History Committee Report

2022 Spring-Summer

(*2022 June 4*)

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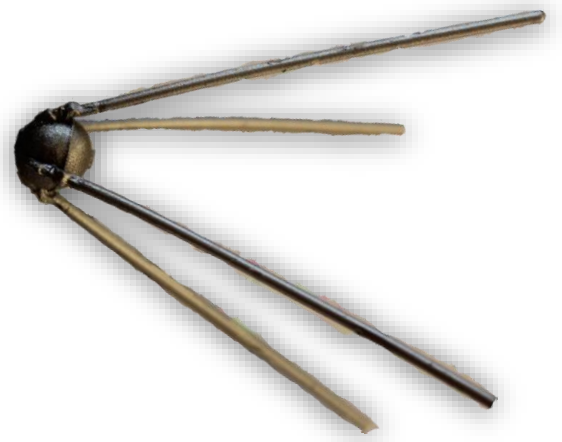
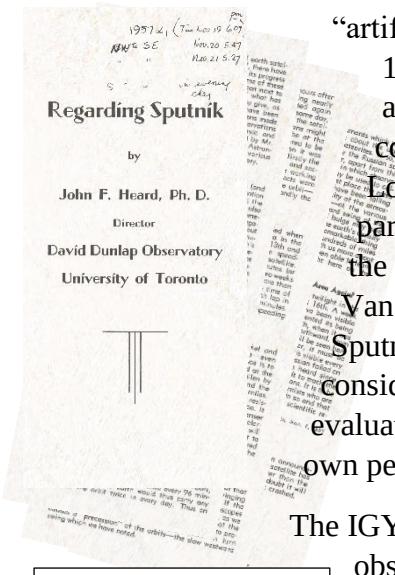


COVER ESSAY

The launch of the Space Age: memory, citizen science opportunities, and an as yet untold story…

1957 October 4 is widely accepted as the beginning of the "Space Age", and there are still more than a few Society members who can vividly recall its advent. The launch of an "artificial Moon" (to employ a term of the times; Brown 1958, 159, entry 1543) in itself was not a matter of surprise; both superpowers had announced that feat as forthcoming among their respective contributions to the International Geophysical Year (IGY) (Green & Lomask 1970, 37–39). What was a surprise for many in the west, particularly in the United States, is that they were not the first to cross the frontier into space via satellite; Explorer 1 (1958 January 31), and Vanguard 1 (1958 March 17), appeared in the wake of the Soviet's Sputnik 1, and Sputnik 2 (1957 November 3). That sequence engendered considerable Cold-War unease in the United States, leading to re-evaluations of its communist rival's technical and military prowess, and its own perceived vulnerabilities (Hastedt 2000; Van Dyke 2000).


Regarding Sputnik

by

John F. Heard, Ph. D.

Director

David Dunlap Observatory

University of Toronto

Jack Heard's population-calming Sputnik brochure commissioned by *The Toronto Star*; RASC Archives.

The IGY (July 1957 to December 1958) was a cooperative program of observation of the Earth and its near space environment during the memorable Solar Cycle 19 (Sydney Chapman *et al*. 1959; Wilson 1961). It was a scientific success, no less than a diplomatic one in a period when geopolitics needed such an initiative (although the success was limited by the temper of the times—it may best be characterized as having strengthened learned connections across taut political boundaries. Cold-war perils may have been notionally abated by the exercise, but more could not be expected). Many of the professional scientists who developed the IGY programs specifically designed them to have meaningful pro-am components (in part because they offered a low-cost method to increase scientific personnel). Peter Millman played a notable leadership role in several IGY projects most of interest to RASC members, the visual auroral program, and the meteor shower campaigns (Millman 1957; Jarrell 2009). The former doubtless gave the impetus to the RASC's Standing Committee on Observational Activities to coordinate an Aurora section, with its own bulletin. RASC member Geoff Gaherty's IGY Visual Auroral Program logbook survives in our Archives as a witness to one advanced amateur's commitment to the initiative. And, by the time the IGY meteor-reporting effort wound down, 93,000 observations had been logged at the NRC's new Springhill Meteor Observatory; an impressive number by any measure, but only a fraction of those were due to RASC Centre teams, for the Springhill Meteor Observatory served as the world-wide coordinating centre for the observations. Jasper Wall, the Canadian who decades later served as Director of the Royal Greenwich Observatory during the final phase of its nearly three and a quarter century existence as a world-class scientific institution, was among the Ottawa observers during his high-school years (private communication).

