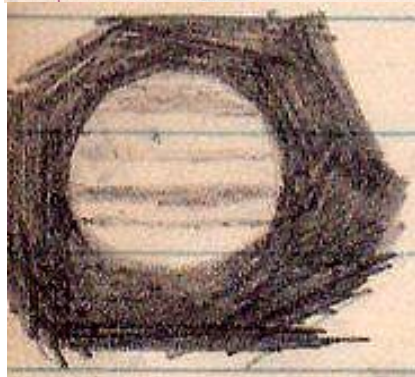
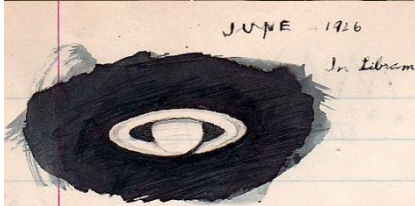
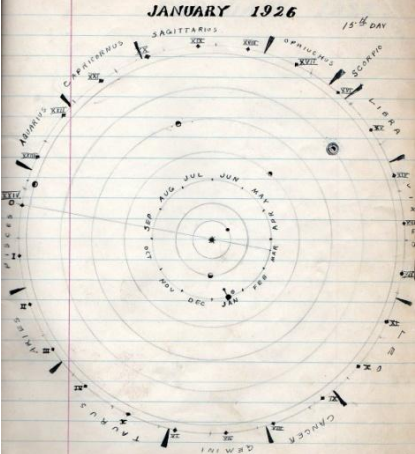


2015



NC154 History Committee Report

November 14

highlights

- Clark Muir and the Bell donation (p. 2)
- Mark Tovey and the 75th Anniversary of the Hume Cronyn Memorial Observatory (pp. 3-5)
- Andrew Oakes report on ND XII appendix (pp. 8-13)



This report details activities of the Committee, and initiatives of Committee members consonant with the spirit of the Committee, to further the RASC's Vision and Mission through pursuing our Mandate (<http://www.rasc.ca/society>).

DONATIONS

The major donation to the Society's Archive during the period of this report comprises the logbooks and related documents of long-time member Dr. Geoffrey Bell (1899-1982; Hamilton Centre). The logbooks run from 1908 to the mid 1970s, with some gaps. Dr. Bell was a noted solar observer, although his solar records are not part of this donation¹. The Bell materials were generously given to the RASC by Nuala Freund, Dr. Bell's daughter. It is entirely due to the perception and enterprise of Committee member Clark Muir (K-W Centre) that Dr. Bell's materials were secured for the Archives. Several images on the left-hand panel of the cover of this report are from Dr. Bell's logbooks, namely the pencil drawing of Jupiter (fifth figure from top), the fine pen-and-ink sketch of Saturn (fourth figure from top), and the opening of a page from his 1926 logbook showing a top-down schematic of the position of the planets of the solar system out to Jupiter (this image is reminiscent of an illustration taken from an orrery; second figure from top). The materials are mostly in a good state of conservation. Clark has written about Dr. Bell and some of the artifacts associated with him in a recent *Journal* article (see *PUBLICATIONS* below).

These materials will be described and placed online in due course. Any member wishing to consult them at the Society's Archives may do so by contacting the Archivist (www.rasc.ca/contact/history).

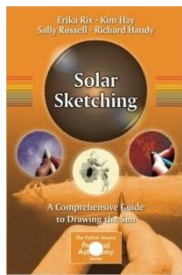
A finding aid for the Richard A. Jarrell *fonds* at the Archives is now available at: www.rasc.ca/sites/default/files/Jarrell_fonds_RASC.pdf. This material constitutes the copies of historical documents used by Prof. Jarrell in writing *The Cold Light of Dawn: a History of Canadian Astronomy* (Toronto–Buffalo–London: University of Toronto Press, 1988), and thus is of considerable historical value. The research potential of the materials he had gathered was not exhausted by his work related to writing *Cold Light*, and would repay further mining.

The David H. Levy Logbooks (www.rasc.ca/david-h-levy-logbooks) has continued its organic growth, as the author continues to observe, and record his activity. We have received digital facsimiles of Levy Logbook 25 (covering *ca.* 2013 May 12-2015 July 25), as well as the observing entries from his "daily personal journal" from the 1970s (covering 1971 June - 1976 February). When these are provided with the standard formatting of the digital series, they will be accessible from rasc.ca.

