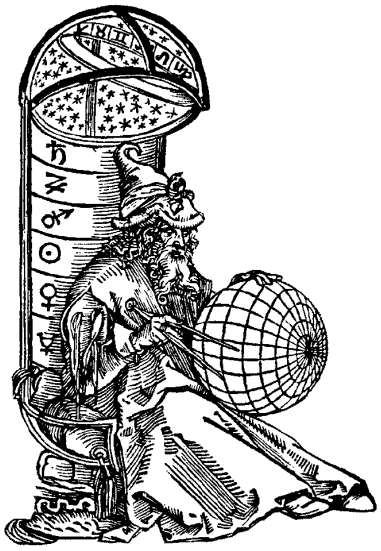

H•A•D NEWS

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

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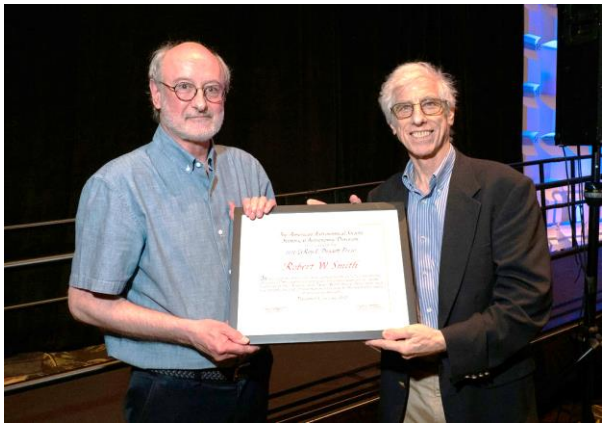
In This Issue

The January 2020 HAD meeting	1
From the Chair	4
From the Vice-Chair	5
From the Past Chair	6
From the Secretary-Treasurer	6
Minutes of the January 2020 Town Hall	7
Obituaries needed!	8
The *BEA III*	9
This Month in Astronomical History	10
Congratulations to HAD AAS Fellows	10
YFF Now in Possession of Yerkes	11
Hubble-Slipher Correspondence at Lowell	12
An Astronomical Visit to South Africa	14
What's New in the *J.A.H.H.*	15
Book Reviews	15
History of Astronomy in Georgia	18



Robert Smith, of the University of Alberta, accepts the 2020 LeRoy E. Doggett Prize from HAD Chair Alan Hirshfeld. Robert presented his prize lecture, *From the Invention of Astrophysics to the Space Age: The Transformation of Astronomy 1860-1990*, on Sunday afternoon.

The January 2020 HAD Meeting

Naomi Pasachoff, Williams College

The Historical Astronomy Division met with the AAS during January 4-6, 2020. HAD opened the meeting with a special session marking the centennial of the 1919 Total Solar Eclipse, in which Arthur Eddington and others, especially Astronomer Royal Frank Dyson, confirmed the prediction by Albert Einstein that stars near the Sun would appear slightly displaced from their normal positions.

Dan Kennefick's book *No Shadow of a Doubt* and Jeff Crelinsten's book *Einstein's Jury* had covered the observations and the 100 years of discussion since, and the two authors told many stories about the observations and the subsequent discussions about them (Session 001). Jay Pasachoff had opened the session by bringing the story up to date with similar observations made at subsequent eclipses through 2017.

Abstracts for the entire meeting appear at https://aas.org/sites/default/files/2020-01/AAS235-Meeting-Abstracts.pdf .

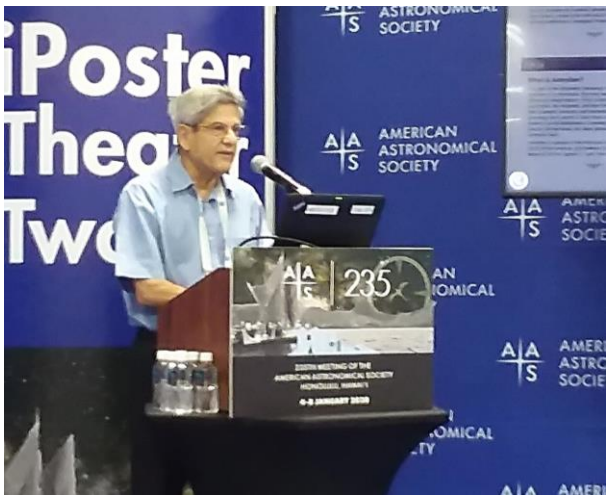
In Session 139, the second HAD session, on January 5th, George Latura gave two papers, the first on Plato's Cosmos, as portrayed in his *Timaeus*. His second paper (number 3 in the session) discussed the harmonic symbol that Kepler wrote about in *Harmonices Mundi*. In between Latura's two papers Jason Ybarra commemorated the 400th anniversary of Kepler's Third Law, which was important in leading to Newton's *Principia*. Kepler, in a letter to Galileo, pointed to Plato and Pythagoras as the "true masters" who inspired his derivation of the Third Law.

The fourth paper was presented by Andrealuna Pizzetti, who reported on her discovery of 17th-century mentions of the variability of Algol in the papers of Italian astronomer and lens maker Geminiano Montanari. Kevin Ortiz from the University of Puerto Rico discussed the rediscovery of an abandoned domed telescope building, probably dating to the 1930s, that once housed a secondhand telescope donated by Harvard. Papers were also discovered showing plans for a planetarium. The sixth paper, by Tom Hockey, discussed how Pluto got its name in 1930. The common story is that the name was suggested by an 11-year-old girl, but Hockey described that over one hundred people had written to the Lowell Observatory, where the planet had been discovered by Clyde Tombaugh, suggesting that name. Newspapers had offered financial incentives for people to submit names for the planet, which at the outset of the Great Depression stimulated the popular interest in the naming process. Brad Schaefer in the final paper of the session argued that because scientists are now aware of Thomas Kuhn's Structure of Scientific Revolutions their attitudes toward adapting new theories has changed. David DeVorkin and others challenged this point of view.

The afternoon session on Sunday, January 5th was presided over by HAD Chair Alan Hirshfeld. Rebecca Charbonneau of the University of Cambridge presented the first of seven papers, discussing early VLBI collaborations between American and Soviet astronomers (164.01). Ken Kellerman had been an advisor of hers at NRAO, and she read his article "How Not to Do a VLB Experiment." The paper focused on her field trip to Russia in autumn 2019. Ken Kellerman next (164.02) discussed how he arranged the declassification of a 1961 letter to I. I. Rabi by

Jay Pasachoff, Jeffrey Crelinsten, and Daniel Kennefick present the opening session on Saturday afternoon.

Two of our most distinguished members man the HAD table in the exhibition hall.



Joe Tenn describes the latest progress made with the AstroGen project at an iPoster session.

Joseph Pawsey about his impressions of the NRAO staff at Green Bank.

Ron Brashear (164.03) described how George Ellery Hale set up a physical laboratory first on Mount Wilson and then for convenience at Santa Barbara Street in Pasadena. He hired physicist Arthur King to do spectroscopic research. King especially studied rare earth elements.

Ifan Payne from Magdalena Ridge Observatory (164.04) described the history of optical stellar interferometry. The Magdalena Ridge Observatory Interferometer is under construction and could be completed in five years with sufficient funding. Three stellar interferometers—VLTI in Chile, CHARA on Mount Wilson, and a U.S. Naval Observatory instrument at Flagstaff are currently in use. He stressed how hard it is to do interferometry but how cost effective the method is for providing high resolution observations compared even with expensive telescopes on the ground and in space.