The IGY pro-am undertaking best known to amateurs now is Project Moonwatch, designed by Fred Whipple, and run out of the Smithsonian Astrophysical Observatory. Trained teams of volunteer observers, with broadly similar instruments, and a standardized observing protocol, were established nominally "worldwide" to make observations of satellite positions of sufficient accuracy to enable the determination of their orbits into the future. Sputnik 1's stealing the march on the American satellites lent an added prominence to the amateur Moonwatch teams, "...pointing out that it [Project Moonwatch] has developed into a more important operation than was intended or even thought of at the time" (DeVorkin 2018, 89, quoting Alan Hynek).

Alouette II stamp (1965)—the Diefenbaker government somehow managed not to issue a stamp for Alouette I (1962)!

Fortunately, an account of Project Moonwatch by a professional historian of science and technology, Patrick McCray, appeared in 2008. It contains much that wasn't previously known, and has all the appearance of a thorough account. It's mostly concerned with the American experience, which makes sense since Moonwatch was a largely American effort (the majority of teams were American), although it does devote some space to the international Moonwatch teams operating in Japan, South America, South Africa, and Australia, but the story as recounted in *Keep Watching the Skies! The Story of Operation Moonwatch and the Dawn of the Space Age* is not quite complete. In the RASC Archives are traces of the Canadian Moonwatch activities, those of the RASC Moonwatch teams. Those teams were fully part of the Smithsonian network at the beginning of the space age. At times it can be difficult for an author to deal adequately with all the aspects of a story, for a variety of reasons. Even Fred Whipple, a friend of Peter Millman's, managed to leave the Canadians out of his reminiscences of Moonwatch when reviewing the project a half century later (Marvin 2004). Yet the Canadian story of Moonwatch—a *RASC* story—remains to be told, and, until it is, the accepted narrative of the Moonwatch Project will be incomplete.

A Polish stamp celebrating the Alouette satellites (1966).

We can admire the ingenuity which went into some of the signature technologies called forth by the beginning of the space age. Some of these were associated with amateur activity, like the two satellite spotting telescopes illustrated on the front cover (for technical details see below). But not all of the space-age technologies were benign, and many of them were morally ambivalent in their applications and associations, and this was a feature of the field from the start, given the origin of the early launch systems (V2 heritage), much of the engineering expertise (Operation Paperclip, and its Soviet equivalents), and some of the applications to which data was directed. The geopolitical context of the birth of the space age was fraught. Until recently it was easy to imagine those particular circumstances and sequelae were mostly a thing of the Cold-War past. Recent events might give us cause to think otherwise.

Our cover shows two satellite tracking telescopes from the start of the space age, now in the Dorner Telescope Museum. The upper one is the Rolls-Royce of such things, a Unitron Satellite Telescope. It is beautifully designed, and crafted (specifications: 50-mm. O.G., f/4, focuser accepts 2-inch eyepieces, alt.-az. mount with 3.25/3.5-inch circles, bubble levels, and levelling screws, ca. *1958-1959, made in Japan). The lower telescope is by Southern Pacific Instruments (SPI), and is a good workman-like instrument (specifications: 50-mm. O.G., f/4?, focuser accepts 1.25-inch eyepieces, alt-az. mount with 1-inch alt. & az. circles, single level,* ca. *1958-1959, made in Japan). The Unitron was even featured in an ad at the back of* The Observer's Handbook 1959 *(p. 92). The background to*

the two telescopes is one of the charts from the field edition of Antonín Bečvář, et al., Skalnaté Pleso Atlas of the Heavens (Atlas Coeli Skalnaté Pleso 1950.0) *(Cambridge, MA: Sky Publishing Corporation, 1969)—although the cartography dates from a little before the beginning of the space age, this edition is from another signal year in the timeline of that period, the Apollo 11 moon landing.*