¹ Dr. Bell's solar sketches were donated to the Hamilton Centre at some point; the present disposition of those records is in question.

The physical volumes of all of Dr. Levy's logbooks have been donated to the Linda Hall Library: Science, Engineering & Technology Information for the World (<http://www.lindahall.org/>), one of the leading repositories for the history of science (<http://www.lindahall.org/event/writing-book-almost-sixty-years-record-nightwatchmans-journey-night-sky/>). The physical logbooks will be on display in the exhibition "Comet Hunter: The Observation Logs of David H. Levy" from 2015 November 4 till 2016 March 12. Dr. Levy had made the arrangements for the disposition of his physical logbooks prior to offering the digital facsimiles to the RASC. As planned, the RASC will remain the world portal for access to the digital facsimiles of the David H. Levy Logbooks.

A minor donation was received from the anonymous donor of our meteorite collection, although it is non-meteoritical. A model of the Space Shuttle *Atlantis* is now on display beside the portion of Shuttle tile in the Archives (first figure from top of panel on report cover). Chris Hadfield's first foray into space was aboard *Atlantis* (STS-74, 1995 November 12-20).



In contrast to the above, the Archives has donated digital facsimiles of historical sketches of solar phenomena to a Springer Verlag project: Erika Rix, Kim Hay, Sally Russell, & Richard Handy, *Solar Sketching: a Comprehensive Guide to Drawing the Sun*, The Patrick Moore Practical Astronomy Series (New York–Heidelberg–Dordrecht–London: Springer, 2015), ISBN 978-1-4939-2900-9.

Sketches by A.F. Miller, Andrew Elvins, and Mary Proctor among others from the Archives are featured, providing historical depth to the work. Some long-serving Committee members will recall that Ms Hay was a member of the History Committee at one time.

Finally, the Society President, in the guise of his jameswood avatar, has donated a stout artifact to the Archives (to be reported on in an upcoming Society publication), as well as the following fitting object. In addition to its decorative qualities, this artifact may potentially serve to reliably locate the Archivist within the Archives, should that ever become necessary (assuming that the Society's Marketing Coordinator does not requisition it as a footrest).



75TH ANNIVERSARY OF THE HUME CRONYN MEMORIAL OBSERVATORY

Three quarters of a century ago this last October 25, the Hume Cronyn Memorial Observatory (HCMO) at Western University was officially opened. Various astronomical, university, and civic dignitaries attended, as well as students, local residents, and members of the London Centre of the RASC. This was the last traditional collegiate pattern observatory built in the country, and



marked the culmination, and end of refractor-based institutional installations in Canada, a type which was the North-American norm from the second-half of the nineteenth century up to the start of the Second World War. The chief instruments for the HCMO are the work of the Perkin Elmer Corporation, and include a 25 cm O.G. refractor (third figure from top of panel on report cover), and a Schmidt camera. The refractor was—and is—the second largest in the country, and the Schmidt camera may be the earliest erected on Canadian soil. A notable aspect of the founding of the HCMO is the share accorded the RASC in its conception, purpose, and operation. In the words of the project's chief mover, H.R. Kingston:

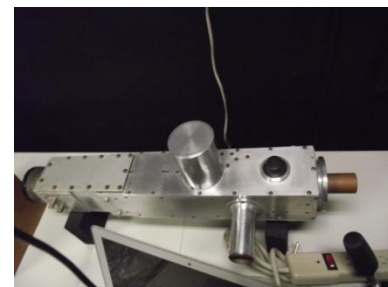
"For many years the Department of Mathematics and Astronomy of the University of Western Ontario and the members of the London Centre of the Royal Astronomical Society of Canada have 'dreamed a dream and seen a vision'... this equipment... will enable our students to observe and study at first hand... many of the other worlds in our solar system and in the great universe beyond. Then, too, it will be a great stimulus to the work of the local Astronomical Society [RASC London Centre]. Further, we wish the observatory to provide a cultural service to all the citizens of London and vicinity..." (H.R. Kingston, "The Opening of the Hume Cronyn Memorial Observatory", *JRASC* 34, 9 [1940 November], 393-402, at pp. 395-396).

Also prominent in the work of the observatory was the Rev'd W.G. Colgrove, whose role exemplified the amiable cooperation then obtaining between Western and the local RASC. Under the able leadership of Prof. Jan Cami, the present coordinator (*i.e.*, director) of the HCMO, the original spirit of close cooperation between the University and the RASC has experienced a renaissance.