Natalia Lewandowska (164.05) discussed the discovery of pulses from the Crab Nebula and new observations of the nebula with the VLA. Finally, Szabolcs Marka (164.06) discussed multi-messenger astronomy, with observations of the same source from gravitational wave, neutrino, and electromagnetic observatories. He traced back multimessenger astrophysics before the recent LIGO events.

Later that afternoon, Robert Smith from the University of Alberta received the Doggett Prize and lectured about "From the Invention of Astrophysics to the Space Age: The Transformation of Astronomy (1860-1990).” He humorously described how in the mid-19th-century the kinds of astrophysics we now treasure were relegated to “dilettante” astronomers.

An iPoster for HAD IV on that same day, by Tom Hockey (112.01), discussed the preservation of archaeoastronomy sites in the United States. In another iPoster (112.02), L. Smith Zrull discussed methods of repairing and handling broken astronomical glass plates. In another iPoster-plus presentation (118.05), S. Durst discussed equinox epochs of antiquity.

Joe Tenn (118.06) introduced his online Astronomy Genealogy Project (AstroGen). It already contains about 30,000 PhD theses from 25 countries and traces the academic parenting (thesis advisor) and children (doctoral students).

HAD IV also featured two traditional posters. The first, by Ken Rumstay, discussed Mary Emma Byrd (1849-1934), who was "one of the lesser-known women to work under the tutelage of Edward Charles Pickering." She got her PhD at Carleton College, and between 1887 and 1906 was director of the observatory at Smith College. She published "two books which would today be considered 'lab manuals.'" The second poster, by Adolfo Carvalho and John Mulligan, developed simulations for what William Herschel would have seen while observing. It is meant to train students in record-keeping and in concentrating over lengthy observing runs.

Session 181 consisted of additional iPosters for HAD IV. Kevin Schindler of the Lowell Observatory with Kyler Kuehn discussed the first 125 years of Lowell Observatory. Further, Kevin Schindler with L. Prato discussed how Vera Rubin used the Lowell Observatory's Perkins 72-inch telescope and a Kitt Peak telescope to identify dark matter. On the same day as that session, the Large Synoptic Survey Telescope and its camera were named the Vera Rubin Observatory, becoming the first national facility named after a woman. The third poster, 181.03, also by Kevin Schindler, described Percival Lowell's choice of Flagstaff for his observatory. The fourth poster, by Catherine Clark, described the work of Elizabeth Williams at Lowell Observatory in searching for Planet X, starting in 1905, a search that at the time ended with Lowell's death (and was resumed over a decade later by Clyde Tombaugh). A further Lowell Observatory poster, by Gerard van Bell, described The Navy Precision Optical Interferometer, in which the Lowell Observatory is a partner. Finally, in this poster session, Jay Hall described Lowell Observatory's work on light pollution.

On Monday, January 6, Ken Kellerman chaired a session, HAD V, with three papers on the topic "Celebrating 100 Years of the International Astronomical Union." He opened the session with a video, "IAU 100 Years: Under One Sky," which included cameos of individuals including Kevin Govender, Piero Benvenuti, and Silvia Torres, and introduced IAU programs including outreach to developing countries and the summer schools for young astronomers.

The first paper in this session, 234.01, by David M. Baneke of Utrecht University, was based on his book, published by Springer, The International

Astronomical Union: Uniting the Community for 100 Years, with co-authors Johannes Andersen and Claus Madsen. He described the shift of IAU activities from facilitating collaboration to its current emphasis on promoting astronomy by outreach and development. In the Q & A after the talk, David DeVorkin asked how the internet has affected the IAU. Baneke mentioned the introduction of electronic voting after the Pluto vote in 2006 and enhanced outreach, with data archives providing individuals an opportunity to engage in research online.

The second paper in the session, 234.02, by Virginia Trimble, was a personal discussion that included the work of Heber Curtis, Harlow Shapley, Hermann Bondi, and Lodewijk Woltjer. It is the 100th anniversary of the Curtis-Shapley debate on the distance scale of the universe. One of her slides showed how she followed in the footsteps of Vesto Slipher, Edwin Hubble, and Harlow Shapley, among others, as president of IAU Commission 28, on Nebulae.

In the third paper of the session, 234.03, David DeVorkin discussed how the two-China question affected the IAU. His recounting of the drama initiated by the United States' desire to host the General Assembly of 1961 shed light on how the IAU became a battleground for the universality of science during the Cold War.

The final session, HAD VI (245), consisted of a paper by Joshua Nall, on the bicentennial of the Royal Astronomical Society's founding. He described the fourteen charter members, who included "three stockbrokers, three gentlemen of independent means, two schoolmasters, two military, a retired merchant, an administrator retired from India, and a 24-year-old visitor from Poland." He described how popular astronomers who traveled to give lectures were not included on the charter committee. In response to a question about the role of professors, he replied that their positions were weak and that they were also excluded from charter membership. The "business astronomers" included Francis Baily, Charles Babbage, John Herschel, Henry Colebrooke, and George Airy. He described the transformation of the society from business astronomy – the "correct enumeration and description of the fixed stars in catalogues" – to stellar astronomy, with its current modern astrophysical orientation.

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From the Chair

Alan Hirshfeld, University of Massachusetts Dartmouth

"Flattening the curve," "social distancing," "N95 mask." These are some of the catch phrases that have entered our everyday vocabulary, as many of us isolate ourselves at home against the spread of the coronavirus. It's hard to believe that only weeks ago, at the beginning of March, I was standing in front of a packed lecture hall explaining the accomplishments of the young Isaac Newton, sent home when the University of Cambridge recessed during the plague years of 1665-66. (I admit the parallel between Newton's situation and ours, although I, for one, don't expect to be rewriting the laws of physics anytime soon.) I wished my students a pleasant Spring break, unsure when we'd meet up again. A few days before the semester was to resume, the university announced the closure of the campus and a frantic transition of all courses to online format. Now I conduct my classes from home, my digital avatar delivering lectures, assigning homework, giving tests, video chatting with students during office hours. In the blink of an eye, it seems, the future has arrived.

Being involuntarily housebound brings its challenges, but also opportunities that a less-structured day presents. More frequently than usual, I try to patch the gaps in my knowledge of science and history in general and of astronomy and physics in particular. I have a tabletop stack of books to read or reread, several of them written by fellow HAD members. I've also become an avid podcast listener, often while on walks with or without the dog. On my phone is a self-curated enrichment library, offering a contemplative alternative to the incessant bustle of the news. My favorite podcast is BBC Radio's "In Our Time," each an hour-long, round-robin discussion featuring host Melvin Bragg and a rotating panel

of academics. First broadcast in 1998, there are now more than 800 episodes available on topics in history, science, philosophy, culture, and religion. (The series can be found on the Apple and Stitcher podcast sites and on the BBC Radio 4 website https://tinyurl.com/BBCInOurTime .)

A few "In Our Time" titles relevant to the history of science: "Maths in the Early Islamic World" (February 16, 2017); "Johannes Kepler" (December 29, 2016); "Relativity" (June 6, 2013); "Women and Enlightenment Science" (November 4, 2010); "The Royal Society and British Science" (4 parts: January 407, 2010). Plus one additional title, regrettably apt to our current state of affairs: "The Origins of Infectious Disease" (June 9, 2011).

I hope that you, your family, and friends are well, and that by the time you read this, we will see signs of the much-anticipated downturn of this pandemic.

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From the Vice Chair

Kevin Krisciunas, Texas A&M University

I must confess that it took me a while to recover from the AAS meeting in Honolulu. It was the biggest astronomy meeting I had ever been to, even bigger than the IAU General Assembly in Kyoto in 1997. I arrived in Hawaii a day earlier than most people (Friday, January 3rd) so that I could see my friend Jerin, who lives on the North Shore of Oahu. Several days before I arrived, the son of Jerin's landlord was beaten to death in Jerin's backyard. The perpetrator was arrested, but claimed self-defense and was released by the police!

