

IAU COMMISSION C3 (HISTORY OF ASTRONOMY): TRIENNIAL REPORT, 2018–2021

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1 INTRODUCTION

IAU Commission C3 (History of Astronomy) started in 2015 as a natural continuation of the previous IAU Commission 41 for History of Astronomy which was established in 1948 and which was extremely successful in supporting research on the history of astronomy, organizing and sponsoring workshops and conferences, promoting research collaborations, forming specialist working groups and fostering the publication of members' research (see [Kochhar et al., 2015](#)).

2 ACTIVITIES OF IAU COMMISSION C3 DURING 2018–2021

2.1 Conferences and Workshops

Undoubtedly, one of the highlights of the Vienna General Assembly in August 2018 was the Centennial Symposium (IAUS349), where the following C3 members presented papers: David Baneke, Alan Batten, Jean-Louis Bougeret, Suzanne Débarbat, David DeVorkin, John Hearnshaw, Rajesh Kochhar, Wayne Orchiston, Jay Pasachoff, Christiaan Sterken, Virginia Trimble, Roland Wielen



Figure 1: A selection of photographs taken at the Vienna General Assembly that include some of the C3 members who served on the Organising Committee of the Centennial Symposium, and/or gave papers at the Symposium. Clockwise, from top left: Jay and Naomi Pasachoff; Wayne Orchiston, Suzanne Débarbat and Darunee Lingling Orchiston; Gudrun Wolfschmidt; Chris Sterken; John Hearnshaw; and David DeVorkin (all photographs by Darunee Lingling Orchiston).



Figure 2: The title slide from Wayne Orchiston's Powerpoint presentation about the critical roles played by the IAU History of Astronomy Commission's various Working Groups (photograph: Darunee Lingling Orchiston).

and Valeria Zanini (see [Sterken et al., 2019](#)). In addition, the follow C3 members were on the Organising Committee: Suzanne Débarbat, Owen Gingerich, John Hearnshaw, Rajesh Kochhar, Ray Norris, Wayne Orchiston, Jay Pasachoff, Christiaan Sterken, Xiaochun Sun, Virginia Trimble, David Valls-Gabaud and Gudrun Wolfschmidt (see [Figures 1 and 2](#)).