Committee member Dr. Mark Tovey, together with Tricia Colvin, Dr. Dale Armstrong, Henry Leparskas, and past National President Peter Jedicke, along with other London Centre members working closely with Astronomy & Physics undergraduate and graduate students, staff members (Henry is both a staff member and a RASC member), and recently minted Ph.Ds, presented an excellent program, combining the best of the HCMO's heritage in the service of modern EPO with modern astrophysical concepts, proving that the magical aura exuded by antique and vintage astronomical artifacts can be a potent tool for modern, effective EPO.



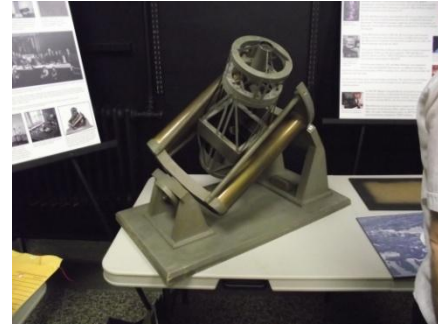
Dr. Tovey and colleagues curated an exhibit of artifacts associated with the work of the HCMO from before 1940 to ca. the early 1960s. Among the highlights were surviving examples of the ingenious and well-crafted astronomical demonstration apparatus devised and manufactured by the Rev'd Colgrove (www.rasc.ca/sites/default/files/HRKingston-PriceList1944.pdf), and Bill Whelau's photometer.





Guests experienced a re-enactment of H.R. Kingston's speech, performed by Dr. Tovey in appropriate period costume, and wearing H.R. Kingston's surviving top hat!

The Society's Archivist was in attendance, representing our Committee, and the CASCA Heritage Committee (wearing two notional hats, as it were).



PUBLICATIONS

Chris Beckett & R.A. Rosenfeld, "Feature Star Field: The Milky Way", *Observer's Handbook 2016*, ed. David M.F. Chapman (Toronto: Royal Astronomical Society of Canada, 2015), pp. 272-273

Roy L. Bishop, "Rainbows and Some Other Sky Phenomena", revised for the *Observer's Handbook 2016*, ed. David M.F. Chapman (Toronto: Royal Astronomical Society of Canada, 2015), pp. 194-204

Roy L. Bishop, "Sky Brightness at Midnight", revised for the *Observer's Handbook 2016*, ed. David M.F. Chapman (Toronto: Royal Astronomical Society of Canada, 2015), pp. 209-210

Clark Muir, "Geoffrey W. Bell (1899-1982), Canadian Amateur Astronomer", *JRASC* 109, 5 (2015 October), 202-203

R.A. Rosenfeld, "The Observer as the 'Centre of the World': Jean-Sylvain Bailly and the Sounds of the Observatory", *JRASC* 109, 4 (2015 August), 164-167

R.A. Rosenfeld, "Ambrose Bierce, and RASC Honorary Members Barnard, Burnham, and Holden: Trouble in High Places", *JRASC* 109, 5 (2015 October), 204-207

OTHER ACTIVITY

Chris Beckett is working on several projects to fashion heuristic tools for observing from previously unexploited historical observing lists, and earlier styles of observing. Preliminary

results suggest that this is one more way the history of astronomy, particularly a hands-on recreative approach to that history, can furnish tools to advance modern observing today.

Eric Briggs notes that:

"I'm following a number of historic leads... To pick out one thread, I looked up some notes that the International Star Registry began in Toronto, as a spin-off of the Festival of Festivals (precursor to TIFF) in 1979. I find it an interesting coincidence that this is later in the same year that the newly dedicated asteroid (2104) Toronto citation was presented to the mayor of Toronto. Possibly having seen how astronomical naming conventions work 'the right way', the enterprising businessman who thought of ISR could have decided to go forth as would a bull in a china shop".

Eric's digging would certainly make for an interesting JRASC contribution, when the research is done.



Peter Broughton has experienced something of Atlas' elation when Heracles temporarily took the weight of the heavens from his shoulders, for on 2015 November 4:

"...thirteen days ahead of J.S. Plaskett's 150th birthday, I went to the University of Toronto Press to hand in my version of his life-story along with a foreword graciously supplied by Jim Hesser. Though I know there is still lots of work to be done with copy editors and indexing, I feel a tremendous sense of relief that it's finally off my hands and into theirs. I have had wonderful support from many RASC members, especially Alan Batten, Jim Hesser, Andrew Oakes, and Randall Rosenfeld".