One of the sad astronomy stories of the past year was the death of José Flores Velázquez on August 14th, as the result of a drive-by shooting in Los Angeles. He was a graduate student at University of California Irvine. At the Open Mic Night at the AAS meeting Nicole Cabrera Salazar sang a lovely Spanish-language song in his honor. At least in this case the perpetrator is still in custody.

The prime task of the HAD Vice Chair is to solicit, edit, and write obituaries of astronomers. If we set aside the execution of Giordano Bruno in 1600 and the Soviet purges of the 1930's, both the result of the actions of political entities, that an astronomer is murdered is a very rare event indeed. By my count the number of murdered astronomers in all of history is ten, possibly eleven. Rodney Marx died at the South Pole on 2000 May 12 of methanol poisoning. It might have been accidental, or possibly murder. The number of suicides is considerably higher, as it is in the general population, but I feel that to compile a list of those deceased astronomers would be a truly depressing task.

One piece of good news I can give you is the web link (https://baas.aas.org/obituaries) where you can find the many obituaries already contributed for AAS members and other noteworthy astronomers.

At the time of this writing (April 22nd) we find ourselves dealing with the global pandemic of COVID-19. More than 45,000 people have died in the USA, and more than 178,000 worldwide. What will the numbers be by the end of 2020? Every day I check the histograms of mortality in a number of countries and note that the downward trend is slower than the initial rise. Where I live in College Station, Texas, we can get outside every day. It's not like the sequester in Italy and New York City needed to be.

The most recent obituaries posted at the AAS website are for Edwin Loh, Gail Reichert, and someone I knew personally, Paul Hodge, who was editor of the *Astronomical Journal* for 20 years. Check them out at our newly revamped website.

I've recently received an obituary for the father of X-ray astronomy, Riccardo Giacconi, by Harvey Tananbaum, which was published in the Chandra X-ray telescope newsletter. Dr. Giacconi died on 2018 December 9 at the age of 87.

Margaret Burbidge, the only woman director of Royal Greenwich Observatory and a trailblazer-by-example for women's rights in astronomy, died on April 2020 April 5 at the age of 100½.

Donald Hall moved to Hawaii in 1983, where he served as Director of the University of Hawaii's Institute of Astronomy for thirteen years. He died on 2020 March 20. During his tenure four 8- to 10-

meter class telescopes came on line at Mauna Kea: Subaru, the two Keck telescopes, and the northern Gemini telescope.

My friend Alex Gurshtein, a former Soviet space scientist, Colorado-based professor and historian of astronomy, died on 2020 April 3. I first met him in 1989 in Leningrad (now St. Petersburg) at a meeting commemorating the 150th anniversary of the founding of Pulkovo Observatory, which, for the first fifty years of its existence, was the "astronomical capital of the world".

Obituaries for these astronomers and many others will appear at baas.aas.org, hopefully soon.

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From the Past Chair

Patrick Seitzer, University of Michigan

The main role of the Past-Chair is to serve as Chair of the HAD Prize Committee. The prize to be judged this year is the Osterbrock Book Prize, to be awarded in January 2021 at the winter meeting of the AAS. From the rules of the prize, the awards should be given to a book "judged to advance the field of the history of astronomy or to bring history of astronomy to light".

For this year four new nominations were received, along with four books still eligible from the 2019 competition. The award will be announced in the fall. As a reminder, the last Osterbrock book prize was awarded in January 2019 to Stella Cottam and Wayne Orchiston for *Eclipses, Transits, and Comets of the Nineteenth Century: How America's Perception of the Skies Changed.*

Each year HAD awards one or more travel awards to current undergraduate and graduate students to present a paper at the winter AAS meeting in January. The deadline for applications including a letter of support from the student's advisor is September 24, 2020.

If it should happen that the AAS Winter meeting is a virtual meeting, then this award would cover the full registration fee.

Full details of this award, including the application procedure, may be found on the HAD website at: https://had.aas.org/awards_and_prizes/had_student_travel_award .

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From the Secretary-Treasurer

Ken Rumstay, Valdosta State University

Greetings to all HAD members! I would like to apologize for the lateness of this issue of HAD News. Like every one of you who holds an academic post, I was required in mid-March to convert my classes to an online format. I'd never been a big fan of online classes and had never taught one, but there was no alternative. I had it easier than my colleagues, as two of my classes (Theoretical Mechanics and Astrophysics) were not laboratory courses, but problem-based lecture courses which utilized commercially published textbooks. My students were therefore able to continue as planned, but without the live peer interactions which are crucial to success. But the process was very time-consuming. Rather than simply turning in assignments on paper (which I would liberally annotate in the grading process) they were forced to either scan them or photograph them with their cell phones, and e-mail the images to me. I would then assemble the images into pdf. documents, with my comments added. The process was fairly labor intensive.

As I write this, my school has, like most colleges and universities, announced plans to return to traditional on-campus classes in the fall. I would welcome that, but I'm not at all optimistic. I'm scheduled to teach an introductory class in stellar and galactic astronomy which has an evening laboratory component. Teaching that online would

not be much fun. I can devise plenty of activities for the students to do at home, but for a student to take his or her first astronomy class without even being able to look through a telescope couldn't possibly be much fun.

By the same token, at this point we don't know for sure whether we'll be able to have our planned HAD meeting in Phoenix next January. The AAS is operating on the assumption that the January 2021 meeting will proceed as planned, but the future is uncertain. The Laboratory Astrophysics Division had planned to meet jointly with the AAS this June, but that meeting has been replaced with a virtual meeting. The Solar Physics Division has cancelled the meeting it had planned for August, while the Division for Dynamical Astronomy meeting, also planned for August, will be a virtual meeting. I promise there will be a HAD meeting next January, but only time will tell whether we'll meet face-to-face or will have to gather online.

In any case, it was a joy to see so many of you last January in Honolulu. Take care, and stay healthy!

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Minutes of the January 2020 HAD Town Hall

Ken Rumstay, Valdosta State University

The annual HAD Town Hall convened at 12:45 pm on Sunday, January 5th in meeting room 313B at the Hawai'i Convention Center in Honolulu. Executive Committee members in attendance were Alan Hirshfeld (Chair), Kevin Krisciunas (Vice Chair), Pat Seitzer (Past Chair), Ken Rumstay (Secretary-Treasurer), and Rebecca Charbonneau. Approximately thirty people were in attendance.

Alan Hirshfeld began the session by welcoming everyone, and by making five announcements:

1) The 2020 Doggett Prize Lecture would be given by Robert W. Smith that afternoon at 3:40 pm. Dr. Smith's talk is titled "From the Invention of Astrophysics to the Space Age: The Transformation of Astronomy 1860-1990".
2) The annual HAD banquet would be held that evening at 8:00 pm, at the Rocky Japanese Steak Teppan Restaurant.
3) The HAD Bylaws were under revision. Specific items of note were clarification of the procedure for nominating and electing HAD officers, and of our Affiliate and Student HAD membership categories. The AAS governance structure has recently undergone revision, necessitating modification of the Bylaws.
4) An updated supplement to Katherine Bracher's essay on HAD's founding and early years has been prepared. *HAD into the 21st Century* is now available at https://had.aas.org/node/83 ; it may be modified in the future.
5) HAD's popular online column This Month in Astronomical History, originated in July 2016 by Teresa Wilson, is now edited by Jason Ybarra. All articles are available on our website at https://had.aas.org/resources/astro-history . If you have an idea for a feature, please contact Jason at historycol@aas.org .