SOURCES

Antonín Bečvář, *et al*., *Skalnaté Pleso Atlas of the Heavens (Atlas Coeli Skalnaté Pleso 1950.0)* (Cambridge, MA: Sky Publishing Corporation, 1969)

Mildred Brown, *The Literature of Space Science and Exploration*, Bibliography no. 13 (Washington, DC: U.S. Naval Research Laboratory, 1958)

Sydney Chapman *et al*., *The Histories of the International Polar Years and the Inception and Development of the International Geophysical Year*, Annals of the International Geophysical Year 1957–1958, I (London–New York–Paris–Los Angeles: Pergamon Press, 1959)

David H. DeVorkin, *Fred Whipple's Empire: the Smithsonian Astrophysical Observatory, 1955–1973* (Washington, D.C. : Smithsonian Institution Scholarly Press, 2018)

Glenn P. Hastedt, "Sputnik and Technological Surprise", in *Reconsidering Sputnik: Forty Years Since the Soviet Satellite*, ed. Roger D. Launius, John M. Logsdon, & Robert W. Smith, Studies in the History of Science, Technology and Medicine 7 (London–New York: Routledge, 2000), pp. 401–423, at 401–402

Richard A. Jarrell, "Canadian Meteor Science: the First Phase, 1933–1990", *Journal of Astronomical History and Heritage*, 12, 3 (2009), 224–234, at pp. 229–230

Ursula B. Marvin, "Oral Histories in Meteoritics and Planetary Science: XIII: Fred L. Whipple", *Meteoritics & Planetary Science* 39, Supplement, A199–A213

W. Patrick McCray, *Keep Watching the Skies! The Story of Operation Moonwatch and the Dawn of the Space Age* (Princeton-Oxford: Princeton University Press, 2008)

Constance McLaughlin Green & Milton Lomask, *Vanguard: a History*, The NASA Historical Series (Washington DC: National Aeronautics and Space Administration, 1970)

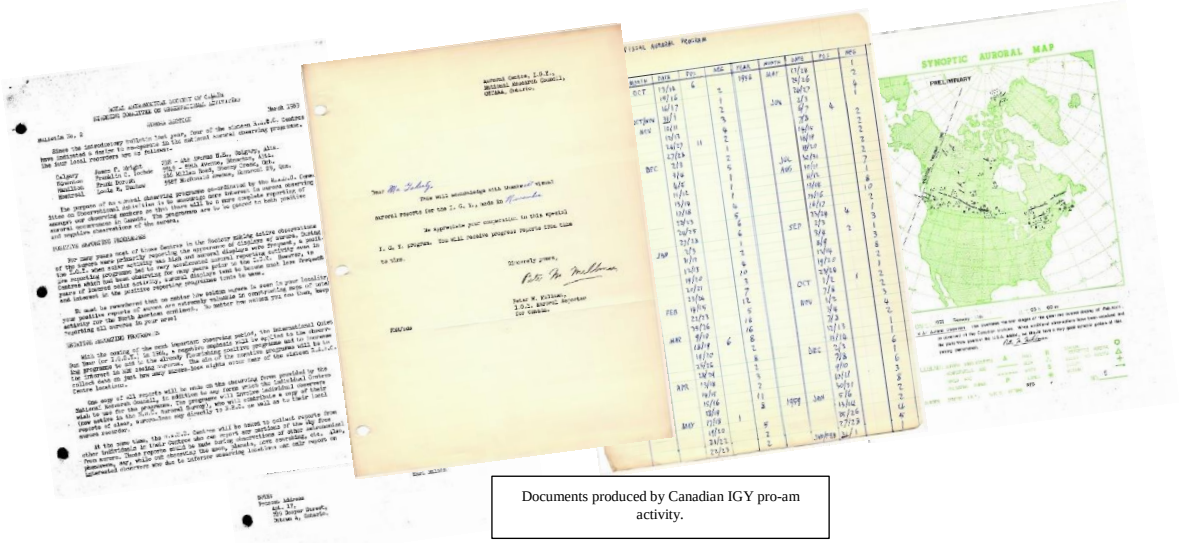
Peter M. Millman, "A Visual Auroral Programme for the I.G.Y.", *JRASC* 51, 3 (1957), 186–188