Congratulations are certainly Peter's due, and we eagerly await the commercial availability of his major monograph.

Chris Gainor, 1st VP, reports: "...that I'm hard at work on the Hubble Space Telescope History book. I will be speaking at the Canadian Space Summit in Vancouver on Nov. 19 on HST [www.css.ca/speakers.html]". Chris will, of course, be speaking on the Hubble Space Telescope.

In the course of pursuing his doctorate at the Institute for the History and Philosophy of Science and Technology (IHPST) at the University of Toronto, Andrew Oakes writes that:

"he has written a research paper on spectroscopy and the work of J. S. Plaskett in early Canadian professional astronomy", and in the longer term he is planning "An extended examination of the career of mathematician, physicist and astronomer Clarence A. Chant of the University of Toronto, who developed early Canadian professional astronomy through his teaching at the U. of T., his work as Editor-in-Chief spanning 50 years of the *Journal of the Royal Astronomical Society of Canada* (a publication he founded), the establishment of the David Dunlap Observatory in 1935, and his editorship of the annual *RASC Observers Handbook* between 1907 and 1957".

Andrew's study of Chant will thus form a counterpart to Peter's on J.S. Plaskett, which means that we will finally have thorough studies of the two key figures in building professional astronomy in Canada in the formative period of the first half of the 20th century.

For Clark Muir's activities, see the *DONATIONS* and *PUBLICATIONS* sections above.

For Mark Tovey's activities, see the report on the *75TH ANNIVERSARY OF THE HUME CRONYN MEMORIAL OBSERVATORY* above.

ACKNOWLEDGEMENTS

We wish to thank Julia Neeser, RASC Marketing Coordinator, Renata Koziol, Office Administrator, and Randy Attwood, FRAS, Executive Director, for assistance during the period covered by this report. Thanks as ever is due to the RASC Webmaster, Walter MacDonald, for looking out for the best ways to ensure access to our historical materials.

Respectfully submitted,
R.A. Rosenfeld, Chair

Committee Members:

- *Randy Attwood, FRASC (ED)
- *Chris Beckett (Unattached, consultant)
- Dr. Roy Bishop, FRASC (Halifax)
- Eric Briggs (Toronto)
- Peter Broughton, FRASC (Toronto)
- *James Edgar ex officio (President, Regina)
- Dr. Chris Gainor (Victoria)
- *Dr. Robert Garrison (Toronto, consultant)
- *Renata Koziol (Office Administrator)
- Heather Laird (Calgary)
- Clark Muir (Kitchener-Waterloo)
- Andrew Oakes (Unattached)
- Randall Rosenfeld (Unattached), Chair
- Dr. Mark Tovey (London)
- *=non-voting members

Historians of Astronomy Meet

1 NOTRE DAME UNIVERSITY HOSTS 12TH BIENNIAL GATHERING

A group of international scholars met for a five-day workshop near South Bend, Indiana, in late June 2015 to discuss their latest research in their chosen field of academic study—the History of Astronomy. The University of Notre Dame hosted the workshop called ND XII, which was the 12th in a series held every two years at this American research university. Established in 1842, the U of Notre Dame is ranked both as one of the top universities in the United States and as a major global university.

Some 60 scholars and graduate students attended workshop ND XII at which many presented papers-in-progress for discussion and feedback. Registered participants included scholars from Mexico, Canada, the United States, Japan, the United Kingdom, France, the Netherlands and the People's Republic of China.

Since the first workshop in 1993, the biennial event has developed as a stimulating forum for scholars of all levels and interests in the history of astronomy. Part of its efforts focus attention on the teaching of the history of astronomy. The workshop is also noted as an event that offers a warm welcome to graduate students and independent scholars.

Support for the workshop is provided by the Graduate Program in the History and Philosophy of Science and the Institute for Scholarship in the Liberal Arts in the College of Arts and Letters, both at Notre Dame, along with the Adler Planetarium and Astronomy Museum in Chicago, Illinois.

2 WORKSHOP OBSERVATIONS

The ND XII workshop at the University of Notre Dame was an enormous success with a wide-ranging series of papers that provided historians of astronomy much to think about. The scope of the discussions, as reflected in the content of the presentations, highlighted not only how considerable work is yet to be done in this field of study, but also underlined the immense dedication to the subject that scholars continue to exercise as researchers and teachers. The attending graduate students had an opportunity not only to witness experts at work but also to hone their own developing skills in research, public presentation, and debate.

