standardization, uniformity, and translation—or between experts and their instruments, as well as across disciplinary boundaries and to the wider public. How is knowledge produced and transformed through these processes? How have changes in tools and methods of communication impacted astronomy? Papers exploring methods and aspects of communicating astronomy in any context, geographical region, or time period are welcome. Topics of particular interest include, but are not limited to: manuscripts and their circulation; epistolary networks; print culture and scholarly publishing; the use of diagrams and other visual resources to present data, concepts, and theories; communication technologies and devices; and the popularization of astronomy through print, performance, and broadcasting.

We will accept proposals for both papers and sessions. Single papers will probably have to be 15–20 minutes in length, depending upon the number of submissions. Posters for display and discussion are also an option. All proposals, including a one-page CV for all presenters, should be sent by 2022 February 1 to Elizabeth Hamm at elizabeth.hamm@stmarys-ca.edu. For further information, please visit our website at http://www.nd.edu/~histast .

reynoldssj@uindy.edu

Adler Planetarium Exhibitions on the Google Arts & Culture platform

Pedro M. P. Raposo, Curator and Director of Collections, Adler Planetarium, Chicago

The Adler Planetarium has been offering online exhibitions on the Google Arts & Culture (GA&C) platform since May 2018. This partnership added the Adler to Google's network of 2000 international museums. So far the Adler has created and shared 24 exhibitions through GA&C, ranging from highlights of the Planetarium's collection of historical scientific instruments to thematic exhibitions such as "Imagine the Moon" and "Pictures in the Sky", which tie into onsite displays and planetarium shows. These exhibitions have also helped to expand the diversity of coverage to encompass and uplift the work of women, LGBTQ+, and communities of color, as exemplified by exhibitions such as "Women in Science Communication", "Raíces Bajo las Estrellas" (featuring Latinx astronomers and astrophysicists) and "Here, Queer, and Exploring Beyond the Atmosphere".

The Adler's online exhibitions on GA&C began as an element of the Adler's Collections Department work, and as such there has been a focus on connecting our collections of scientific instruments, rare books, and archives to major events celebrated by the Planetarium. Examples include: "A Martian Sensation", to celebrate the Mars opposition of 2018; the above-mentioned "Imagine the Moon", to kick off the 50th anniversary of the historic Apollo 11 mission; "Frederick J Brown and the Milky Way", to celebrate Black History Month; and "Picturing Women in Astronomy and Space Exploration", to mark Women's History Month 2019. The scope of the exhibitions has expanded in order to include the voices of real scientists, historians of science, and people of all backgrounds who work in astronomy and other STEAM fields. Some exhibitions have also counted on the expertise of guest curators.

The Adler's exhibitions on GA&C have attracted over 67,000 individual visits, and the Adler team will continue to explore a variety of themes relating to relating to the history of astronomy and space science. A new exhibition titled "The Allure of Giant Telescopes" (https://artsandculture.google.com/story/yAUBnSQJHrOPdg) went live last month, and another one focusing on astronomy in Eastern Asia, to be launched in January 2022, is already in the making.

praposo@adlerplanetarium.org

Kepler (1571-1630) on the Cusp

Virginia Trimble, UC Irvine

Johannes Kepler appears most conspicuously in introductory astronomy classes for his three laws of planetary motion, which, in the enormous creativity of nomenclature for which astronomers are world renowned, we call the First Law, the Second Law, and the Third Law. But he also

- gave his name to a supernova (SN1604) which he was something like the ninth person to see (Tycho did not discover his supernova, SN1572, either).
- provided the longest, and in some ways the most accurate, train of observations of that "new star"
- successfully defended his mother from an accusation of witchcraft
- cast something like 800 horoscopes, including that of his first son, who soon died
- recorded the 1607 apparition of Comet Halley so accurately that Edmund Halley, tracing the passage of a comet in 1682, was able to say "that's been seen before" (also by Apian in 1531) and it will be back (it was)
- attempted to connect the speeds and other aspects of planetary motion with both notes of a single, harmonious chord and with short "leitmotifs"
- laid out the theory of refractive telescopes, including the sort with two convex lenses
- supposed that weather forecasting could be improved by advances in astrology, connected with a more accurate model of the motions of the planets
- recognized that the image formed by your eye's lens on the retina is upside down
- spaced out his planets by nesting the five regular (Platonic) solids between spheres
- adopted from his contemporaries something of Gilbert's idea of the earth, sun, and all as magnets, but rejected Bruno's infinite cosmos because its stars (then thought to have angular diameters of minutes of arc) would have to be absolutely enormous compared to our Sun (early telescopes reduced the problem but with resolving powers still at least seconds of arc did not eliminate it)
- wrote what is now conceived as a very early work of science fiction (published posthumously as *Somnium* in 1634)
- envisioned a cosmos describable by a sort of "theory of everything", which was both geometric and divine in origin
- wisely changed his mind about sunspots, from thinking one he had seen in 1607 was a transit of Mercury, to recognizing they are something like clouds on the sun that could be used to measure its rotation rate
- wrote on how to measure the capacity of a wine barrel, the shapes of snowflakes, issues connected with "tiling," and much else
- predicted transits of Mercury on November 7 and Venus for December 7, both in the year 1631, but died a bit more than a month before they happened. Gassendi and others saw Mercury "in" the Sun.