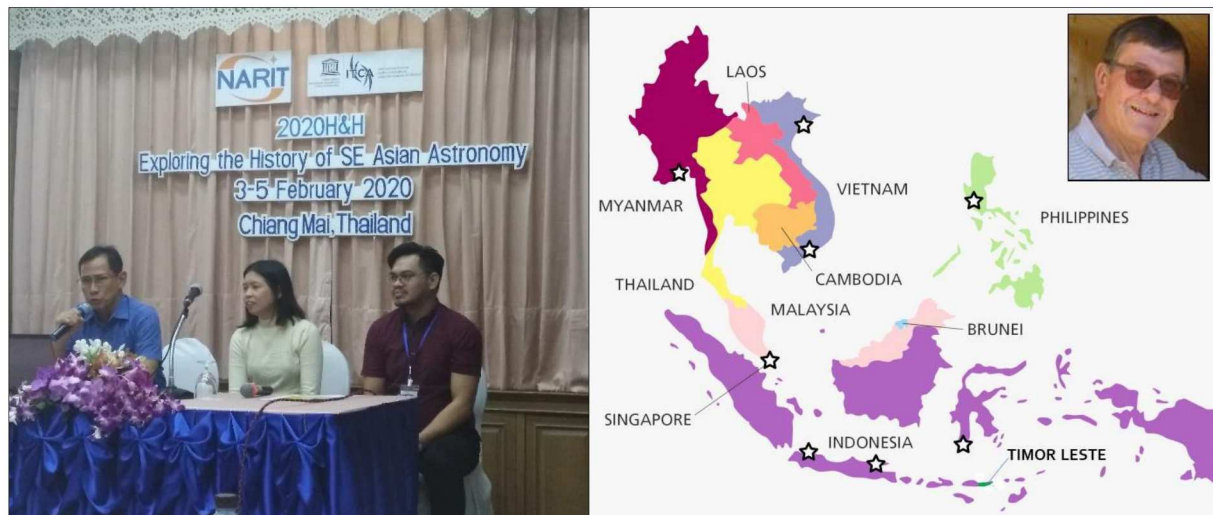


Figure 3: The 2020H&H Conference in Chiang Mai, Thailand, was dedicated to the Japanese history of astronomy expert and C3 member, the late Dr Yukio Ōhashi (see [Orchiston and Nakamura, 2020](#)), and attracted scholars from Australia, India, Indonesia, Japan, Malaysia, Philippines, Scotland, Sweden, Thailand, USA and Vietnam. The above photograph shows (left to right) three of the Philippines' delegates: Professor Jesus Torres (Director of the National Technological University of the Philippines) and Associate Professors Rubi Dela Cruz and Rai Guido (Department of Earth and Space Sciences, Rizal Technological University). All three research Philippine ethnoastronomy, and recently [Torres and Dela Cruz \(2021\)](#) published an English-language translation of Ambrosio's classic book, *Balatik*. Professor Torres is a C3 member. Most of those at the 2020H&H Conference spoke about traditional SE Asian astronomical systems or European eclipse expeditions, but Roger Kinns (inset photograph) from Scotland discussed the time balls and time disks installed by the American, British, Dutch, French and Spanish colonial powers at the starred locations shown on the map—see [Kinns, 2021](#) (photographs: Darunee Lingling Orchiston; map: after [Ōhashi and Orchiston, 2021: 744](#)).

Members of the Commission normally are quite active in organising national and international conferences, but through the impact of COVID-19 this aspect of our operations was severely curtailed (although we did gain valuable expertise in arranging and participating in e-conferences). Instead, what we aimed to do, where possible, was to network with other institutions and support or co-sponsor their conferences and workshops. Thus, during the triennium the following collaborations were arranged:

- Silk Road Workshop, October 2018, Beijing, China
- 'Mercurio in Sole Visus', 11 November 2019, ICRANet Coordinating Center, Pescara, Italy
- The Third International Conference on SE Asian Astronomical History, 3–5 February 2020, Chiang Mai, Thailand (see [Figure 3](#))
- Gerbertus 2020: The Moon of Gerbert, 5 May 2020, ICRANet Coordinating Center, Pescara, Italy
- Celestial Mechanics in Light of Conjunctions and Solstice, 21 December 2020, ICRANet Coordinating Center, Pescara

With the notable exception of the 2021 International Union for the History and Philosophy of Science and Technology Congress (IUHPST, see Section 5), other international conferences and workshops scheduled for 2020 and 2021 that would have involved C3 either were postponed or cancelled.

Following the success of the Vienna Centennial Symposium, C3 proposed two Focus Meetings for the Busan GA, one of which was hosted jointly with Commission C4 and was about UNESCO's involvement in astronomical heritage. Sadly, neither bid was successful.

2.2 Research and Publications

During the triennium many of our C3 members were research-active in history of astronomy, which resulted in the publication of 42 books (see [Figure 4](#)) and about 370 research papers and short communications. These are listed in Section 10 below, and were drawn, in the main, from ADS. They amply showcase the wide-ranging research interests of our members, which include

- applied historical astronomy
- archaeoastronomy
- Asian calendars, almanacs and star charts
- astronomical instrumentation
- biographies

- Classical Indian astronomy
- cometary astronomy
- Einstein and the General Theory of Relativity
- ethnoastronomy
- historic observatories
- Jesuit astronomy
- nautical astronomy
- solar astronomy (including eclipses)
- the history of astrophysics
- the history of the IAU
- the history of radio astronomy.