Alan ended by noting that the HAD website may be redesigned in the near future.

Kevin Krisciunas then took the podium to inform us of the current status of the AAS Obituary website. As HAD Vice-Chair, Kevin is responsible for seeking authors to write obituaries of deceased AAS members (and some non-members). These obituaries are uploaded to the online *Bulletin of the AAS* (https://baas.aas.org/obituaries). Thirteen obituaries were completed in 2019, most for individuals who had passed away during the previous two years. But (at the time of the Town Hall) obituaries are needed for 107 former AAS members. If you are able to help, please contact Kevin at krisciunas@physics.tamu.edu . A list of those needed appears after this report.

Secretary-Treasurer Ken Rumstay presented data on the state of our Division. The table below illustrates the substantial growth we've witnessed over the past two years, notably among our Junior membership. We believe this to be due, in no small part, to our decision to no longer require division dues of student members.

	2012	2013	2014	2015	2016	2017	2018	2019
Full	145	133	132	140	139	134	181	183
Associate	39	41	48	48	49	45	43	13
Junior	12	19	17	8	8	5	46	143
Emeritus	70	72	77	86	96	103	119	126
Divisional Affiliate	35	27	24	23	25	23	20	23
Other	6	2	4	3	3	4	3	2
Total	307	294	302	308	320	314	412	490

The tables on the following page provide a three-year overview of HAD's financial status. We are in excellent shape, with balances in all three accounts showing substantial increases during 2019. The bulk of this has come from investment income, but much is due to our generous donors.

	2017	2018	2019
Balance as of January 1st	$20,543.25	$24,750.76	$24,321.92
Income	6,030.31	$3,036.67	$8,118.48
Expenditures	1,822.80	$3,465.51	$1,448.37
Balance as of December 31st	$24,750.76	$24,321.92	$30,992.03

HAD operating account (2017-2019)

	2017	2018	2019
Balance as of January 1st	$37,234.15	$42,479.60	$39,257.29
Income	5,116.81	(374.60)	$7,487.92
Expenditures	0.00	2,847.71	$0.00
Balance as of December 31st	$42,350.96	$39,257.29	$46,745.21

LeRoy E. Doggett Prize account (2017-2019)

	2017	2018	2019
Balance as of January 1st	$24,852.34	$29,733.31	$28,948.98
Income	6,499.30	1,066.25	$7,191.96
Expenditures	1,618.33	1,850.58	$1,760.65
Balance as of December 31st	$29,733.31	$28,948.98	$34,380.29

Donald E. Osterbrock Prize account (2017-2019)

Ken took a moment to thank all of the generous individuals who had made financial contributions to HAD, and to its two prize funds, during 2019:

S. Bandyopadhyay
David Bartlett
Jennifer Bartlett
Daniel Caton
Edward Churchwell
Brenda Corbin
Thomas Corbin
Donald Davis
William Dent
Reginald Dufour
William Forrest
Otto Franz
Thomas Gandet
Ronald Gilliland
Donald Groom
Arnold Heiser
Alan Hirshfeld
Russell Kulsrud
Carol LePage
Donald Liebenberg
Marie Lukac
Stephen McCluskey
Liam McDaid
David Meisel
Wayne Osborne
Marc Rothenberg
Ken Rumstay
Samuel Schonfeld
Patrick Seitzer
D.E. Shemansky
Thomas Williams
Donald Yeomans

Their generosity has helped HAD to achieve its goals during this past year. Ken ended by reminding everyone of the resources available on our website, and that HAD is seeking nominations for the 2021 Donald E. Osterbrock Book prize and suggestions for special sessions to be held at the January 2021 meeting in Phoenix.

Jennifer Bartlett, who (with Philip Nicholson) will edit the anticipated 3rd edition of the *Biographical Encyclopedia of Astronomers*, then took the stage. She described for us the planned coverage of this monumental work, and named four of the section editors (three are yet to be determined). Thomas Hockey, who edited the first two editions, will serve as Consulting Editor. Jennifer described some of the difficulties in designing a reference work of this magnitude, notably identifying subfields at the edge of astronomy which should be included, and determining what constitutes an astronomer.

I'm sure we all look forward to the publication of this invaluable work, and wish Jennifer, Phil, and everyone contributing to it the very best!

Thanks to everyone who attended the January 2020 HAD Town Hall!

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Obituaries Needed!

Kevin Krisciunas, Texas A&M University

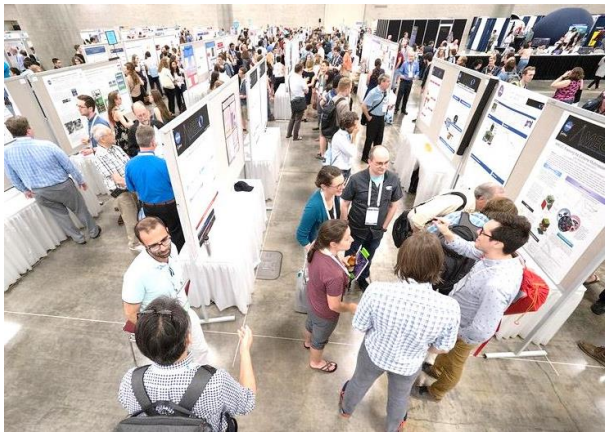
As I noted at January's Town Hall, we need to prepare obituaries for several recently deceased individuals. To begin, volunteers are needed to write obituaries for the following astronomers who have recently passed away: Alexander Gurshtein, Jean-Claude Pecker, Gunnar Larsson-Leander, Nancy Boggess, Yervant Terzian, Giles Fontaine, Adam Showman, and Michael Reynolds.

Then, please note that obituaries for George Coyne, E. Margaret Burbidge, and Riccardo Giacconi have been published elsewhere (such as the *New York Times*), but we need AAS versions.

Finally, obituaries for Nathaniel Phillips Carleton and Thomas Richard Carson have been received, but photographs of them are needed.

If you can provide assistance with any of the following, please contact me!

krisciunas@physics,tamu.edu



The Exhibit Hall was packed at the AAS meeting in January!


The *BEA III*

Jennifer Bartlett, U.S. Naval Observatory
Philip Nicholson, Cornell University

First published by Springer in 2007, the *Biographical Encyclopedia of Astronomers* is a unique and valuable resource for historians and astronomers alike. The updated Third Edition will contain approximately 450 new biographical sketches, but with additions and revisions to the existing articles where 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, with some exceptions. New entries will include only deceased individuals, but no existing articles will be deleted. The editors-in-chief of the revised work will be Prof. Philip Nicholson of Cornell University and Dr. Jennifer Bartlett of the US Naval Observatory, with Prof. Thomas Hockey of the University of Northern Iowa serving as consulting editor and providing continuity. We are now recruiting a new set of associate editors.

In order to ensure that *BEA III* continues to serve as a useful resource to historians of astronomy, we would like to enlist your help in identifying any deficiencies in the present work and in suggesting astronomers that should be included in the next edition. To that end, we would be very interested in receiving your responses to three specific questions, as well as any other comments of a more general nature.

Question 1: Have you made use of the *BEA* in your research or writing? If so, what deficiencies have you noted in the present edition? This could include either missing material you had expected to find, biases in specific articles, or more general comments on organization, cross-referencing, etc.

Question 2: Are there individuals born prior to 1920 who were not covered by *BEA II* that you think should be added in the third edition? Please be specific in your recommendations!

Question 3: If you had to choose two or three deceased individuals born after 1920 to be included in *BEA III*, who would they be? (For those whose names may not be well-known, please include a few words of explanation.)