A book could be written about each of these. Indeed, in many cases a book has, either by Kepler, author of at least eighteen named monographs, of which half a dozen or so are readily available in English translation, or by more recent authors. A critical edition of all his writings (lots of letters have been preserved) was begun in 1938, has reached volume 21, and continues. Here, therefore, are smatterings on some of his achievements, which seem particularly interesting today (Friday, the 10^{th} of September 2021). If any of the items are to make any sort of sense that Kepler himself would have acknowledged, we must keep in mind that he had a "theory of everything," in which God, the creator and geometer, had constructed everything to provide a harmonious whole for mankind's benefit, and the job of the scholar was to figure out how it all worked. This point of view (perhaps absent the "benefit" part) is not completely unknown among modern scientists, but it has become quite rare.

From this "theory of everything" point of view, it should not be surprising that some of the topics fit together oddly by modern standards. Consider, for instance, the Third Law of Motion ($P^2 = a^3$, or perhaps $(M_1 + M_2)\, P^2 = a^3$ in suitable units) which appears in the fifth book of *Harmonices Mundi*, along with "Music of the Spheres". Each planet was represented by a single note, in a harmonious

chord, which they sang together at the moment of creation (and perhaps might sing again only at the end of the world; see Figure 1). The planets he knew about included two basses (Saturn, Jupiter), a tenor (Mars), two altos (Earth and Venus) and one soprano (Mercury). The relative pitches represented average annular frequencies in orbits around the sun. To make this arrangement harmonious and in accord with the ratios of lengths of string that would twang with pitches in the same relationships, he had to adopt "just" tuning (fairly close to the equal temperament now used for pianos and such, which he seems to have learned about from a book by Vincenzo Galiledii, father of "our" Galileo). It is only when you tune this way (vs. for instance circles of fifths) that major and minor thirds and sixths become harmonious.

OK. In addition, each planet sang a little tune, part of an ascending and then descending scale, representing the range of angular motion from perihelion to aphelion and back again (Figure 2). Venus, with her nearly circular orbit, sang only a single note. Earth, a bit more eccentric, sang "mi fa mi" (*miseria*, *fames*, *misaria*). Mars, and especially Mercury, got to have more fun, the latter spanning a whole octave up and back down. One finds this drawing from page 207 of *Harmonices mundi libri V* on websites, in volumes on the history of astronomy, and in introductory textbooks. But you are still at least one step away from singing the planetary leitmotifs for yourself. There are seven (including the moon - the only one then known), and they are written in seven different clefs, of which us music primitives know two, treble and bass (or G and F), though viola players know at least one more (alto). So, while the patterns all look as if they fall within a chorus rnezzo's scope they do actually range from a fairly low bass to a respectable lyric soprano. Just remember, however, that no one today can "sing the croaking chorus from *The Frogs* of Aristophanes" because only the words, not the tune, have come down to us. Just looking at the patterns, however, suggests that (as is true) Kepler had to admit a certain amount of dissonance to his harmony of the worlds.

Keep in mind, as well, that the sizes of the orbits (*a* in the equations) somehow had to be spaced by nested Platonic solids.

Let us, therefore, return to the basic chord-of-creation (Figure. 1). Kepler wrote at the time that he would have preferred to have the chord in its normal inversion, with "do" at the bottom. Let's add those notes (Figure 1, b), and behold he, or we, have somehow "predicted" Uranus and Neptune. At this point, one can still play the chord with two normal hands on a normal organ or harpsichord keyboard (pianos come later, but organs made as early as around 1450 still exist in various places, mostly in Italy).

One more sort of "prediction" is still possible. There is a gap in the middle, which one might fill in either of two ways (Figs. lc and ld). If you happen to have a keyboard handy (no, not that sort, the other sort!) try playing them, and see (or rather hear) which you prefer. If you happen not to have hands like Rachmaninoff, you will need to bend over and hit either that E or G in the middle with your nose. But in any case it obviously "predicts" the asteroid belt (post-Kepler by a couple of centuries). I had expected to prefer the version with E for the asteroid belt, but upon experiment, found the G more euphonic.