For me, the highlight was to meet eminent scholars in an area of study that has captured my interest for many years. Such luminaries as Owen Gingerich, Barbara Becker, Steven Dick, Michael Crowe, Micho Yano, Dennis Danielson, Alberto A. Martínez, Howard Carlton, Joseph P. Bassi, Robert Smith, and Huib J. Zuidervaat—to name just a few—all proved to be easily accessible and demonstrably eager to share their knowledge. The respect they showed for each other was palpable.

The sad realization for me was that quite a few are in the twilight years of their careers—some are near retirement or have been retired for a short time already, and at least one (the most internationally eminent of all), for 15 years! But there was a substantial contingent present of younger scholars who by their participation have shown that the scholarly torch is being carried forward as there are many archives yet to be mined, and analyses to be formulated. The scholarly field continues to move forward as the proverbial academic universe unfolds in its natural way.

Another highpoint was the participants' trip to the Adler Planetarium and Astronomy Museum in the neighbouring State of Illinois, about two hours away from South Bend, Indiana. The City of Chicago is home to the Adler, the United States' first planetarium founded in 1930. Our day spent there was rewarding not only for the exhibits to be viewed but also the continuation of the ND XII workshop sessions on site. The welcome by the Adler staff could not have been warmer. The hosted lunch at *Café Galileo's* at the Adler was scrumptious and the dinner in the institution's *Executive Lobby* was a delightful way to end our visit.

For me, there were two presenters who offered eye-opening papers. The first was by Prof. Emeritus Michio Yano, who has devoted 50 years of his scholarly career to translating Indian texts and who serves as the chief editor of *SCIAMVS*, an international journal for the history of exact sciences in antiquity and the Middle Ages. Yano spoke on the "Use of Geometry in Indian Astronomy" and the "Sidereal vs. Tropical Coordinates in Indian Astronomy and Astrology". His investigations of Sanskrit texts has opened up a new understanding of the impact that the introduction of Hellenistic astronomy, sometime in the third or fourth century CE, had on Indian astronomy.

The second presenter of note focused on how close humanity came to polluting near-earth space beyond use. Lisa Ruth Rand of the University of Pennsylvania—her paper was titled "'Our Only Chance is to Fight': Optical and Radio Astronomers and the Environmental Protection of Outer Space, 1957–1963" —examined "how communities of professional astronomers around the world participated in building a system of governance in near-Earth space, advocating for what we would now call a 'sustainable' approach to using a globally shared environment". Rand's story focused on the first decade of the satellite age, including the detonation of nuclear weapons in space and an experimental military communications project that put a temporary copper ring of tiny needles around the Earth. The protagonists were the optical and radio astronomers in Europe and America who argued that spacefaring states, if unchecked, would, irrevocably contaminate and prematurely close the mythical final frontier, specifically the "newly accessible and newly pollutable orbital landscape".

Heads-Up

- ND XIII – The Thirteenth Biennial History of Astronomy Workshop will be held July 5-9, 2017, at the University of Notre Dame.
- Prof. Matthew F. Dowd of the University of Notre Dame Press and one of the principal organizers of the biennial workshop just published a book with Cambridge University Press in August 2015 that he co-edited: *The Drake Equation—Estimating the Prevalence of Extraterrestrial Life through the Ages*; co-edited by Douglas A. Vakoch and Matthew F. Dowd; with a Forward by Frank Drake.



Panel 1: “Studies in the History of the Extraterrestrial Life Debate”

(L) Michael J. Crowe, University of Notre Dame, (C) Dennis Danielson, University of British Columbia, (R) Steven J. Dick, 2014 Baruch S. Blumberg NASA/Library of Congress Chair in Astrobiology

3 SUBJECT DETAILS OF ND XII – JUNE 24-28, 2015

The workshop’s activities included a public lecture, panel discussions, individual paper presentations, and an invited speaker’s lecture. Links to abstracts are provided adjacent to each listed presentation (courtesy of ND XII).

