

COMMISSION 41: HISTORY OF ASTRONOMY & THE INTER-UNION COMMISSION FOR HISTORY OF ASTRONOMY (ICHA)

(*HISTOIRE DE L'ASTRONOMIE*)

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1. Formation of the Inter-Union Commission for History of Astronomy (ICHA)

One of the most important developments during the triennium was the formation, in 2001, of the ICHA by the International Astronomical Union (IAU) and the Division of History of Science of the International Union for History and Philosophy of Science (DHS/IUHPS). This international body represents the interests of *all* professional historians of astronomy worldwide, and encourages research, facilitates communication between researchers, organizes scientific meetings, undertakes collaborative projects, and publishes the bi-annual *ICHA Newsletter*. Membership is open to the entire history of astronomy community, and those who are IAU members become full members of the new Commission, while those who conduct their research through the IUHPS become associate members. The inaugural Organizing Committee comprised the OC of Commission 41.

The official establishment of a genuine Inter-Union Commission by the two parent Unions was a major step forward for the history of astronomy community. IAU Commission 41 was founded in 1948, and for decades there was close co-operation between colleagues from this Commission and those associated with the DHS/IUHPS. During the 1970s an attempt was made to have C41 formally recognized as a joint commission of the two Unions, but this initiative was not approved by the IAU. Yet in 1994 the idea was mistakenly promoted that C41 had indeed become “A joint IAU–IUHPS Commission” (IAU Transactions XXII B, p.207) – even though its status was unchanged – and this notion was perpetuated through the 1994 ICSU Handbook (see p.104). Once this fiction of a “Joint Commission” or “Inter-Union Commission” was established, it was accepted without question until the true situation was discovered in late 2000 following the Manchester IAU General Assembly (GA). The quest for a true Inter-Union Commission then became the priority of the C41 Organizing Committee, resulting in the formation of the ICHA in 2001.

For practical purposes, the ICHA and C41 were then treated as a single inter-twined Commission (i.e. C41/ICHA), with a common newsletter and a single web site, and membership of the four Working Groups formed by C41 (see Section 5 below) was opened to all ICHA members.

2. Membership

At the end of the 2000 Manchester GA the total membership of C41 (full members and consultants) stood at 200, but with the founding of the ICHA a proactive membership drive was implemented with the aim of identifying and recruiting active historians of astronomy on a country-by-country basis. In addition to those with more ‘conventional’ historical

interests, attention was paid to those with more specialized research interests, specifically in applied historical astronomy, archaeoastronomy, ethnoastronomy, and the history of radio astronomy. At the time of writing, the membership of the ICHA stood at 648, 49% of whom were IAU members.

Offsetting this substantial increase in overall membership during the triennium were the deaths of the following members: J-P. Cressent (France), N.P. Erpylev (Russia), W. Petri (Germany), C. Ronan (UK), H. von Dechend (Germany), G. Whitrow (UK) and K. Yabuuti (Japan).

3. New Resolutions

At the 2000 Manchester GA the following Type C (Commission) resolutions were approved at the C41 Business Meeting:

(a) Recognizing the historical importance of previous transits of Venus and the numerous transit of Venus expeditions mounted by many countries, and Noting the rarity of the upcoming transits of 2004 and 2012

Commission 41 Recommends that the sites of the previous transit of Venus expeditions be inventoried, marked and preserved, as well as instrumentation and documents associated with these expeditions.

(b) Considering the importance of the contribution of the International Latitude Service to the study of polar motion

Commission 41 Recommends that concerted efforts be made to preserve the buildings and instruments associated with the observatories of the International Latitude Service and predecessor observatories especially the associated geodetic monuments or pillars.

The former resolution led directly to the formation of a Transits of Venus Working Group and its program of research (see below), while the second resolution arose from discussions held in 1999 during IAU Colloquium 178 on "Polar Motion: Historical and Scientific Problems".

4. Research by Members

Members of C41 and the ICHA were particularly active in research during the report period, as the bibliography at the end of this report indicates. However, it is important to remember that this is very much a 'select' listing, and that the total publications by members would exceed this by a factor of 10–20.