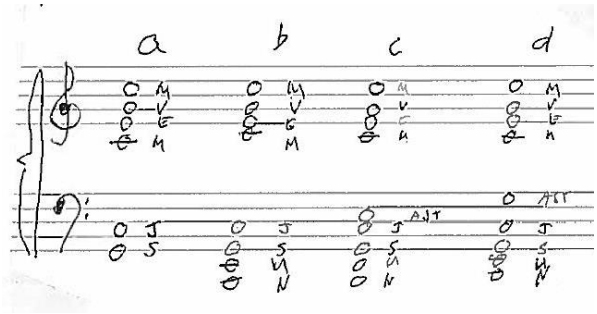
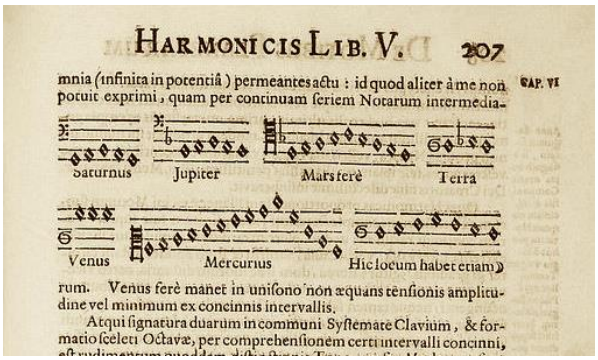


Figure 1 – The chord perhaps sung by the planets at the moment of Creation, as envisioned by Kepler (a), modified so that the tonic tone falls at the bottom (b, thus "predicting" the existence of Uranus and Neptune), and with the asteroid belt added (c,d) in two possible positions. I think d, with the asteroids closer to Mars, is a pleasanter sound. M,V,E,M,J,S are Mercury, Venus, Earth, Mars, Jupiter, and Saturn. Our Moon had its own "leitmotif" but did not appear in the chord.


HARMONICIS LIB. V. 207

mnia (infinita in potentiâ) permeantes actu : id quod aliter à me non CAP. VI
potuit exprimi, quam per concinnam seriem Notarum intermedia-

Saturnus Jupiter Mars ferè Terra

Venus Mercurius Hic locum habet etiam

rum. Venus ferè manet in unisono non æquans tensionis amplitudine vel minimum ex concinnis intervallis.

Atqui signatura duarum in communi Systemate Clavium, & formatio scelerti Octavæ, per comprehensionem certi intervalli concinni,

Figure 2 – The "leitmotifs" for the planets devised by Kepler. At bottom right we see "Here the Moon also has a place."

Now, if your nose has recovered from the experiment and your sense of what constitutes "sensible science" from the harmonies of planets and musical notes, let us turn to KEPLER'S SUPERNOVA.

No, he did not discover SN 1604, being something like the seventh European astronomer to glimpse it (plus at least two observers in China and Korea whose names have not come down to us). But the portents are good. He did provide one of the two good sets of positional measurements, relative to comparably bright stars near "the foot of the Serpent carrier" (Ophiuchus; Figure 3). The other came from David Fabricius (1564-1617) and was somewhat better, because he used only stars for his angular measurements, while Kepler included nearby Jupiter and Saturn, which, of course, persisted in moving through the sky. But Kepler's angles were good enough to demonstrate that the "new star" was further away than our Moon and for Walter Baade to find the right spot in the 1943 sky to image a bit of optical fuzz there.

In addition, Kepler followed the fading event for the longest time, about 370 days, failing only to recover it again in January-February 1606, when it ought again to have come out from behind the Sun. The Korean brightness data carry on almost as long and are better close to peak brightness. They, as well as other European and Chinese observers, estimated apparent brightness by saying the new star, at various time, looked "larger than," "smaller than," or "about the same size as" various other stars and nearby planets, which we take to mean "brighter than," fainter than," and "about the same as" other stars (none an obvious variable) and the planets (whose likely apparent magnitudes for the relevant dates can be calculated).

There is, of course, an enormous literature about the remnant, and what we can learn about supernovae from the early data (yes, they twinkle like stars and are further away than the Moon). The insights include something about "rates, types, and parent populations," and something about what causes thermonuclear supernovae, though the data tend to exclude both the "double degenerate" and "single degenerate" versions of progenitors.

But we are once again about to encounter Kepler the prober of the Mind of God, whose "theory of everything" had to include Biblical chronology (Newton had similar views somewhat later). Indeed Kepler devoted considerable work, attention, and writing to trying to establish the exact date of The Nativity. He settled on something like 6 BCE. But why, how, and what had it to do with the new star of 1604? Jupiter and Saturn are, of course, the slowest-moving of the planets then known and are in conjunction only about once every twenty years. Actually this is closer to 20 ⅓ years, so that the ecliptic locations of the events march around the sky in a rather nice