- **Public lecture:** Michio Yano, Professor Emeritus at Kyoto Sangyo University, Japan
Title: “Use of Geometry in Indian Astronomy” ([abstract](#)) ([event poster](#))
- **Panel 1: “Studies in the History of the Extraterrestrial Life Debate”**([abstract](#))
Moderator: Matthew F. Dowd
 - I. “Milton’s *Paradise Lost* and Early Modern ET,” Dennis Danielson, University of British Columbia ([abstract](#))
 - II. “The Place of Sir John Herschel (1792-1871) in the Extraterrestrial Life Debate,” Michael J. Crowe, University of Notre Dame ([abstract](#))
 - III. “The Extraterrestrial Life Debate as Applied History of Astronomy,” Steven J. Dick, 2014 Baruch S. Blumberg NASA/Library of Congress Chair in Astrobiology ([abstract](#))
- **Paper Session 1:**
Chair: Dana A. Freiburger, University of Wisconsin
 - I. “From Bruno to Galileo: The Heresy of Many Worlds,” Alberto A. Martínez, University of Texas at Austin ([abstract](#))
 - II. “Georg Johann Locher’s *Disquisitiones Mathematicae*,” Christopher M. Graney, Jefferson Community & Technical College ([abstract](#))
 - III. “The View from the Moon: Kepler’s Exercise in the Power of Alternate Perspectives,” Sarah Reynolds, Indiana University ([abstract](#))
- **Paper Session 2:**
Chair: Thomas Hockey, University of Northern Iowa
 - I. “‘Winged and Luminous Analysis’: The Voice of OrmsbyMacKnight Mitchel,” Craig B. Waff (posthumous) and Trudy E. Bell, Independent Scholar ([abstract](#))



- II. “The Words of Discovery: Digital Imagery of the High-Z Supernova Team’s Communications Surrounding the Nobel Prize Winning Discovery of Dark Energy,” Keith W. Davis, University of Notre Dame ([abstract](#))
- III. “‘Our Only Chance is to Fight’: Optical and Radio Astronomers and the Environmental Protection of Outer Space, 1957–1963,” Lisa Ruth Rand, University of Pennsylvania ([abstract](#))
- **Panel 2: “Aspects of Indian Astronomy”**([abstract](#))
Moderator: Michio Yano, Kyoto Sangyo University
 - I. “The Concept of ‘Gola’ in Sanskrit Sources,” Sho Hirose, Université Paris Diderot ([abstract](#))
 - II. “The Astronomical Knowledge of the Buddha, Sages and Foreigners: The Question of Authority in Buddhist Astral Science in South and East Asia,” Bill Mak, Kyoto University ([abstract](#))
 - III. “The ‘Canonicity’ of Table Texts in Sanskrit Astronomy,” Kim Plofker, Union College ([abstract](#))

Welcoming remarks from Pedro M. P. Raposo, Curator, Adler Planetarium

- **Panel 3: “Time and Astronomy’s Authority”**([abstract](#))
Presenter: Sara J. Schechner, David P. Wheatland Curator, Collection of Historical Scientific Instruments, Harvard University
- **Panel 4: “Recovering the ‘Weirdness’ of Nineteenth-Century Astronomy”**([abstract](#))
Moderator: Joseph P. Bassi, Embry-Riddle Aeronautical University/Worldwide
 - I. “‘Land-marks of the Universe’: John Herschel against Positional Astronomy,” Stephen Case, Olivet Nazarene University ([abstract](#))
 - II. “On Dropping the Ball: Punctuality and Greenwich Mean Time in Victorian Britain,” Ken Corbett, University of British Columbia ([abstract](#))
 - III. “‘Solar Spot Mania’: The Origins of Solar Research at Kew Observatory, 1852–1860,” Lee MacDonald, University of Leeds ([abstract](#))
 - IV. “The Perils of Presentism: The Case of British Astronomy in the Long Nineteenth Century,” Robert Smith, University of Alberta ([abstract](#))
- **Paper Session 3:**
Chair: Marc Rothenberg, National Science Foundation
 - I. “Astronomy, Meteorology, or ?: Disciplinary Questions of Authority in ‘Sun-Weather Connection’ Research,” Joseph P. Bassi, Embry-Riddle Aeronautical University/Worldwide ([abstract](#))
 - II. “‘Horrid Quasar’: Scientific Controversy and the Boundaries of Acceptable Research,” Barbara J. Becker, University of California-Irvine ([abstract](#))
- **Paper Session 4:**
Chair: R. Jay Malone, History of Science Society
 - I. “The Spurious Moons of Uranus: How the Authority of William Herschel Caused Astronomers and the Public to Be Misled for a Century,” Clifford J. Cunningham, National Astronomical Research Institute of Thailand (NARIT) ([abstract](#))
 - II. “Condensing from a Fluid Haze: John Pringle Nichol, the Nebular Hypothesis, and Nineteenth-Century Cosmogony,” Howard Carlton, University of Birmingham ([abstract](#))