One problem that immediately arises in determining the scope of coverage for *BEA III* is defining what we mean by an "astronomer". The great expansion of astronomical work from predominantly optical and theoretical studies in the centuries prior to 1900 to include radio, infrared and high-energy astrophysics, as well as the development of entirely new sub-fields such as solar physics, planetary science, space physics and observational cosmology, complicate the selection of articles to be included. We will be guided by the goal of including all those individuals whose published work has been primarily in astronomy or planetary science, or who have made important contributions to these fields, but as the *BEA III* project develops we may have to narrow this criterion, perhaps making distinctions between telescopic and laboratory scientists and between theorists and observers. As a general rule, the *BEA* does not include laboratory scientists or pure theoreticians, although both Harold Urey and Albert Einstein are to be found in *BEA II*. Thoughtful suggestions as to how such choices should be made are also welcomed.

An informal poll of HAD members taken at the January 2020 AAS meeting suggested strongly (over 70% approval) that *BEA III* should cover the fields of observational cosmology, high-energy astrophysics (including the nascent field of gravitational wave astronomy), solar physics and helioseismology, planetary science, meteor studies, instrumentation development and archaeo- and ethnoastronomy. There was less support for including the fields of space (i.e., extra-terrestrial plasma and magnetospheric) physics, laboratory-based meteorite studies, lunar sample analysis, aeronomy and spacecraft/mission design.

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This Month in Astronomical History

Jason E. Ybarra, Bridgewater College

Are you interested in the history of astronomy? [If you are reading this newsletter surely that's a yes!] Do you have strong opinions about the Oxford comma? [Have I piqued your interest?] HAD is seeking an assistant editor for the This Month in Astronomical History column. Responsibilities include assisting the editor in assessing, proofreading, and fact-checking columns; soliciting submissions; and suggesting content. The assistant editor will assume the role of editor starting February 2021. Send questions about the position, or expressions of interest to Jason E. Ybarra at HistoryCol@aas.org .

jybarra@bridgewater.edu

Jason Ybarra has edited our This Month in Astronomical History column since February 2019. He created this lovely drawing which graces its website!

Congratulations, HAD AAS Fellows!

Ken Rumstay, Valdosta State University

Last year the American Astronomical Society established the AAS Fellows program "to recognize AAS members for their contributions toward the Society's mission of enhancing and sharing humanity's scientific understanding of the universe." On February 25th of this year the Society announced its first group of Legacy Fellows. Among the over 200 honorees, Margaret Burbidge (the first woman to serve as President of the AAS) was singled out as Inaugural Fellow. Sadly, Dr. Burbidge passed away six weeks later at the age of 100.

We are delighted that several HAD members were in this group of AAS Legacy Fellows, and offer them our congratulations! The honorees are:

Helmut Abt
David Arnett
Jennifer Bartlett
Brenda Corbin
Patrick Crane
Grace Deming
David DeVorkin
Steven Dick
Andrew Fraknoi
Linda French
Richard French
Mary Kay Hemenway
Arne Hendon
Jarita Holbrook
Robert Kirshner
Arlo Landolt
Stephen Maran
Laurence Marschall
Stephen McCluskey
Philip Nicholson
Wayne Osborn
Terry Oswalt
Jay Pasachoff
Arnold Rots
Sara Schechner
Robert Seaman
Patrick Seitzer
Woodruff Sullivan
Virginia Trimble
Paul Vanden Bout
Wayne Warren
Lee Anne Willson

The next deadline for nominating members for this honor is June 30th. The AAS Fellows website (https://aas.org/grants-and-prizes/aas-fellows) notes that "Only current AAS members in good standing are eligible, and since the intent is to reward career achievement and service, nominees are expected to have been full members for at least five consecutive years or ten non-consecutive years. Nominations may be sponsored by current AAS full members, international affiliates, and members of other AIP member societies if they are in leadership positions such as director of a science center or chair of an academic department."

The AAS is encouraging its divisions to organize nomination campaigns for qualified members. If you would like to nominate an individual who meets the criteria, please let us know!

had.secretary@aas.org

Yerkes Future Foundation Now in Possession of Yerkes

Jennifer Bartlett, WGPAH Chair and U.S. Naval Observatory

The Yerkes Future Foundation (YFF) took possession of the historic Yerkes Observatory and forty-nine acres of surrounding land on May 1st. However, their plans to reopen the facility to the public will be delayed due to the coronavirus pandemic. The YFF and University of Chicago both appeared before the Village of Williams Bay Plan Commission on March 10th for an informational public meeting to provide information about the YFF plans related to reopening the facility and the University's request for rezoning of the lakefront property. The YFF is not seeking any changes to the zoning of the parcel containing the Observatory.

The YFF requested a site permit to increase the parking available at the site to meet Village requirements and a conditional use permit to allow public access to the Observatory building. The YFF is also waiting for a determination from the Walworth County Assessor regarding what portion of the property will be subject to taxation. Once transferred to the YFF, the facility will be subject to additional regulations on which the University was previously grandfathered. As renovations progress, the YFF will probably have to modify bathrooms for compliance with the Americans with Disabilities Act (ADA) and upgrade the electrical and other systems to current building codes. To oversee the initial work and organize the initial schedule of tours, the YFF intends to hire an executive director in the near term and eventually a director of development. More information about their activities can be found on the YFF website at www.yerkesobservatory.org .

The University is asking the Village to rezone 8.5 acres of lake-front property formerly associated with the Observatory into three lots for single-family residential use. Similarly, they will be asking the Village to rezone the 3-acre parcel that includes the house in which E. E. Barnard (1857-1923) lived from late 1896 until his death. Although the University indicated the proceeds of these additional sales would benefit both the YFF and University astronomy programs, the details of these arrangements have not been specified. The University has already sold about seventeen acres formerly associated with Yerkes.

Meanwhile, Richard Kron (University of Chicago) and ten undergraduate students are continuing to work with the photographic plate collection, a cooperative project with the University of Chicago Library. The library staff have recently been digitizing the logbooks so they can be reviewed from anywhere. However, some of them are so deteriorated that they must be conserved before they can be digitized; the conservation work will resume when the library staff can return to their facility. The students are analyzing plates that have already been digitized. The group will present their work at the 236th meeting of the American Astronomical Society.

We are delighted to hear that Yerkes is now in the hands of an organization committed to its preservation and revitalization. While we are anxious to see the facility re-open after more than eighteen months of uncertainty, everything is moving slowly, at best, as everyone strives to keep our communities as safe as possible during this pandemic. Therefore, we look forward to a time beyond the current crisis when Yerkes can re-open its doors to inspire and educate.

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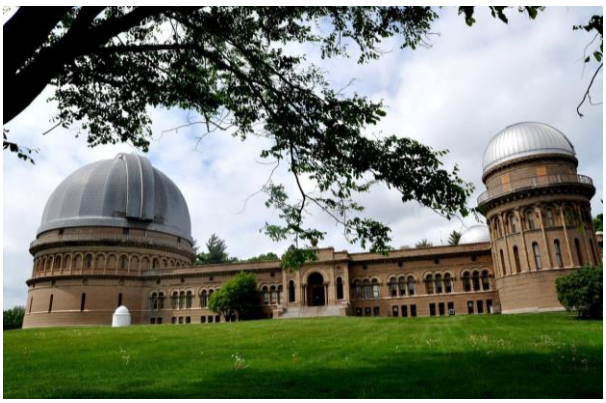


Yerkes Observatory (left) and the house in which Edward Emerson Barnard lived (right), photographed in 1923.