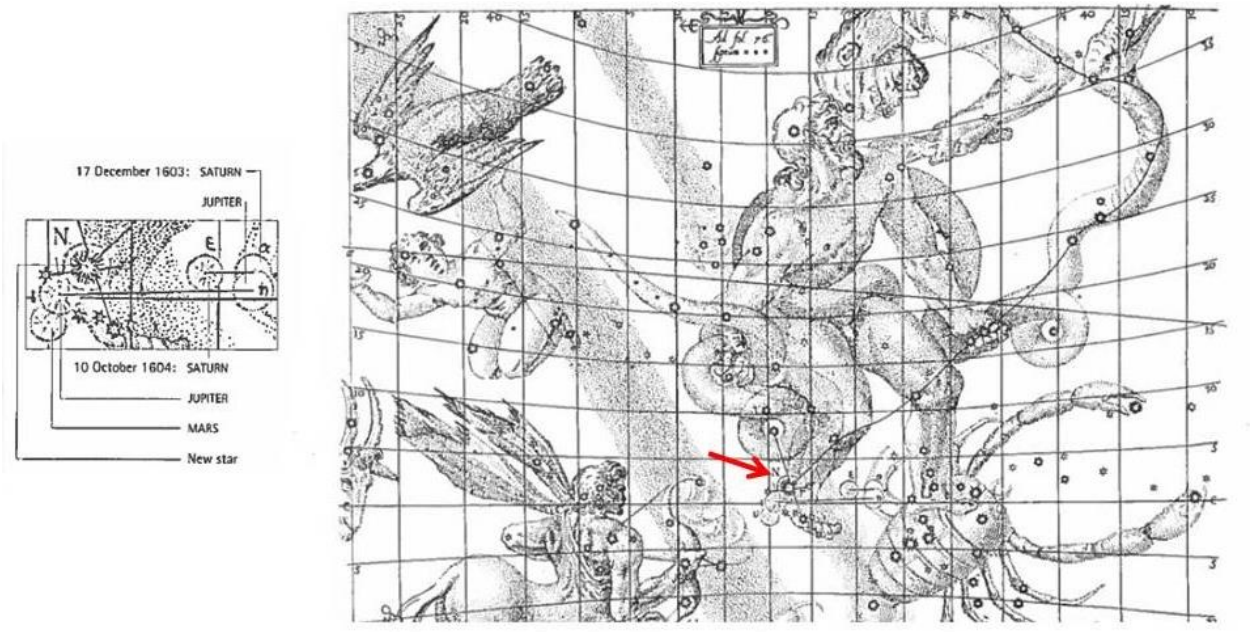


Figure 3: Location in the sky of the 1604 "nova stella" (N, indicated by the arrow) and, at left, a close-up with Mars, Jupiter, and Saturn as they were on 10 October 1604. From Johannes Kepler, De Stella Nova 1606, as given by Michael Hoskin, Cambridge Illustrated History of Astronomy, pp 198 and 199.

pattern of precessing almost-equilateral triangles (Figure 4). The precession pattern through the signs of the zodiac recurs roughly every 800 years.

Now the conjunction of December 1603 was the first in 800 years to occur in one of the constellations associated with the Greek element Fire (by threes, there are also earth, air, and water constellations, not perfect matches to their names). And, on top of that, in 1604, Mars approached fairly close to the Jupiter-Saturn pair. Apparently many astronomer-astrologers were "watching this space" fairly closely, wherever they were on Earth. Thus it can be said with some confidence that, while SN 1604 was about as bright as Mars on 1604 October 9 (on the Gregorian calendar - more like the day wuchen, the 21st day of the ninth lunar month in the 37th year of the reign of King Sonja, in the Korean records) it was below naked eye visibility on the 8th.

So, naturally, Kepler associated "his" new star with the Star of Bethlehem (declaring both to have been miracles, made perhaps out of aether), and he identified each of the 800-year conjunctions with an appropriate biblical or historic event as follows (with names slightly updated):

4000	BCE	Adam and the creation
3200	BCE	Enoch
2400	BCE	Noah
1600	BCE	Moses
800	BCE	Isaiah
0±	CE	Christ
800	CE	Charlemagne
1600	CE	Rudolf II, the Hapsburg Holy Roman Emperor of the time, and Kepler's employer, patron, department chair, or whatever you might wish to call that sponsoring agent relationship

Rudolf II lost the Kingdom of Bohemia to Matthias (crowned 1611 May 23) and died within the year. Kepler thought it wisest to make other arrangements, and left Prague for Linz that year.