Even a cursory examination of the 'Select Bibliography' reveals that members ranged widely in their research projects. Apart from those who focussed on archives, astronomical chronology, historical instruments and transits of Venus – all discussed in more detail in Section 5, below – members researched the history of astronomy for almost all occupied regions of the Earth, and over time-spans that ranged from prehistory right up to the 1990s. Whilst studies involving Babylonian, Egyptian, Greek, Indian, Islamic and Carolingian astronomy are in evidence (e.g. see entries for DeYoung, Eastwood Evans, Goldstein, Hetherington, Kak, King, Sarma, Steele and Swerdlow), some chose to focus on individual astronomers, including luminaries like Copernicus (Goldstein 2002; Lerner 2000) and Kepler (Jardine & Segonds 1999; Voelkel 1999), and more recent notables such as the Cassinis (Débarbat & Dumont 1999), Clerke (Brück 2002), Russell (DeVorkin 2000) and Tinsley (Eisberg 2001).

The emergence and development of astrophysics preoccupied some colleagues (e.g. Hearnshaw 2000; Osterbrock 2001), while others addressed aspects of cosmology (e.g. see Martínez & Trimble 2001). Becker (2000), Henschel (1999) and Marriott (1999), amongst others studied aspects of solar astronomy. More unusual were S. Dick's historical perspectives on the search for extraterrestrial intelligence, and Sheehan & Osterbrock's (2000) foray into astro-psychiatry. In contrast, many members carried out archaeoastronomical or ethnoastronomical research, whilst F.R. Stephenson and his colleagues used applied historical

astronomy to investigate contemporary astronomical issues. Several members researched the early history of radio astronomy history, particularly in Australia and the USA (e.g. see Orchiston & Slee 2002).

In addition to their on-going research programs, many ICHA members contributed essays for the *Biographical Encyclopedia of Astronomers*, edited by T. Hockey and to be published by Kluwer in 2004. C41/ICHA strongly supports this landmark project, and President, F.R. Stephenson, will contribute the Foreword.

5. The Working Groups

Introduction

There are four different C41/ICHA Working Groups (WGs), three of which were established at the 2000 Manchester GA. All of the WGs were active during the triennium, and information relating to their work programs is presented below.

Archives WG

This WG was established by Commissions 41 and 5 at the 1991 IAU General Assembly, primarily in order to register historically-important extant astronomical archives and encourage their preservation, conservation, cataloguing and documentation. On-going work by WG members was reported at Special Sessions held at the 1994 and 2000 GAs.

During the triennium, members of the WG were involved in documenting and researching individual astronomical archives in various countries, resulting in a number of publications, two of the most notable being Gingerich (2002) and Chinnici & Gramatowski (2001). Work continued on the preparation of national inventories for Australia, France, Germany, India, Italy, Japan, New Zealand, Russia, the UK and the USA. Several members of the WG participated in the July 2002 Conference on "Astronomical Instruments and Archives from the Asia-Pacific Region", held in Cheongju, Korea, and presented papers, while a half-day 'Special session' on archives was held at the 2000 Manchester GA (see Section 6 for details).

Committee members of this WG are: S. Débarbat (France – Chair), W. Dick (Germany), D. Green (USA), P. Hingley (UK) and W. Orchiston (Australia). Other ICHA members who were involved in archival work included: R. Ansari (India), A. Blaauw (Netherlands), P. Brosche (Germany), I. Chinnici (Italy), B. Corbin (USA), D. DeVorkin (USA), S. Dick (USA), M. Folkerts (Germany), A. Gurshtein (Russia/USA), J. Hamel (Germany), G. Kilambi (India), J-B. Lee (Korea), T. Nakamura (Japan), I-S. Nha (Korea), A. Perkins (UK), E. Proverbio (Italy), M. Rothenburg (USA), F. Schmeidler (Germany), K. Snedegar (USA), A. Verdun (Switzerland), and G. Wilkins (UK).

Astronomical Chronology WG

This WG was formed at the 2000 IAU Manchester GA specifically to compile a wide-ranging internationally-approved compendium or text book identifying and documenting the major milestones in the history of astronomy – including key instruments, astronomical phenomena, discoveries and new ideas – that profoundly influenced its development.

There are very serious doubts that such a compendium or a textbook can be compiled in the foreseeable future, so as a first step in this direction members of the WG have been researching the composition of a carefully thought-out chronology. The aim is to produce an acceptable chronological thesaurus, and a memorandum on methodological aspects of the project was written and approved by the WG.

Committee members of this WG are: A. Gurshtein (Russia – Chair), A. Blaauw (Netherlands), T. de Jong (Netherlands) and B. Warner (South Africa). Other active members of the WG were: C. Allen (Mexico), A. Batten (Canada), P. Broughton (UK) and R. Kochhar (India).