Three Decades of V.M. Slipher – Edwin Hubble Correspondence

Lauren Amundson and Kevin Schindler,
Lowell Observatory

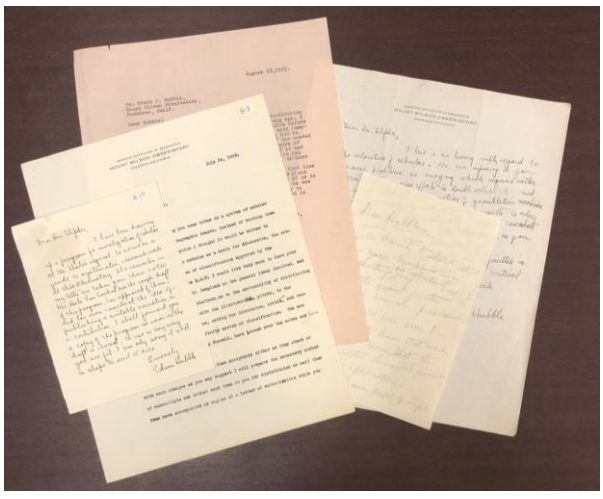
The Lowell Observatory Archives in Flagstaff, Arizona, collects, preserves, and provides access to records that document the institution's 126-year history. One of its most historically significant collections is a series of letters between Lowell Observatory astronomer Vesto (V.M.) Slipher and Mount Wilson Observatory cosmologist Edwin Hubble. Between 1922 and 1953 they exchanged fifty letters that are now preserved in the observatory's new 8000-square-foot Putnam Collection Center.*

Hubble and Slipher first crossed paths at least as early as August 1914, when the two attended the annual meeting of the American Astronomical Society in Evanston, Illinois. Hubble was then in the early stages of graduate studies at the University of Chicago. Meanwhile, Slipher had, for the previous two-plus years, been taking spectra of a variety of spiral nebulae and it was at this meeting that he reported on the velocity measurements of fifteen of them. His startling results garnered a standing ovation from scientists in attendance and were critical in Hubble's later work establishing a distance-recessional velocity relationship for the nebulae, in what became known as Hubble's Law, and now -- by Resolution B4 adopted by the 30th IAU General Assembly in 2018 -- the Hubble-LeMaître law.

In the fall of 2019, archives staff decided to digitize the correspondence to make it more widely accessible. A few researchers, such as Dr. Marcia Bartusiak in her book *The Day We Found the Universe*, had used the collection during visits to the Lowell Archives. Zachary Peach, a graduate student intern from the University of Arizona's Library and Information Science program, digitized the letters and uploaded them to Omeka, Lowell's digital collections platform.

The first letter, dated 1922 February 15, is a request from Slipher to Hubble for information about observations of nebulae (galaxies). Slipher was Chairman of the International Astronomical Union's Committee on the Nebulae, and he asked Hubble for "the assistance of your wide experience in the investigation of nebulae." He outlined some discussion suggestions including a general photographic survey, light quality of the nebulae, proper motion and rotational studies, and continued spectrographic observations. Slipher then commented: "In recent times scientific interest in the nebulae and clusters has grown greatly. It is true also that our knowledge of them has substantially increased and at the same time the questions to be answered concerning them have perhaps also increased."

The two men continued to correspond about research projects, committee meetings, and travel throughout the 1920s. In a letter dated 1930 April 11 Hubble asked Slipher "Would you be willing to give me your unpublished values of radial velocities of extra-galactic nebulae? Not for publication, of course, but merely to make certain that some general results we seem to be getting here [at Mount Wilson Observatory] are not vitiated by results on other nebulae observed at other places." Hubble also referenced Lowell Observatory's recent discovery of Pluto, saying "Your observatory is receiving so much well deserved recognition these days that my own sincere congratulations will be lost in the crowd."



A sample of the correspondence between Slipher and Hubble

*https://lowell.edu/history/putnam-collection-center/

Hubble and Slipher continued corresponding throughout the 1930s and 40s and into the 1950s. On 1953 March 6 Hubble noted that he was preparing to give the prestigious George Darwin Lecture in England, which he titled "The Law of Red Shifts." He wrote "Because the initial phase (of the study of red shifts) represented the combination of your velocities and my distances, I should very much like to show a slide or two representing these data." He then asked Slipher for copies of two spectra: his initial spiral nebula spectrum (of M31, taken in 1912) and one of NGC 584, which featured the greatest velocity of any nebula measured by Slipher. In perhaps the first acknowledgement of Slipher's contributions to Hubble's research, Hubble continued, "I regard such first steps as by far the most important of all. Once the field is opened, others can follow."

Their final exchange took place two weeks later on March 20th, when Slipher agreed to send the requested slides and spectra. The last letter in the collection is from Slipher and his wife to Hubble's widow and is dated 1953 September 29, the day after Edwin had died. The message, in V.M.'s handwriting, reads, "My heartfelt sympathy is extended you in your great bereavement. In Dr. Hubble's passing astronomy loses a great leader and we a cherished friend" (underline original to letter). Thus concluded 32 years of correspondence between two of the twentieth century's most influential astronomers.

The digitized collection is available at http://bit.ly/2OBhDpp . Any reproduction of the letters for public use must credit the Lowell Observatory Archives.

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Attendees of the 17th meeting of the Astronomical and Astrophysical Society of America. The meeting was held at Northwestern University in Evanston, Illinois on August 25-28, 1914. It was at this meeting, with Edwin Hubble in attendance, that Vesto Slipher reported his measurement of radial velocities for fifteen spiral nebulae. It was also at this meeting that a new name, the American Astronomical Society, was adopted for our organization.

An Astronomical Visit to South Africa

Pat Seitzer, University of Michigan;
Matie Hoffman and Dawid Van Jaarsveldt,
University of the Free State (South Africa)

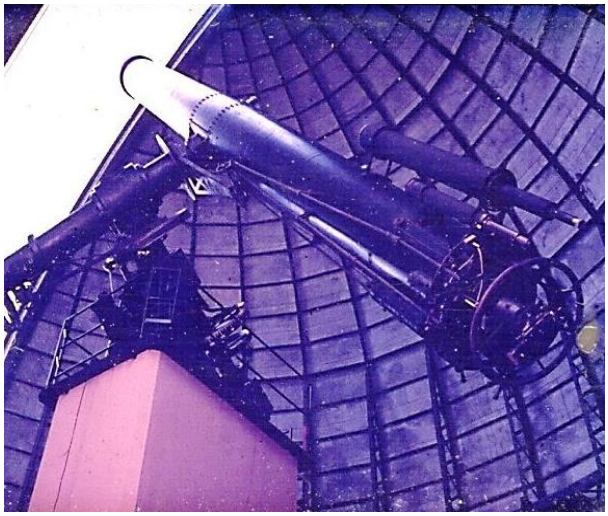
In the 1920s three American universities placed observatories in South Africa for observing the southern hemisphere. Yale installed a 26-inch long-focus photographic refractor for parallax observations in Johannesburg. After World War II this was moved to Mt. Stromlo, Australia, where it was destroyed in the 2003 bush fire.

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.

Of particular interest to one of the authors (Seitzer) was the University of Michigan's Lamont-Hussey Observatory on Naval Hill, close to the center of Bloemfontein. Located in a game reserve, the centerpiece of the Observatory was a 27-inch visual refractor for observations of double stars, the largest refracting telescope in the southern hemisphere. It was used from 1928 to 1971, when the University ended observations. Financial considerations played a role in its closing, as did the situation in South Africa and the University's interest in modern facilities being built in the 1960s at Cerro Tololo in Chile.

After several fruitless attempts to give the Observatory away, the telescope was removed and the magnificent 27-inch McDowell & Hageman lens was returned to Michigan, where it remains in storage on Central Campus today. Large pieces of the telescope were dumped in the grass next to the Fire Department Museum in Bloemfontein. A local amateur astronomer and curator of the museum, Braam van Zyl, eventually moved these pieces inside to become part of a display next to antique fire engines.