Meanwhile, as it were, there are those other dozen or more accomplishments of Kepler one might investigate. Measuring the capacity of a wine barrel, given its slightly complex shape, is clearly

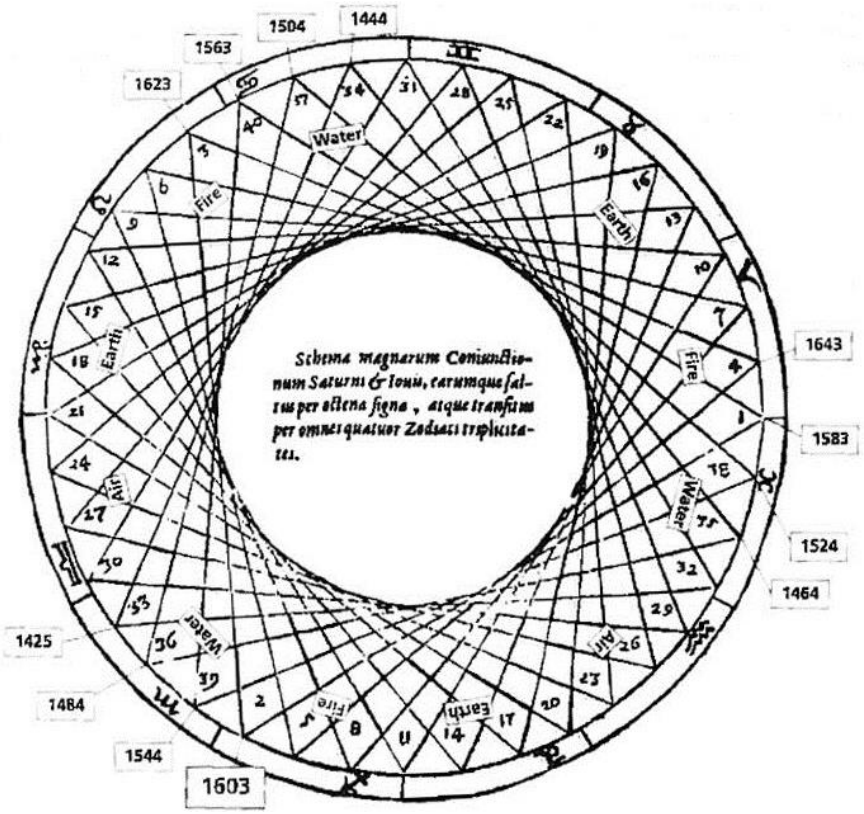


Figure 4: The track of the conjunctions of Jupiter (Iovu) and Saturn (Saturni) along the ecliptic, completing a triangle each 60 years, and the rotation of the triangle so that the conjunction entered a fiery trigon each 200 years and came back to the first one every 800 years, approximately. The December 1603 conjunction therefore in some sense replicated that of the year approximately zero, as well as 800 CE, 800 BCE, and so forth.

From Kepler's *Cosmographic Mystery* (1596), with the years of conjunctions and the elements associated with each trigon (set of three zodiacal constellations) added by Michael Hoskin op cit p. 200

best achieved by filling it and counting the number of glasses that can be filled therefrom. As for the shapes of snowflakes, we get so few here in Orange County that I can only refer you on to:

SUGGESTIONS FOR FURTHER READING (AND COMMENTS THERE-ON)

Apt, Adam Jared (2014). "Kepler, Johannes". In Thomas Hockey *et al.* (Eds.) *Biographical Encyclopedia Astronomers, 2nd Edition* (pp. 1175 -1179). Springer.

(I would like to be able to say this is THE definitive reference, being one of the "al.s", but it a mentions neither the supernova nor the music.)

Baade, Walter (1943). "Nova Ophiuchi of 1604 as a Supernova", *Astrophysical Journal* **97**, 119.

(The official recognition of an optical identification at Kepler's position)

Boner, Patrick J. (2013). *Kepler's Cosmological Synthesis: Astrology, Mechanism and the Soul*, Brill

(An appreciation of the depth and unity of his thought)

Burke-Gaffney, Michael William (1935). *Johann Kepler and Modern Astronomy*. PhD dissertation at Georgetown University.

Burke-Gaffney, Michael William (1937). "Kepler and the Star of Bethlehem", *Journal of the Royal Astronomical Society of Canada* **31**, 417.

Burke-Gaffney, Michael William (1944). *Kepler and the Jesuits*. Bruce Publishing.

(Father Bruce-Gaffney, S.J., who came relatively late to Canada, the Church, and astronomy seems to have been a very interesting fellow himself. One of his footnotes mentions a 1912 red-sensitive plate from the Mt. Wilson 60" telescope, aimed at the position extracted from Kepler's data, which showed a bit of fuzzy light. Not mentioned by Baade.)

Ferguson, Kitty (2002). *Tycho and Kepler*, Walker Books.

(A sort of joint biography, focused on their interactions. Mentions the harmonious chord of all the planets at creation, and that Tycho as well as Kepler thought that planetary configurations might influence the weather.)

Hoskin, Mlchael (1997). *Astronomy* (pp. l98-200). Cambridge University Press.

(An excellent drawing of how the conjunctions of Jupiter and Saturn work their way around the zodiac over the centuries.)

Lawrence-Mathews, Anne (2021). "Medieval Weather Forecasting". *Physics Today* **74**, No. 4 (April), p. 38

Before this appeared, I had truly never heard of astrometeorology. The idea was that "planets and their movements around Earth affected atmospheric conditions and weather. Thus Tycho, Kepler and others expected better weather forecasts because their calculations of planetary positions were improving. The odd thing about the article is that the author never quite says that it isn't true!)