The Observer's Handbook 1959, ed. Ruth J. Northcott (Toronto: The Royal Astronomical Society of Canada, [1958])

Gretchen J. Van Dyke, "Sputnik: A Political Symbol and Tool in 1960 Campaign Politics", in *Reconsidering Sputnik*, pp. 365–400, at 366–367

J. Tuzo Wilson, *I.G.Y.—the Year of the New Moons* (New York: Alfred A. Knopf, 1961)

—R.A.R. 2022 June 29



Documents produced by Canadian IGY pro-am activity.

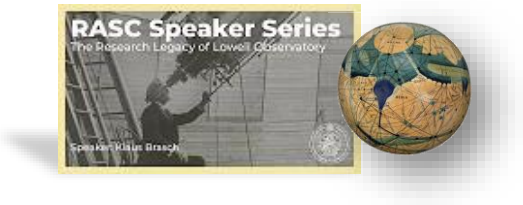
COMMITTEE ACTIVITY

RASC History Committee Webinar Series

The chief corporate activity of the History Committee in the period covered by this report was the RASC History Committee Webinar Series. This was a new venture for the Committee, spurred by the constraints of trying to develop a program under pandemic conditions. As it turned out, the *de rigeur* communications technology for the times proved an effective medium for the project. The Zoom video conferencing platform allowed us to design the series to make the most of the potential to reach effortlessly beyond the RASC, and Canada. Our speakers were chosen for having done basic research on their topics, the topics were chosen for their intrinsic interest, and the temporal and geographic range of the material ran from Greco-Roman antiquity to the present, traversing the Middle East to North America, and out to space. Only two of the seven sessions dealt specifically with the heritage of the RASC. The series was judged a success, and the sessions have been archived on the Society's youtube channel, RASCANADA:

October 26 2020, R.A. Rosenfeld, FRASC, "Mars Through the Eyes of the RASC"
https://www.youtube.com/watch?v=mn8L_ZsAcic&list=PLzou3EKq3ths24-xNSqFpsWcV7FiJuYO1&index=13&t=1s

November 23 2020, Prof. Dr. Klaus Brasch , "The Research Legacy of Lowell Observatory"
https://www.youtube.com/watch?v=TZVarrqCbd8&list=PLzou3EKq3ths24-xNSqFpsWcV7FiJuYO1&index=12&t=1s



December 18 2020, Prof. Dr. Bradley E. Schaefer, "Star of Bethlehem: the New Discoveries and Solution"
https://www.youtube.com/watch?v=RUaSQk3hdDc&list=PLzou3EKq3ths24-xNSqFpsWcV7FiJuYO1&index=11

January 28 2021, Peter Broughton, FRASC, “Should J.S. Plaskett be a Canadian Icon”
https://www.youtube.com/watch?v=wZyvHJa0ni0&list=PLzou3EKq3ths24-xNSqFpsWcV7FiJuYO1&index=14

March 2 2021, Clark Muir, “Murder at the Observatory: a Forgotten Chapter in the Legacy of Alvan Clark & Sons”
https://www.youtube.com/watch?v=EJvauf9PF1c&list=PLzou3EKq3ths24-xNSqFpsWcV7FiJuYO1&index=15

April 6 2021, John W. Briggs, “A Walking Tour of Optical History—Artifacts and Anecdotes from the Astronomical Lyceum”
https://www.youtube.com/watch?v=zqb0uRhjSMk&list=PLzou3EKq3ths24-xNSqFpsWcV7FiJuYO1&index=16&t=44s

May 20 2021, Dr. Chris Gainor, FRASC, “Son of Hubble: Confessions of a Hubble Space Telescope Historian”
https://www.youtube.com/watch?v=ozuLcSwO530&list=PLzou3EKq3ths24-xNSqFpsWcV7FiJuYO1&index=17&t=4911s

A second series is being contemplated.