Figure 4: A selection of the covers of books penned by C3 members during 2018–2021 (from the publishers' web sites).

Figure 5: Photographs of some of the authors of books listed in Section 10.1. From left to right: Steve Dick (USA), John Steele (USA) and Pieter van der Kruit (Netherlands). Meanwhile, Wayne Orchiston and Chris Sterken are both shown in Figure 1. Note that Steve Dick is a former President of C41, while Wayne Orchiston, Chris Sterken and Pieter van der Kruit were respectively the President, Vice-President and an Organizing Committee member of C3 during the 2018–2021 triennium (photographs from web sites or supplied personally).



About 40.5% of the books listed in Section 10.1 were written, co-written or co-edited by just five C3 members—Steve Dick (USA), Wayne Orchiston (Thailand), John Steele (USA), Chris Sterken (Belgium) and Pieter van der Kruit (Netherlands)—John and Pieter with four books, and the others with three books each. Photographs of these five C3 members are in Figures 1 and 5. The Section 10.1 listing also reveals that Springer was the foremost publisher of our history of astronomy books, accounting for almost half of all books.

Entries in Section 10.2 range from major lengthy research papers (>50 pages) to 1-page research notes, so it is unreasonable to compare and contrast the outputs of different members. Yet, what this listing does show is that while >50% of all C3 members produced at least one research paper or research note during the triennium, 15 different members each contributed ≥ 8 publications. They were (in alphabetical order): Ian Glass (South Africa), Richard de Grijs (Australia), Steve Gullberg (USA), Wolfgang Dick (Germany), Lars Gislén (Sweden), Duane Hamacher (Australia), Suzanne Hoffmann (Germany), Ramesh Kapoor (India), Richard McKim (England), Wayne Orchiston (Thailand), B.S. Shylaja (India), John Steele (USA), Chris Sterken (Belgium), Virginia Trimble (USA) and José Vaquero (Spain) (e.g. see Figures 1, 5, 6 and 7). Collectively, they contributed about 58% of all publications included in Section 10.2. Meanwhile, the full range of papers listed highlights the aim of our Commission to promote history of astronomy research from an international perspective. Accordingly, a cursory review reveals that there are papers that specifically relate to the astronomical histories of the following nations: Argentina, Armenia, Australia, Belgium, Cambodia, Canada, Chile, China, Czech Republic, Democratic People's Republic of Korea, Denmark, Egypt, England, France, Georgia, Germany, Greece, India, Indonesia, Iran, Iraq, Ireland, Italy, Japan, Laos, Malaysia, Mexico, Myanmar, Netherlands, New Zealand, Norway, Peru, Philippines, Poland, Portugal, Republic of Korea, Romania, Russia, Scotland, Singapore, South Africa, Korea, Spain, Sweden, Switzerland, Thailand, Ukraine, USA, Uzbekistan, Vietnam and Wales.

Of course, the publications listed in Section 10 do not tell the whole story, neither for our Commission, nor for the international community of historians of astronomy. For a start, missing are papers published in journals not recorded by ADS. Missing, also, are book reviews, which—if included—would see Virginia Trimble rank highly. And even within the IAU there are many astronomers who write on history of astronomy but are not members of C3. An urgent task for our Commission is to identify all such individuals and encourage them to join C3 if they are not already members of three different IAU Commissions. Finally, the Section 10 listings also are non-definitive in that there are many non-IAU members who research the history of astronomy. Some of them are members of the IUHPST (see Section 5, below), and if we can get them appointed as Associates of C3 then in future we should also be able to list their publications in our Annual and Triennial Reports. This will then bring us closer to viewing the total published research output of the international history of astronomy community.