Rothman, Aviva (2020). "Johannes Kepler's pursuit of harmony", *Physics Today* **73**, No. 1 (January) p. 36.

(I think this is about Kepler.)

Stephenson, Bruce (1999). *The Music of the Heavens: Kepler's Harmonic Astronomy*. Princeton University Press.

(This was reviewed enthusiastically by J.R. Voelk.)

Stephenson, Richard F. and Green, David A. (2002). *Historical Supernovae and Their Remnants*. Oxford University Press.

(This is the classic on the topic. SN 1604 is chapter 5, preceded by Chapter 4 on Cas A and followed by chapter 6 on SN 1572 (Tycho).)

Trimble, Virginia (2021). "Astronomy Meets the Periodic Table", in C.J. Giunta et al. (Eds.) *150 Years of the Periodic Table*, (pp. 387-408). Springer.

(What on earth is this doing in here?? P. 391 (Figs. 15.1, 15.2) is a modified version of Hinrich's 1867 spiral periodic table, which "clearly" predicted a spoke missing that, when added, would cross the spiral just where Ne, Ar, Kr, and Rn would be found, between the spoke with F, Cl, Br, and I and that with Li, Na, K, and Rb. Ne, Ar, Kr, Xe, and Rn were indeed all found a smidge over thirty years later, with the atomic masses "predicted" in this way. The extra spoke, like the extra notes in Figure 1 here, was mine, not Hinrich's.)

Vink, Jacco (2017). "Supernova 1604: Kepler's Supernova and its Remnant". In A.W. Alsabti and P. Murdin (Eds.) *Handbook of Supernovae* (Vol 1, pp. 139-160). Springer.

Vink, Jacco (2020). *Physics and Evolution of Supernova Remnants*. Springer.

(These provide a great deal of information about what has been learned about SN 1604 since 1605 and current questions and research.)

Voelkel, James R. (1999). *Kepler and the New Astronomy*, Oxford University Press.

Voelkel, James R. (2001). *The Composition of Kepler's Astronomia nova*. Princeton University. Press.

(The author warned me that neither of these (shamefully bought from Thrift Books just days ago) would tell me much about the supernova, the music, or astro-meteorology, but that the Oxford biography was a good read. He was right on both counts.)

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News from HAD Members

Ken Rumstay, Valdosta State University

Well, another summer (or winter, for readers in the southern hemisphere) of Covid-19 has passed. It has unquestionably been a very difficult time for everyone. Nonetheless, we've received exciting news from many of our members!

After an extended hiatus, long-time HAD members and umbraphiles Jay and Naomi Pasachoff have resumed chasing solar eclipses across the globe. They joined a group of thirty-three enthusiasts who viewed the June 10th annular eclipse from an altitude of 39,000 feet, aboard a flight chartered by *Sky & Telescope* magazine. Joining Jay and Naomi was Jay's elementary-school classmate Amy Sheldon, their local host. Dr. Sheldon is recently retired from her position as Professor of Communication Studies and Linguistics at the University of Minnesota.

Jay has witnessed seventy-three eclipses to date, his first being that of 1959 October 2. He was at that time a freshman at Harvard, and the Observatory Director, Donald Menzel, borrowed a DC-3 for their seminar to see the eclipse from aloft, a good thing because it rained below. I invite you to read Jay's account of his most recent eclipse adventure in the November 2021 issue of *Astronomy* (https://astronomy.com/magazine/news/2021/11/flying-into-junes-ring-of-fire-eclipse .

We were glad to hear from Hans Haubold and his wife Barbara, who have kindly provided articles for the past two issues of *HAD News*. Hans writes: "We've summarized our research findings in the past ~50 years and it might be that there are a few members of HAD who might be interested in the two topics, either Michelson or Solar Neutrinos."

I'm sure there are, and those articles may be found at https://researchfeatures.com/dorothy-michelson-livingston-personal-recollection/ (remembrances by Dorothy Michelson Livingston, daughter of American physicist Albert A. Michelson) and also at https://researchfeatures.com/perplexing-solar-investigation-experimenting-neutrinos/ (a brief account of solar neutrino astronomy).

On September 1st long-time HAD member Rick Fienberg retired from his position as AAS Press Officer. It would be futile to attempt to enumerate

Jay, Naomi, and Amy Sheldon toast a successful eclipse flight.

The annular phase of the eclipse.

Jay dressed well for the occasion! He has worn these Sun-colored trousers on eclipse expeditions since at least 1977. And his mask features a reproduction of Étienne Leopold Trouvelot's painting of the solar eclipse of 1878 July 29!