The Observatory building itself was used for many years as a performing arts theater: the Observatory Theatre. In 2013, in what must be one of the most



The 27-inch Lamont refractor near the end of its life. (Photo courtesy of the Frank Holden Collection.)

Reassembly of the 27-inch Lamont refractor.

The Naval Hill Planetarium dome, the Lamont refractor sculpture located outside, and visitors.

creative reuses of an observatory facility anywhere, the University of the Free State converted it into a digital planetarium, the first in southern Africa. A smaller projection dome was hung inside the main dome, and a Sky-Skan digital projection system installed. Thus, the Naval Hill Planetarium was born.

Never to be an operational telescope again, in 2019 the structure of the Lamont refractor was re-erected as an outside sculpture next to the Planetarium, where it is regularly admired by members of many species.

Visitors to South Africa should seriously consider a visit to Bloemfontein (airport code BFN), a one-hour flight from Johannesburg. Both the Boyden Observatory and the Naval Hill Planetarium/ Lamont-Hussey Observatory are definitely worth a visit, and one can give a public talk at the Planetarium. The author has had the great privilege of giving several talks in this unique venue. My Bloemfontein hosts always made me feel extremely welcome and comfortable during my many visits there.

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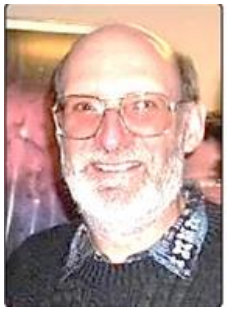
What's New in the J.A.H.H

Ken Rumstay, Valdosta State University

The *Journal of Astronomical History and Heritage*, founded in 1998 by Wayne Orchiston and John Perdrix, is an online open-access journal published in April, August, and December of each year. All issues are available at https://www.jahh.org/. To remind our readers of the information to be found, the contents of the latest issue appear on page 16.

We were saddened to learn that a member of the journal's Editorial Board, Dr. Yukio Ôhashi of Tokyo, passed away suddenly last year. We express our condolences to his family.

had.secretary@aas.org



Wayne Orchiston, founder and Chief Editor of the *Journal of Astronomical History and Heritage*

Book Review

Virginia Trimble, UC Irvine

Jan Hendrik Oort: Master of the Galactic System, by Pieter van der Kruit (Springer Astrophysics and Space Science Library, 2019, ISBN 978-3030178000, hardcover $179.99 and e-book).

Jan H. Oort (1900-92) bestrode the Milky Way Galaxy like a great oak, to mash together descriptions by H.H. Plaskett (in awarding a Gold Medal of the Royal Astronomical Society to him in 1946) and by S. Chandrasekhar in an obituary. In compiling this biography, van der Kruit made about 30,000 images of archived items that he thought might be useful. These represent only publicly available items, though he had access also to private archives in Leiden and elsewhere. The images are available at a supporting web site, www.astro.rug.nl/JHOort.

Jeanette Katgert-Merkelijn (an Oort student, Leiden PhD 1970) published in 1997 *The Letters and Papers of Jan Hendrik Oort*, also in the Springer Astrophysics and Space Science Library In addition, there exist at least twelve obituaries, an oral history conducted by David DeVorkin in 1977, and Oort's own "Some notes on my life as an astronomer" in *Annual Reviews of Astronomy and Astrophysics* (**19**, 1, 1981), one of the shorter such autobiographical *ARA&A* chapters.

But this volume will be the definitive source on Oort, his life, work, influence on astronomy, and the wider environment in which it all happened. Jan and his father, Abraham, were both born in Friesland, in two of the towns with medieval city rights, Jan in Franekar, site of the second oldest university in the Netherlands (and we are only on page 3!). J.C. Kapteyn, whom JHO called "mijn inspireerenden leermeester," was his first thesis advisor at Utrecht, and P.J. van Rhijn (1896-1960) the official one, following the death of Kapteyn (1851-1922). The thesis was on high velocity stars,

Continued on page 17

JOURNAL OF ASTRONOMICAL HISTORY AND HERITAGE
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CONTENTS

Page

Papers

Treading carefully: V.M. Slipher, C.O. Lampland, E.C. Slipher and their ambivalent relationship with Percival Lowell's Mars 365
William Sheehan

The concepts of *deśāntara* and *yojana* in Indian astronomy 401
Padmaja Venugopal, K. Rupa, S.K. Uma and S. Balachandra Rao

The calendars of Southeast Asia. 1: Introduction 407
Lars Gislén and C.J. Eade

The calendars of Southeast Asia. 2: Burma, Thailand, Laos and Cambodia 417
Lars Gislén and C.J. Eade

The calendars of Southeast Asia. 3: Vietnam 431
Lê Thành Lân

The calendars of Southeast Asia. 4: Malaysia and Indonesia 447
Lars Gislén and C.J. Eade

The calendars of Southeast Asia. 5: Eclipse calculations, and the longitudes of the Sun, Moon and planets in Burmese and Thai astronomy 458
Lars Gislén and C.J. Eade

The calendars of Southeast Asia. 6: Calendrical records 479
Lars Gislén and C.J. Eade

Notes on the transmission of Ptolemy's *Almagest* and some geometrical mechanisms to the era of Copernicus 492
Kevin Krisciunas and Belén Bistué

Radio astronomy at Cornell University: the early years, 1946 to 1962 503
Donald B. Campbell

The Tarawera volcanic eruption in New Zealand and Māori cometary astronomy 521
Wayne Orchiston and John Drummond

The *Bhāsvatī* astronomical handbook of Śatānanda 536
Sudhira Panda

Rationale for *Śrīrguṇamitrādivākyas* as described in the *Laghuprakāśikā* 545
R. Venkesteswara Pai

Book Reviews

Vedic Mathematics and Science in Vedas, by S. Balachandra Rao. 553
Mayank Vahia

Gerard P. Kuiper and the Rise of Modern Planetary Science, by Derek W.G. Sears. 553
William K. Hartmann

Conference Dedicated to the 100th Anniversary of the Death of Dr. Nicolaus Thege-Konkoly, and 145th Anniversary of the Founding of the Hurbanovo Observatory, edited by Eduard Koči 555
Stanislav Šišulák

The Lost Planets: Peter van de Kamp and the Vanishing Exoplanets Around Barnard's Star, by John Wenz. 556
Clifford Cunningham

Time of our Lives: Sundials of the Adler Planetarium, by Sara J. Schechner 557
Mike Cowham

The First Latin Treatise of Ptolemy's Astronomy: The Almagest Minor *(c. 1200) [Ptolemaeus Arabus et Latinus, Texts: Volume 1]*, by Henry Zepeda. 559
Dominque Raynaud

Jan Hendrik Oort: Master of the Galactic System, by Pieter C. van der Kruit 561
Virginia Trimble

The Oxford Handbook of the History of Modern Cosmology, edited by Helge Kragh and Malcolm Longair 565
Wayne Orchiston

Index 567

some of which show up now in data from the Gaia satellite as former members of small galaxies, gobbled up by the Milky Way.

The Oort papers most often cited today are probably the one confirming the rotation of the Milky Way, Lindblad's earlier discovery being generously acknowledged in the paper's title (1927 *BAN* **3**, 275) and the one reporting numbers for the density of matter (including dark matter) in the galactic disk (1932 *BAN* **6**, 249). The method was a refinement of ones published in 1922 by Kapteyn and by James Jeans (more data, better mathematics), and gave rise to one of many eponyms, "the Oort limit." He thought it likely that the additional mass could be accounted for by stars fainter than those he was able to count. Such stars, plus the then-undetectable atomic and molecular gas and a scrap of dark matter brought in gravitationally with the baryons to the disk is the modern view, and his paper appears in careful histories of the discovery of dark matter.