Defining Moments Canada

In 2021 Peter Broughton, FRASC, alerted the Committee to the existence of Defining Moments Canada, "*a Canadian heritage organization dedicated to commemorating 'definitional moments' in our shared histories through the stories that have made them significant*", (https://definingmomentscanada.ca/our-story/), utilizing "*21st-century digital tools and storytelling skills*". Peter was particularly impressed by their Herzberg50 project, exploring the achievement and multifaceted impact of Gerhard Herzberg's work, released on the 50th anniversary of his winning the Nobel Prize in Chemistry in 1971 (https://definingmomentscanada.ca/herzberg50/—Herzberg served as RASC Honorary President 1974-1975).[1] Especially notable are Herzberg's vigorous advocacy of curiosity driven research as crucial for a healthy democracy,[2] and support for younger researchers. Among the sponsors of Defining Moments Canada are The National Research Council Canada/Conseil national de recherches Canada, The University of Toronto, The University of Saskatchewan, and the Government of Canada—all eminent institutions.

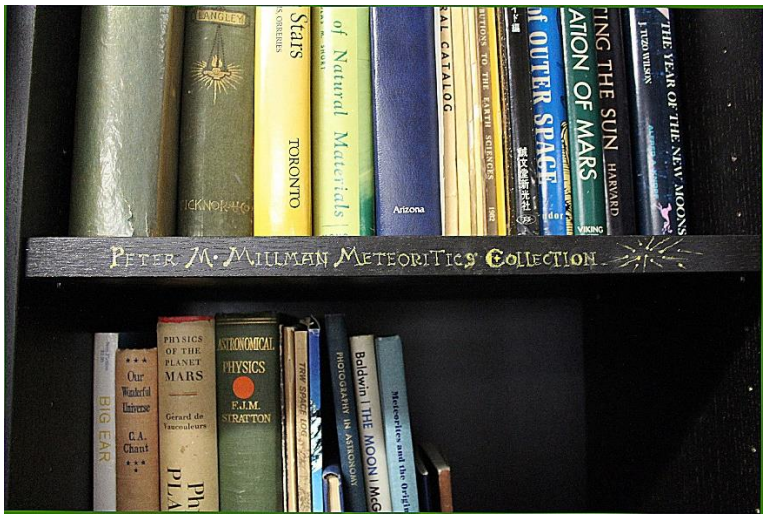
Peter proposed that the RASC through the History Committee might consider supporting Defining Moments Canada in their mission to provide citizens with the means to thoughtfully explore Canada's scientific heritage, to make them better prepared when considering the future course of science in Canadian society, and their role in shaping that future. The original suggestion was that we might provide a $2,000 grant, which would be tied to Defining Moments Canada developing a project spotlighting a Canadian astrophysicist, along the lines of Herzberg50. While that amount is not negligible from the standpoint of the RASC, it is hardly enough to count as seed money for an astronomical project in the realm of professional media production. And, given the importance to astrophysics of Herzberg's contributions to molecular spectroscopy, and his time on the core faculty at Yerkes Observatory,[3] Defining Moments Canada have *already* produced the sort of documentary we wish to support. It was thought better to offer the grant without any strings attached in recognition and support of their approach, and their accomplishments to date. This act of generosity on our part opens the door to possible collaboration in the future, and, for a modest amount, places us as a sponsor in prominent company.

[1] Dave Chapman, FRASC, was involved with some of the legacy aspects of this project.
[2] In this regard he was notably courageous in countering the biases and flawed assumptions marking the work of the Glassco Commission (1960–1962), and the Lamontagne Committee (1967–1977).
[3] Donald E. Osterbrock, *Yerkes Observatory, 1892–1950: The Birth, Near Death, and Resurrection of a Scientific Research Institution* (Chicago–London: University of Chicago Press, 1997), pp. 272–272.

Archives

The Archives are slowly being set in order in the new space. The chief delay has been due to COVID-19 precautions.

Recently an inscription was added to indicate the "Peter M. Millman Meteoritics Collection" (the photograph here does not do justice to the gilding).