Rick Fienberg

his numerous accomplishments here; you can learn all about them at https://aas.org/press/aas-press-officer-rick-fienberg-retire-september-2021 . I will however say that Rick has provided invaluable assistance to our division on many occasions, and that we are all grateful for his help. Thank you, Rick, and best wishes in all future endeavors!

Finally, I would like to welcome a new member to HAD who is very special to me. Michele Kaufman mentored me as a graduate student at The Ohio State University in the early 1980's; she was at that time a member of the physics faculty. Our work involved studies of the spatial distributions of HII regions in the galaxies M33 and M83, and what that revealed about various modes of star formation.

Michele was a graduate student at Harvard University nearly fifty years ago when she met Jay Pasachoff. Recalling Jay's interest in the history of astronomy, she wrote to him in August to let him know that her sister's sister-in-law, Judith Grabiner, had received the 2021 Whiteman Memorial Prize. Awarded every three years by the American Mathematical Society, the Whiteman Prize recognizes exceptional scholarship in the history of mathematics. The citation noted in particular Dr. Grabiner's works on Cauchy, Lagrange, and MacLaurin. Further information about the Whiteman Memorial Prize may be found at https://www.ams.org/news?news_id=6494. By sheer coincidence, Dr. Grabiner was also a graduate student at Harvard during Michele and Jay's time there!

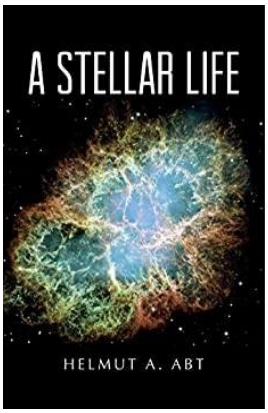
Thinking this would be a fine addition to this issue of *HAD News*, Jay forwarded Michele's email to me, and we eventually persuaded her to join HAD. We welcome her to our company!

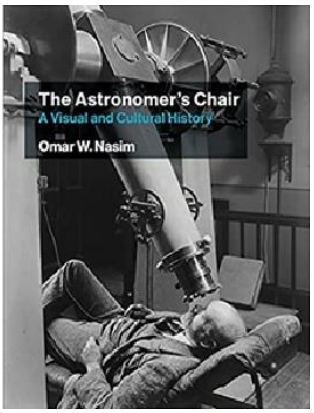
hadsec@aas.org

New Books

Ken Rumstay, Valdosta State University

Two books of interest to HAD members have been published in the past few months, and a third will be available within a few weeks. If you would like to suggest a book for inclusion in this column, or (better yet) review a book, please contact me at hadsec@aas.org /





A Stellar Life, by Helmut A. Abt (Palmetto Publishing, 2021, ISBN-13 978-1649905185).

This autobiographical work by our own Helmut Abt, longtime Editor-in-Chief of the *Astrophysical Journal*, is filled with fascinating stories and anecdotes! The publisher describes it as follows:

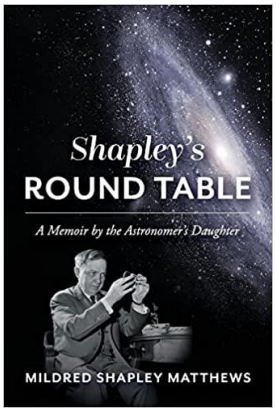
A light-hearted memoir of a career in 20th century astrophysics, its challenges, its participants, and the fascinating places they worked. With humor and insight Dr. Helmut Abt tells how he located the site of the first national observatory at Kitt Peak, how he helped the Chinese get started in astrophysics, plus the joys of being the editor of the Astrophysical Journal for 29 years, and his work on double stars that led to the discovery of exoplanets.

The book is available in Kindle and paperback (ISBN-13 978-1649906045) formats, as well as hardcover.

The Astronomer's Chair: A Visual and Cultural History, by Omar W. Nasim (The MIT Press, 2021, ISBN-13 978-0262045537)

Omar Nasim, Professor in the History of Science at the Institute for Philosophy at the University of Regensburg in Germany, is an eminent scholar on image-making and visualization in astronomy. At the 2019 Notre Dame Workshop he gave a fascinating public lecture titled "The Astronomer's Chair: A History of Sitting and Its Image". This topic forms the basis for this fascinating book. The publishers website states:

The astronomer's chair is a leitmotif in the history of astronomy, appearing in hundreds of drawings, prints, and photographs from a variety of sources. Nineteenth-century stargazers in particular seemed eager to display their observing chairs—task-specific, often mechanically adjustable observatory furniture designed for use in conjunction with telescopes. But what message did they mean to send with these images? In The Astronomer's Chair, Omar W. Nasim considers these specialized chairs as both image and object, offering an original framework for linking visual and material cultures. Observing chairs, Nasim ingeniously argues, showcased and embodied forms of scientific labor, personae, and bodily practice that appealed to bourgeois sensibilities.