- III. “The Expert Apprentice: Ángel Anguiano’s Astronomical Career,” Mónica de la Guardia, Universidad Nacional Autónoma de México ([abstract](#))
- IV. “Authority through Performance: The Total Solar Eclipse of 1923,” Susana Biro, Universidad Nacional Autónoma de México ([abstract](#))
- **Panel 5: “Epistemology and Authority in Cosmology”**([abstract](#))
Moderator: Monica Solomon, University of Notre Dame
 - I. “Lost in the Multiverse: Self-Locating Beliefs, Observation Bias, and Typicality Assumption,” Yann Benétreau-Dupin, University of Western Ontario ([abstract](#))
 - II. “The Birth of the Universe, Chalked up to Dust,” Nora Mills Boyd, University of Pittsburgh ([abstract](#))
 - III. “Epistemic Authority of Cosmological Simulations,” Emre Keskin, University of South Florida ([abstract](#))
- **Paper Session 5:**
Chair: Jacqueline Feke, University of Waterloo
 - I. “Teaching Astronomy in Medieval Western Europe: Dragmaticon vs De Sphaera,” James Brannon, University of Wisconsin, Madison ([abstract](#))
 - II. “For the Count’s Prestige: Astronomy as Tool for the Fashioning of a Ruler’s Authority; The Case of Dutch Colonial Brazil (1638–1644),” Huib J. Zuidervaart, Royal Netherlands Academy of Arts and Sciences ([abstract](#))
 - III. “From Creative Invention to Symbol of Authority: The Expanding Role of Telescopic Sights in the Seventeenth Century,” Voula Saridakis, Lake Forest College ([abstract](#))
- **Invited Speaker Lecture:** Michio Yano, Professor Emeritus at Kyoto Sangyo University, Japan
Title: “Sidereal vs. Tropical Coordinates in Indian Astronomy and Astrology” ([abstract](#))
- **Paper Session 6:**
Chair: Stephen Case, Olivet Nazarene University
 - I. “‘Let them serve as signs’: The Celestial Lights in the Literature of the Early Church Fathers,” Erik C. Young, Olivet Nazarene University ([abstract](#))
 - II. “Astronomical Authority and Astrological Knowledge: Aristotle and Ptolemy in John Lydus’s On Celestial Signs,” Zoë Misiewicz, New York University ([abstract](#))
- **Paper Session 7:**
Chair: Susana Biro, Universidad Nacional Autónoma de México
 - I. “Zodiacal Light: Lost to the West for 1200 Years,” George BekeLatura, Independent Researcher, and Reza Assasi ([abstract](#))
 - II. “Techniques in Counting Xiu Fate,” Li Hui, Shanghai Institute for Science of Science ([abstract](#))
 - III. “From Power to Education: Astronomical Knowledge around the Gregorian Calendar in México,” Durruty Jesús de Alba Martínez, Universidad de Guadalajara ([abstract](#))
- **Poster Paper:** “Saving Plato’s Soul,” George BekeLatura, Independent Scholar ([abstract](#))



Front Row (kneeling): Kneeling: Steve Dick, Owen Gingerich, Trudy Bell, Brother Kevin Ryan, Lisa Ruth Rand, Matt Dowd. Middle Row (standing): Sarah Reynolds, Al Martinez, MónicaMartínezBorrayo, Mónica de la Guardia Durán, Cliff Cunningham, Elizabeth Hamm, Joe Bassi, Michio Yano, Zoë Misiewicz, Nora Boyd, Jackie Feke, Andrew Oakes, Susana Biro, Hui Li, Mike Crowe. Back Row (standing): DurrutyJesús de Alba Martínez, Chris Graney, Jefferson Sauter, Robert Smith, Rob Messick, Lee Macdonald, Sho Hirose, Dennis Danielson, Erik Young, Barbara Becker, James Brannon, Howard Carlton, Bill Mak, Dana Freiburger, Marc Rothenberg, George Latura, Pedro Raposo, HuibZuidervaart, Lee Minnerly, Scott Trigg, Norm Sperling, Tom Hockey, Steve Case. **Photo & caption courtesy: ND XII**

-R.A.R. 2015 November 11