The intention is to provide additional inscriptions for the collection of editions of C.A. Chant's *Our Wonderful Universe* (1928 [English], 1929 [German & Czech[4] editions], 1931 [Polish], 1941 [2nd German edition], 1946 [Spanish], 1948 [2nd English edition], 1952 [French]), and the "Marlene Macke Collection of Albert D. Watson Resources".

In the last week of May the Archives received a distinguished visitor, Prof. Dagomar Degroot of Georgetown University (`https://www.dagomardegroot.com/`). Prof. Degroot is a leading researcher in the history of climate change, a history which enjoys a direct connection to the modern science of climate change through its ability to discover climate data from the past. He is the author of the well-received *The Frigid Golden Age: Climate Change, the Little Ice Age, and the Dutch Republic, 1560–1720* (Cambridge: Cambridge University Press, 2018), in which he used early-modern ships' logbooks to good effect. He examined the log books and observational records in the RASC Archives to get "a sense of how astronomers, from the 19th through the 20th centuries, searched for changes in lunar landscapes; made sense of dark or light patches on Mars and to a lesser extent Venus; and

[4] An ongoing *desideratum* is a copy of the Czech edition for our collections.

responded to the 1994 impact of Shoemaker-Levy 9 on Jupiter" (private communication). This research will appear in his forthcoming *Ripples in the Cosmic Ocean: An Environmental History of Humanity in the Solar System* (Harvard/Viking). He was at particular pains to affirm the value of the long run of meteorological records in the Geoffrey Bell Logbooks (`https://www.rasc.ca/geoffrey-bell-logbooks`), covering nearly three quarters of a century (1908–1982), the acquisition of which is due to Clark Muir's efforts. And, perhaps not surprisingly, it is delightful to report that Prof. Degroot is an experienced amateur observational astronomer.

Image from Dr. Geoffrey Bell's logbooks.

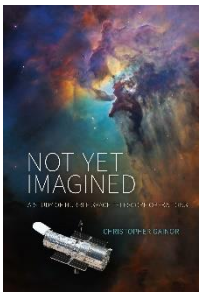
individual activities

publications

Chris Beckett, “Peering at Mars”, *JRASC* 115, 1 (2021 February), 24–25

Chris Beckett, “Original Discoveries from The Celestial Objects for Common Telescopes, Vol. 2: The Stars”, *JRASC* 115, 2 (2021 April), 84–86

Chris Beckett, “Creating Your Own Observing Program”, *JRASC* 115, 3 (2021 June), 134–135



Christopher Gainer, *Not Yet Imagined: A Study of Hubble Space Telescope Operations*, NASA History Series: sp-2020-4237 (Washington DC: National Aeronautics and Space Administration, 2021)

Christopher Gainor, “Amateur Astronomers and the Hubble Space Telescope”, *JRASC* 115, 3 (2021 June), 107–113

Christopher Gainor, “Apollo Geological Training in Canada, 1970–1972”, *JRASC* 116, 1 (2022 February), 9-15

Christopher Gainor, “The Apollo 11 Astronauts Visit Canada”, *JRASC* 116, 2 (2022 April), 43–47

Christopher Gainor, “Canadian Visits of Early Spacefarers”, *JRASC* 116, 3 (2022 June), 96–99

Clark Muir, “STEVE: a Look Back”, *JRASC* 115, 5 (2021 October), 204–206

R.A. Rosenfeld, “Attracting Uncommon Notice: the Society’s 1892 Report on Webb’s Celestial Objects for Common Telescopes”, *JRASC* 114, 6 (2020 December), 276–280

R.A. Rosenfeld, “Charles Messier and the RASC: When Did Society Members Turn to Observing Deep-Sky Objects?”, *JRASC* 115, 1 (2021 February), 28–35

R.A. Rosenfeld, “Exploring the History of Colonialism and Astronomy in Canada”, *JRASC* 115, 2 (2021 April), 89–95

R.A. Rosenfeld, “Exploring the History of Colonialism and Astronomy in Canada II: The Cases of the Slave-Owning Astronomer and the Black Astronomer Knighted by Queen Victoria”, *JRASC* 115, 4 (2021 August), 172–178