2.3 The C3 Newsletter

In 2020 Commission Secretary, Sara Schechner (see Figure 7), produced two attractive-looking C3 Newsletters (both exactly 57-pages long) packed with information and illustrations. Here is the Contents listing of the first of these Newsletters:

- Commission and Working Group Reports
- C3 Organising Committee for 2018–2021
- IAU Commission C3 Progress Report



Figure 6: Chairpersons of C3 Working Groups and Project Groups. Clockwise, from top left: Steve Gullberg (USA), Duane Hamacher (Australia), Richard Schilizzi (England), B.S. Shylaja (India), Tom Hockey (USA), Jennifer Bartlett (USA) and Terry Mahoney (Spain). Other listed Project Group Chairpersons, Wayne Orchiston (Thailand) and Sara Schechner (USA), are shown in Figure 7 (all photographs from web sites or supplied personally).

- Reports of Working Groups and Project Groups
- Biographical Encyclopedia of Astronomers III
- Awards and Honors
- News from Members
- In Memoriam
- Notable Publications
- Journal Contents
- Upcoming Conferences and Calls for Papers
- Conference Reports

With impeccable timing, a third Newsletter was issued at the end of August 2021, just as the triennium ended. This introduced new sections such as “Making History” (which contained reports of ongoing historical projects such as AstroGen and breaking news about the rescue of a medieval astronomical manuscript), “Oral History” (which had a first-hand account of the founding of the *Journal of Astronomical History and Heritage*), and “Art & Exhibitions”.

3 C3 WORKING GROUPS

The IAU Division C Steering Committee approved the formation of three C3 Working Groups (WGs), namely

- Archaeoastronomy and Astronomy in Culture (Inter-Commission C1-C3-C4 WG)
Chair: Steven R. Gullberg
- Ethnoastronomy and Intangible Heritage (Inter-Commission C1-C3-C4 WG)
Chair: Duane Hamacher
- Historical Radio Astronomy (Inter-Union (URSI), Inter-Division B4-C3 WG)
Chair: Richard Schilizzi

The chairpersons of these WGs are shown in [Figure 6](#). Unfortunately, our Johannes Kepler WG, which began life in 2009 and had made excellent progress in the interim, was not approved, and as indicated above, the three C3 WGs that were approved ended up as inter-Commission WGs.

Given the wide-ranging nature of the research conducted by members of our Commission (as discussed in Section 2.2, above), WGs can be used effectively to optimize research outputs. Indeed, we believe that WGs were a key factor in the success of C3 and its predecessor C41 for more than two decades (see [Orchiston, 2019](#)).

The three approved C3 WGs were successful in fostering research and publications, organizing meetings, and maintaining up-to-date lists of publications in their respective fields following the Vienna IAU GA. We hope to publish Triennial Reports of these WGs later this year in this journal.

4 C3 PROJECT GROUPS

Given the restricted number of C3 WGs, we decided to form the following C3 Project Groups (PGs) in order to facilitate research projects and international collaborations at a Commission level:

- Asian Astronomy, chaired by Wayne Orchiston and B.S. Shylaja
- Biographical Encyclopedia of Astronomers, Third Edition, chaired by Tom Hockey and Jennifer Bartlett
- Historical Instruments, Archives, and Observatories; chaired by Sara Schechner
- Johannes Kepler, chaired by Terry Mahoney.

The chairpersons of these PGs are shown in [Figures 6 and 7](#).

We hope that progress reports from these PGs, including up-to-date lists of publications, will be published in future issues of this journal.

5 THE IUHPST

IAU Commission C3 is the IAU liaison for a joint commission with the IUHPST—the Inter-Union Commission for History of Astronomy (ICHA). The IUHPST holds International Congresses every four years. During our IAU Triennium, the next IUHPST Congress was scheduled for Prague (Czech Republic) from 25 to 31 July 2021, but because of COVID-19 it ended up as an e-conference.