Historical Instruments WG

This WG was set up at the 2000 Manchester GA in order to draw up an inventory of internationally-significant astronomical instruments; to assemble a bibliography of existing publications relating to such instruments; and to encourage colleagues to carry out research on historically-significant instruments and publish their results. The WG was also responsible for tracking progress on an IAU resolution about preservation of surviving instruments associated with the measurement of the arc of the meridian made by F.G.W. Struve. This resolution was passed at the 1994 GA in the Hague.

During the report period, members of the ICHA from a range of countries were active in researching historically-significant instruments, and a number of these studies resulted in publications (e.g. see Bennett 2000; Bonoli 1999; Chinnici 2000; Hoskin 2002; Jarrell 1999; Kennedy et al. 1999; Kunitzsch 2000; Nakamura 2002; Orchiston & Slee 2002; Pepin 2002; Sarma 1999; Satterthwaite 2001b; Staubermann 2000; Stautz 1999). In addition, A. Batten continued to liaise with Russian colleagues involved in the Struve arc of the meridian project.

The WG Committee finalized a standardized scheme for the recording of historically-significant instruments, and I-S. Nha and S. Nha established a WG web site¹. Another important WG development was I-S. Nha's initiative in organizing the Conference on "Astronomical Instruments and Archives from the Asia-Pacific Region", which was held in Cheongju, Korea, in 2002 July.

Committee members of this WG are: I-S. Nha (Korea – Chair), W. Orchiston (Australia) and J. Briggs (USA). Other ICHA members who researched historic instruments included: P. Abrahams (USA), C. Allen (Mexico), D. Andrews (UK), R. Ariail (USA), A. Batten (Canada), O. Beckman (Sweden), H. Beez (Germany), T. Bell (USA), J. Bennett (UK), M. Bolt (USA), F. Bonoli (Italy), E. Botez, W. Breyer (USA), R. Brooks (Canada), G. Cameron (USA), I. Chinnici (Italy), G. Clifton (UK), S. Débarbat (France), S. Dick (USA), W. Dolz (Germany), I. Glass (South Africa), Y-H. Hahn (Korea), R. Hambleton (USA), J. Hamel (Germany), K. Hentschel (Germany), M. Hoskin (UK), R. Jarrell (Canada), K. Johnson (UK), I. Keil (Germany), E. Kennedy (USA), D. King (Germany), R. Kochhar (India), P. Kunitzsch (Germany), K. Launie (USA), J-B. Lee (Korea), K. Locher (Switzerland), R. Maddison (USA), A. Maurer (Switzerland), A. McConnell (UK), M. Miniati (Italy), T. Nakamura (Japan), M-H. Nam (Korea), M. Nishiyama (Japan), G. Oestmann (Germany), Y. Ohashi (Japan), T. Oproiu, D. Osterbrock (USA), B. Pepin (USA), L. Pigatto (Italy), P. Plassmeyer (Germany), M. Reynolds (USA), E. Rudd (USA), S. Sarma (India), G. Satterthwaite (UK), S. Schechner (USA), H. Setyanto (Indonesia), P. Shankland (USA), B. Slee (Australia), K. Staubermann (Germany), B. Stautz (Germany), B. Stephenson (USA), F. Turner (UK), D. Warner (USA), G. Wilkins (UK), R. Willach (Switzerland), G. Woldschmidt (Germany), V. Zanini (Italy), and J. Zaun (Germany).

Transits of Venus WG

At the 2000 GA in Manchester this WG was set up in order to inventory, mark and preserve the sites of previous transit of Venus expeditions; research the instruments used at these sites and the observations made; prepare a bibliography of existing publications relating to all transits of Venus; and encourage colleagues to carry out further research and to publish their results.

During the triennium, ICHA members in Australia, Brazil, Canada, Italy, Japan, South Africa, UK, and the USA actively researched various transits and other means of establishing the solar parallax, resulting in a number of different publications (e.g. see Hughes 2001; Orchiston, Love & Dick 2000; Pigatto & Zanini 2001; Schaefer 2001), and the WG Committee prepared a bibliography of post 1989 research papers on transits of Venus. In

¹<http://www.nhamuseum.org/WG>

light of the up-coming 2004 and 2012 transits, a number of popular books were published. One of these was co-authored by an ICHA member (Maunder & Moore 2000), while books by two other members, Chauvin and Sheehan, are due for release in 2003.