R.A. Rosenfeld, “J.F.W. DesBarres’ Astronomical Instruments and the Castle Frederick Observatory: Fundamental Documents”, *JRASC* 115, 6 (2021 December), 252–262

R.A. Rosenfeld, "Technology Obscuring the Night: How Long Has Light Pollution Been Perceived as a Problem by Society Members?", JRASC 116, 2 (2022 April), 65–71

Other activities

Peter Broughton reports that:

"… since October 2020, my only formal activity was participation in the 26th International Congress of History of Science and Technology held virtually in Prague in July 2021 (https://www.ichst2021.org/). Part of the program was a "Symposium: Meteorological and Magnetic Observatories in the 19th Century". I agreed to make a presentation on the Toronto Observatory with the understanding that I would have very little new to add to this well-documented topic. Subsequently the decision was made to invite each participant to contribute a chapter to a collective book, a project which has kept me fairly busy.

In an e-mail to the History Committee on 20 December 2020, I mentioned that I was transcribing the 1904–1905 volume of Otto Klotz's diary, a project I've now completed. As I said at the time, transcribing all the diaries is an undertaking far too big for any one person and yet to do one volume as I did is personally rewarding and prompts thoughts about future research. [*Other History Committee members—and RASC members at large—are encouraged to consider contributing to this project*].

Reviewing the articles I previously wrote for the *Biographical Encyclopedia of Astronomers* in preparation for the third edition has also required some time and effort (as you probably have found too)".

Charles Ennis notes that the RASC World Asterisms Project: *An Introduction to the Sky Cultures of the World*, of which he is the principal investigator, is making good progress, and that he is pleased with the support the project has received. As of mid-May 8,640 asterisms from over 500 cultures are included. A description of the project is at https://rasc.ca/world-asterism-project, which also lists many resources.

Mark Tovey continues his work recovering, developing, and running the historical displays of The Hume Cronyn Memorial Observatory at Western as a "living history" astronomical museum, which has proved to be a very effective vehicle for modern education and public outreach.

Chris Beckett, and his colleague Shane Ludtke (Regina Centre) have made a success of their *Actual Astronomy Podcast* (https://actualastronomy.com/), the episodes of which often make good and imaginative use of the materials of the history of observational astronomy to inform the modern practice of observing. They are profiled by Eric Klaszus (Calgary Centre), in "Doing Actual Astronomy", *SkyNews* 2022 July/August, 12–14.

Honours

At the recent RASC GA, it was announced that Dr. Christopher Gainor was made a Fellow of the RASC. We are delighted to extend our congratulations to Chris for this well-earned award!

Acknowledgements

The Committee wishes to thank Walter MacDonald, the RASC Webmaster, for his continued work in maintaining our digitized documentary heritage. We also wish to acknowledge the contributions of Renata Koziol, the recently retired Accounting Manager, and former *ex officio* member of this Committee, and Jenna Hinds, the recently retired Outreach Coordinator, for interested assistance in the Society's "old stuff" (and we congratulate her on winning the Society's Qilak Award for 2022).

Clark Muir has decided to step down as Committee Chair, and we are grateful to him for his service in this role over that last three years (2019–2022). Fortunately, he has agreed to continue as a member of the Committee.

Respectfully submitted,
R.A. Rosenfeld, Chair

Committee Members

- Chris Beckett (National Member)
- Dr. Roy Bishop, FRASC (Halifax)
- Eric Briggs (Toronto)
- Peter Broughton, FRASC (Toronto)
- Clark Muir (Kitchener-Waterloo)
- Dr. Karen Finstad (Ottawa)
- Dr. Chris Gainor, FRASC (Victoria)
- Andrew Oakes (National Member)
- R.A. Rosenfeld, FRASC (National Member), Chair
- Dr. Mark Tovey (London)
- *Charles Ennis *ex officio (President*
- *Dr. Philip Groff *ex officio* (Executive Director)

* = non-voting

—R.A.R. ver. 1.2
2022 July 9