Shapley's Round Table: A Memoir by the Astronomer's Daughter, by Mildred Shapley Matthews; edited by June Matthews and Thomas Bogdan (BookBaby, 2021, ISBN-13 978-1098383565).

This book is scheduled for release on December 14th; I'm looking forward to it! From the publisher's description:

This is a lively memoir about growing up with the charismatic American astronomer and science impresario, Harlow Shapley, by his daughter, the late Mildred Shapley Matthews. Shapley remains widely regarded as one of the most unusual, interesting, and noteworthy American astronomers, internationalists, and humanitarians of the 20th century. The "round table" in the title refers to a large rotating wooden desk mounted on central spindle, which graced the Director's Office at the Harvard College Observatory from 1906 through the mid-1950s.

Mildred Shapley Matthews (1915-2016) wrote this reminiscence of life with her father, Harlow Shapley (1885-1972), during the early 1960s. It is based on her personal recollections plus extensive correspondence and conversations with her father and her mother, Martha Betz Shapley (1890-1981).

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What's New in the *J.A.H.H.*

Ken Rumstay, Valdosta State University

The *Journal of Astronomical History and Heritage* is an open-access online publication, founded by John Perdrix and Wayne Orchiston in 1998. Three issues are created each year. Wayne and many other members of the editorial team are HAD members, and we are glad to support them in every way possible. The contents of the June and September 2021 issues are reproduced on the following pages. These, and all past issues, are available at https://www.jahh.org/ .

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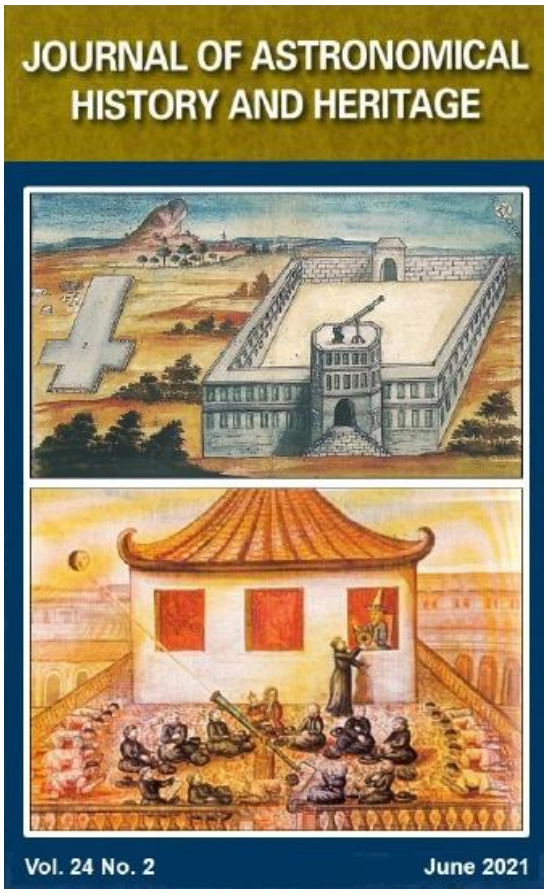

The images on the cover of the June 2021 issue of *J.A.H.H.* are from Siam, where King Narai had a special interest in astronomy and, between 1681 and 1688, hosted Jesuit astronomers from Belgium and France. After successfully observing a lunar eclipse in December 1685 along with Jesuit astronomers, King Narai sanctioned the construction of Wat San Paulo, which included a 4-storey tower observatory. This is shown in the upper painting, and part of the observatory still exists at Lop Buri. The lower painting depicts the Jesuits observing a partial solar eclipse on 30 April 1688, with an ailing King Narai viewing from a nearby window in his palace at Lop Buri.

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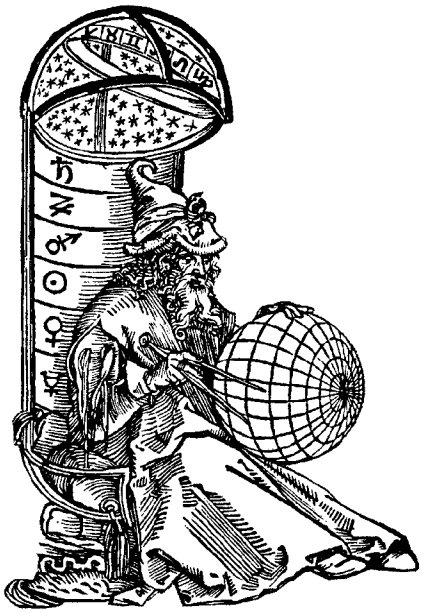

Historical Astronomy Division
of the American Astronomical Society

HAD News #98, October 2021, edited by Ken Rumstay. Please send contributions for the next issue, comments, etc. to hadsec@aas.org.

A complete version of this newsletter, with color photographs and active links, may be found at https://had.aas.org/sites/had.aas.org/files/HADN98.pdf .

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