Unlike the IAU situation where the limited General Assembly meeting slots are hotly contested and C3 is usually marginalised, the IUHPST requires that each of its Commissions hosts at least one research Symposium at each Congress. Consequently, the ICHA combined with the IUHPST Commission on the History of Ancient and Medieval Astronomy (CHAMA) to organize and co-sponsor a Symposium on “Art, Image, and Astronomical Knowledge” in Prague. This contained 20 papers, and was run over two days. The IUHPST also provided some funding that the ICHA (through Commission C3) was able to distribute to early career astronomers and graduate students to defray the costs of attending this meeting and others on history of astronomy.

6 INTERNATIONAL AWARDS FOR C3 MEMBERS

During the Triennium, C3 members received their fair share of international awards. Commission Secretary Sara Schechner (see [Figure 7](#)) received the 2018 LeRoy E. Doggett Prize for Historical Astronomy from the American Astronomical Society. Awarded biennially to an individual who has significantly influenced the field of history of astronomy through a career-long effort, it is the most prestigious prize internationally in the discipline. Sara was the first woman to receive this award. Then in 2019 she was the recipient of the Paul Bunge Prize from the Hans R. Jenemann-Stiftung, Gessellschaft Deutscher Chemiker (German Chemical Society), and Deutsche Bunsen-Gesellschaft für physikalische Chemie (German Bunsen Society for Physical Chemistry) for her curatorial work and research concerning historical scientific instruments.

Virginia Trimble ([Figure 7](#)) received the 2019 Andrew Gemant Award from the American Institute of Physics for her contributions to physics.

C3 President, Wayne Orchiston, along with his former US graduate student Dr Stella Cottam, received the 2019 Donald E. Osterbrock Book Prize from the Historical Astronomy Division and the American Astronomical Society for their 2015 Springer book, *Eclipses, Transits and Comets of the Nineteenth Century: How America’s Perceptions of the Skies Changed* (see [Figure 7](#)).

The 2021 Osterbrock Prize recognized the work of C3 Organising Committee member Ileana Chinnici. Her award-winning book was *Decoding the Stars: A Biography of Angelo Secchi, Jesuit and Scientist* (Brill, 2019) (see [Figure 7](#)).

In 2020, the following C3 members were elected inaugural Fellows of the American Astronomical Society: Jennifer Bartlett, Brenda Corbin, David DeVorkin, Steven Dick, Terry Oswalt, Jay Pasachoff, Iain Reid, Sara Schechner, Patrick Seitzer, Woodruff Sullivan and Virginia Trimble. Some of these people are shown in [Figures 1, 5, 6 and 7](#).

7 FOND FAREWELLS

We are sad to report that since the Vienna GA we have lost the following C3 members: James Caplan (1942–2020, France), A.E.L. Davis (1929–2020, England), Alexander Gurshtein (1937–2020; Russia and USA), William Liller (1927–2021; USA and Chile), Yukio Ôhashi (1955–2019, Japan) and