Oort published in the first volume (1) of *BAN* and the last (20) in 1969, then shifting his allegiance to *Astronomy and Astrophysics*, when it formed from the merger of several European journals, making his debut in Vol. 7, 1970. Other eponyms include the Oort constants A and B of galactic rotation, an Oort limit on the velocities of stars relative to the solar system, in directions determined by a rotating disk and much less rotating halo. And there is also the Oort cloud of potential future comets lurking around the outer solar system.

Our hero's later interests included the central regions of the Milky Way and large scale structures in the universe. Be that as it may, van der Kruit concurs with a number of other astronomers that JHO's greatest contribution to galactic astronomy was his early recognition of the importance of radio astronomy and his leadership in bringing the Dutch community into that territory.

If you are interested in international cooperation in astronomy, you will perhaps recognize Oort as a General Secretary (1938-1948) and President (1958-61) of the International Astronomical Union and as one of the twelve "founding fathers" of the European Southern Observatory, though unlike his Dutch colleagues, Adriaan Blaauw, Lodewijk Woltjer, and Harm (Harry) van der Laan, he was never Director General thereof. Blaauw and Woltjer were also IAU Presidents (1976-79 and 1994-97 respectively). The four appear together in Figure 15.10 in the biography, on the occasion of Oort's 90th birthday celebration. This is one of more than 300 mostly fascinating images in the book, depicting people, places, and astronomical concepts. Most of the chapters begin with an image of Jan himself, from the time to which the chapter pertains.

Far more can be said about both this magisterial volume and its hero, who clearly deserves much of the credit for the Netherlands having punched well above its weight in astronomy throughout the 20th century. Reviews of van der Kruit's book with mostly different content are in press for the *Journal of Astronomical Heritage and History* (March issue) and *Observatory Magazine* (June issue), but I wanted to be sure that my HAD colleagues know about it!

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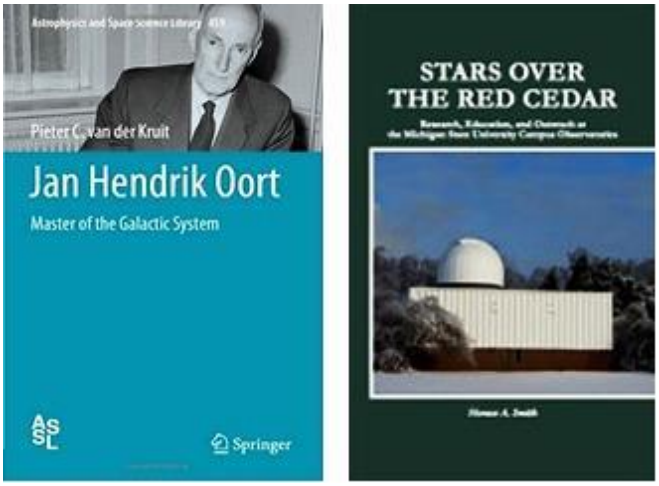
Virginia Trimble is Professor of Physics and Astronomy at the University of California at Irvine, and is a past chair of HAD



Two excellent new books, reviewed here!

Book Review

Wayne Osborn, Central Michigan University

Stars Over the Red Cedar: Research, Education, and Outreach at the Michigan State University Campus Observatories, by Horace A. Smith, Professor Emeritus at Michigan State University (Chapbook Press, 2019, ISBN 978-1948237406, $15.00)

This book presents the history of astronomical observation on the campus of a Midwestern college, Michigan State University (MSU). The MSU story is a case example of how waxing and waning interest in astronomy led, over the past 150 years, to many colleges deciding to build campus-based observatories and at times to abandon them.

This history has three main parts. The first covers the first MSU observatory built in 1880 and which housed a 5-inch Alvan Clark refractor. It saw steady student use for several decades until it suffered a burglary in 1915. The telescope survived but the observatory was demolished shortly thereafter. The second part details how, forty years later, renewed interest in the sky generated by the onset of the space age culminated in the organization of a Moonwatch team to observe artificial satellites from the roof of the campus's Physics and Astronomy Building. Several successful satellite spottings were made. The final, and most detailed, part of the book gives the history of the construction of a new observatory with a 24-inch Boller and Chivens reflector intended primarily for research. Installed in 1970, this telescope presently remains in use, although it was shuttered for a period in the 1980's for budgetary reasons.

The book contains a number of interesting photographs and illustrations. There are also two appendices – one describing the various research projects over the past fifty years of operation and the second a list of professional publications that utilized MSU Observatory observations – along with a comprehensive index. *Stars over the Red Cedar* will be of interest to those that study the astronomical observatory movement in the United States as well as anyone now or previously associated with MSU astronomy.

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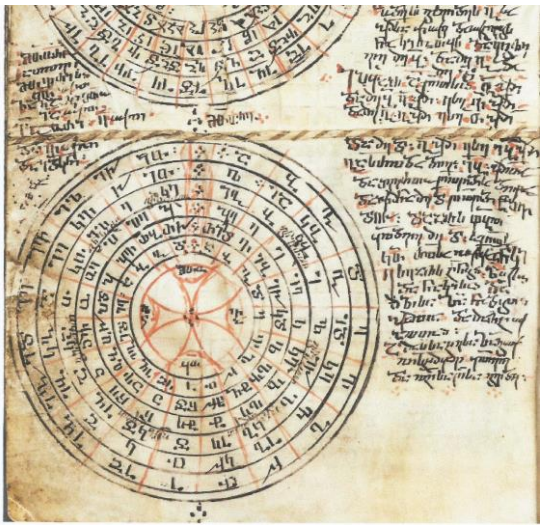
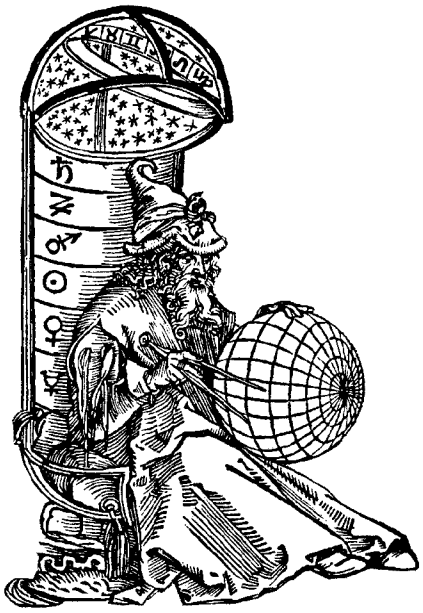
Selected Publications on the History of Astronomy in Ancient Georgia.

Prof. Irakli Simonia, School of Natural Sciences and Medicine of Ilia State University

In the April 2016 issue of *HAD News* (No. 87) appeared an article titled "An Electronic Book: Astronomical Manuscripts in Georgia". Its author, Professor Simonia, has made available for our use a list of selected publications dealing with the history of astronomy in ancient Georgia. The list may be found on the HAD website at https://had.aas.org/sites/had.aas.org/files/Astronomy%20Ancient%20Georgia.pdf .



Astronomical fragment of manuscript Sin-38 Gospel (Mount Sinai, Monastery of Ekaterine, Egypt) compiled and edited by Georgian philosopher and writer Ioanne Zosime. Parchment in ancient Georgian (10th century).



Historical Astronomy Division
of the American Astronomical Society

HAD News #95, May 2020, 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/HADN95.pdf .

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