Committee members of this WG are: W. Orchiston (Australia – Chair), S. Dick (USA), A. Gurshtein (Russia), R. Kochhar (India) and L. Pigatto (Italy). Other ICHA members who actively researched transits of Venus and other methods of determining the astronomical unit included: M. Chauvin (USA), J. Downes (UK), H. Duerbeck (Germany), D. Fernie (Canada), M. Freitas (Brazil), P. Hingley (UK), D. Hughes (UK), W. Koorts (South Africa), P. Moore (UK), B. Schaefer (USA) and W. Sheehan (USA).

Concluding Remarks

Meetings of all four WGs are scheduled for the July 2003 GA, where WG members and other interested astronomers will be able to report on their work via oral and poster papers.

6. Conferences

Manchester General Assembly

In addition to a business meeting, C41 organized two different history of astronomy sessions at the 2000 Manchester General Assembly. An SOC comprising F.R. Stephenson (UK: Chairman), R. Ansari (India), S. Dick (USA), O. Gingerich (USA), I-S. Nha (Korea), W. Orchiston (Australia), M. Standish (USA), W. Sullivan (USA) and D. Yeomans (USA) arranged a one-day JD6 on “Applied Historical Astronomy”. This was held on August 11, and more than 100 people in attendance heard the following papers: D. Brown (Babylonian observations), F.R. Stephenson (East Asian observations), W. Orchiston (Southern Hemisphere observations), R. Ansari (Practical astronomy in Indo-Persian sources), M. Standish (early observations and modern ephemerides), Y. Kolensik (secular variation of planetary orbital elements), L. Morrison (Ancient eclipses and Earth’s rotation), D. McCarthy (Earth rotation since AD 1600), D. Yeomans (Creating modern cometary models using ancient Chinese data), M. Bailey (Historical variability of the interplanetary complex), D. Hoyt (Early telescopic sunspot records), D. Hughes (Recorded long-period comet fluxes as an indicator of historic astronomical activity), D. Willis (Scientific interpretation of historical auroral records), D. Green (Remnants of historical supernovae), with a final overview by W. Sullivan. Poster papers were prepared by J. Brooke et al., K. Churyumov, D. Jones, A. Korsun and M. Stavinschi.

On August 16 a C41 Special Session on “Inventory and Preservation of Astronomical Archives, Records, and Artefacts” was organised by S. Dick as part of a DHS/IUHPS initiative to encourage the preservation and inventory of scientific archives in general. The following papers were presented in this half-day meeting: A. Blaauw (The inventory of IAU archives, and the ESO archives), P. Hingley (Royal Astronomical Society Library and Archives), G. Wilkins (Norman Lockyer Observatory archives), S. Débarbat and J-P. Cressent (“Alidade” and the iconographic base for the astronomical archives preserved in France), W. Dick (German archives), A. Verdun (Status of the Euler edition and archives), A. Gurshtein (Russian archives), B. Corbin and D. Coletti (Preservation and digitization of observatory publications), W. Orchiston (Inventory and preservation of archives and historical instruments in Australia and New Zealand), I-S. Nha (The Nha Il-Seong Museum of Astronomy) and R. Ansari (Archives in India). In addition, I. Hasegawa summarized T. Nakamura’s paper on astronomical archives in Japan.

“Astronomical Instruments and Archives from the Asia-Pacific Region”

The international conference, “Astronomical Instruments and Archives from the Asia-Pacific Region”, held in Cheongju (Korea) between 2002 July 2–5, was the first formal activity of the ICHA and was attended by ~80 astronomers and accompanying guests from

around the world. Sponsored by the City of Cheongju, the Korea Astronomy Observatory and the Ministry of Science and Technology, the conference was held to mark the construction of the new Nha Il-Seong Museum of Astronomy in Cheongju.

A SOC comprising I-S. Nha (Korea: Chairman), F.R. Stephenson (UK: Deputy-Chairman), W. Orchiston (Australia: Secretary), C. Allen (Mexico), S. Débarbat (France), K-Y. Chen (USA), S. Dick (USA), A. Gurshtein (Russia/USA), B. Hidayat (Indonesia), R. Kochhar (India), C-Y. Liu (China), T. Nakamura (Japan) and B. Soonthornthum (Thailand) arranged a program of paper sessions and a business meeting. The LOC, chaired by I-S. Nha, organised tours, visits, a banquet and the conference dinner.