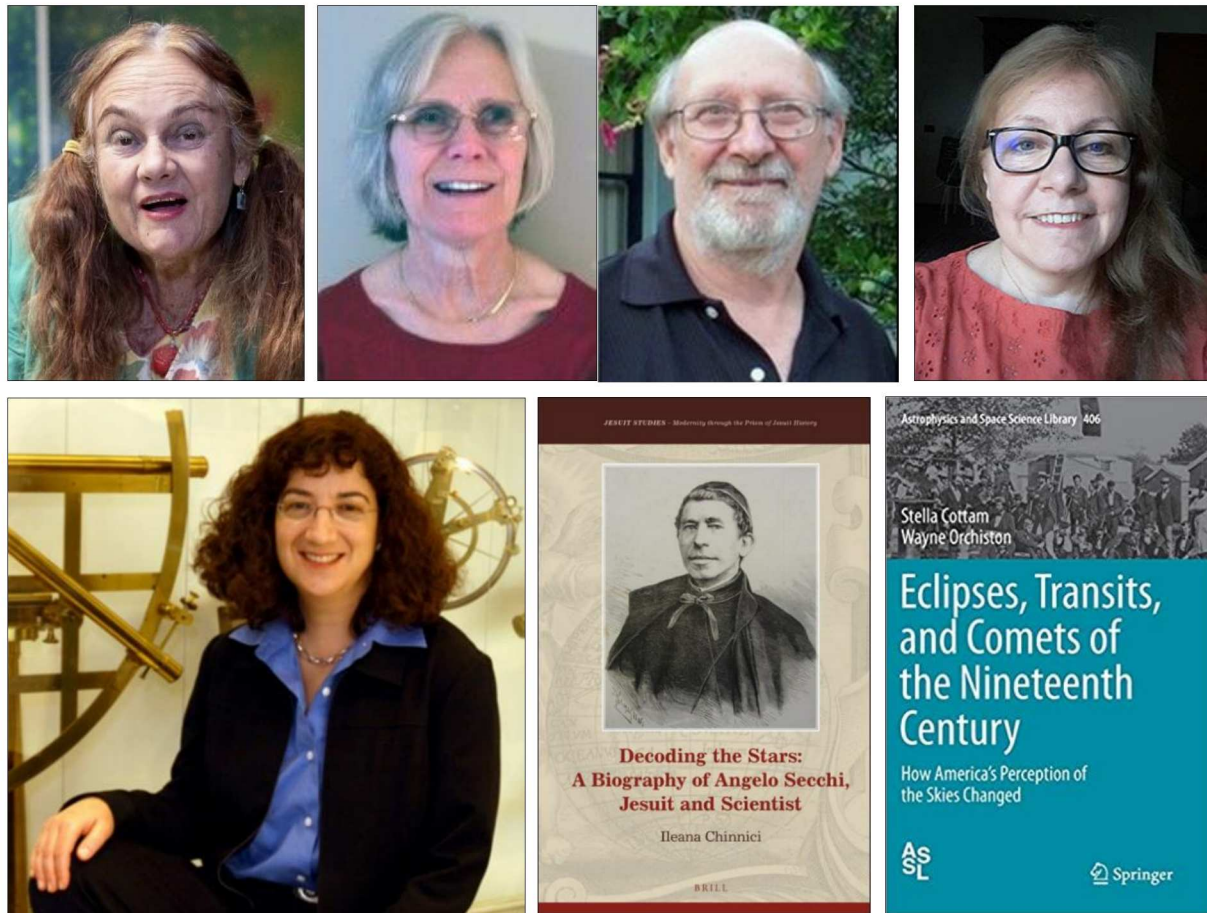


Figure 7: Recipients of awards during 2018–2021 and the two books awarded the 2019 and 2021 Donald E. Osterbrock Book Prizes. Clockwise, from top left: Virginia Trimble; Stella Cottam and Wayne Orchiston; Ileana Chinnici; the two book covers; and Sara Schechner (all images from web sites).

Tiberiu Oproiu (1939–2020, Romania). Dr Davis was one of the Vice-Chairpersons of the Johannes Kepler WG; Professor Gurshtein was a former President of Commission C41; while Dr Ôhashi arguably was the world's foremost authority on the history of Asian astronomy (Orchiston and Nakamura, 2020).

8 CLOSING REMARKS

Despite restrictions caused by COVID-19 and the long delay in forming Working Groups, our Commission was able to make some progress during the Triennium, as reflected in the lists of books and research papers published by C3 members, symposia organized and supported, and the activities of the Working Groups and Project Groups.

The incoming President of Division C for the 2021–2024 Triennium, Professor Richard de Grijs, supports education, outreach, history and heritage. Richard is a member of C3, has published a book on nautical astronomy (de Grijs, 2017), and has nine papers listed below in Section 10.2. He is also an Associate Editor of the *Journal of Astronomical History and Heritage*, which maintains close links with Commission C3. We hope all this augurs well for the future of Commission C3.

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10 PUBLICATIONS BY C3 MEMBERS

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