The following presented papers: H. Abt and J. Fountain (Chinese jade serrated disks), C. Allen (The Frisius-Arsenius astrolabe in the National History Museum, Mexico), A. Bandyopadhyay (The famous sun-temple of Konarak (AD 1248) and Maharaja Jai Singh's observatory at Jaipur (AD 1734): examples of outstanding historical astronomical instruments in India), A. Batten (The 1.8-m Plaskett Telescope in Victoria: Canada's historic instrument), J. Briggs (The legacy of George Ellery Hale), S. Débarbat (Korean instruments preserved in the Paris Observatory collections), W. Dick (Mining the internet: online sources for history of astronomy in the Asia-Pacific region), K-W. Fung (The transmission of Georg von Peurbach's *theoricae novae planetarum* (new theory of the planets) in 17th century China), A. Gurshtein (Relevant queries in respect to the ancient Chinese sky), Y-H. Hahn (Geometrical analysis of the 18th century Ganpyeong-gui and Hongae Il-gui Korean horizontal sundials), S. Jochi (Zu Chongzhi's method transmitted into Japan), K-A. Kawabata, K. Tanikawa and M. Soma (TT-UT in the 7th century derived from astronomical records in the Nihongi and the Suisu), I-G. Kim and Y-B. Lee (An astronomical analysis of the 'Fangxing-tu (1711)', an early Western-type star chart in the possession of Haenam Rokwoo-dang in Korea), R. Kochhar (Modern astronomical instrumentation in India, 1651-2002), E-H. Lee and K-Y. Chen (The recorded dates of Far-East calendars), K-C. Leung, Y. Lu, and Y-H. Liu (Astronomy of the Yi ethnic minority of China), C-Y. Liu (Solar eclipse records in the Ming Dynasty), T. Nakamura (Japanese heraldic marks relating to astronomy), I-S. Nha (King Sejong's sundial, *Angbu Il-gui*), Y. Ohashi (Medieval Indian astronomical instruments and archives), W. Orchiston (The rise and fall of the Chris Cross: a pioneering Australian radio telescope), W. Orchiston, J. Chapman, and B. Norris (The ATNF Historic Photographic Archive: documenting the history of Australian radio astronomy), L. Pigatto (Astronomical observations made by Jesuits in Peking during the 17th and 18th centuries), B. Soonthornthum (The solar shadow and city walls of Chiang Mai), F.R. Stephenson (East-Asian records of AD 1054 supernova), F.R. Stephenson (Korean observations of Kepler's supernova), R. Strom (Chinese daytime observations of sungrazing comets), B. Warner (David Gill and the California reflectors). Concluding remarks were presented by R. Strom.

Poster papers were prepared by Y.S. Ahn, Y-B. Lee, Y-S. Lee, and B.S. Han; J-B. Lee and I-S. Nha; Y-B. Lee, I-G. Kim, Y-S. Lee, and G. Oh; Y-S. Lee, S-H. Kim, and M-H. Nam; Y-S. Lee, M-S. Lee, S-H. Kim, Y-B. Lee, and B-Y. Ahn; S. Nha; M. Nishiyama (two); G. Oh; H. Setyanto; S-T. Yi; C. Zhang; and Z. Zhang, and Y. Liu.

The conference proceedings will be edited by S. Débarbat, I-S. Nha, W. Orchiston and F.R. Stephenson.

Sydney General Assembly

A wide-ranging program involving four different Science Meetings (Applied Historical Astronomy, The Early Development of Australian Radio Astronomy, Ethno/Archaeoastronomy, and Recent Research), meetings of all four Working Groups and a Business Meeting has been planned for the 2003 July General Assembly to be held in Sydney, Australia.

Other Conferences

Other conferences attended by ICHA members during the triennium included the annual meetings of the Astronomische Gesellschaft (Germany) and the Antique Telescope Society; the History of Astronomy Division sessions of the annual American Astronomical Society conferences, the 2000 October colloquium to commemorate the 1500th anniversary of Zu Chongzhi, held in Laishui, China; the 2000 October Stewart Museum globe symposium, held in Montreal, Canada; the 2001 July XXIst International Congress of History of Science, organized by the DHS/IUHPS and held in Mexico City; the 2001 July Fifth Biennial History of Astronomy Workshop, held at Notre Dame University, USA; the 2001 August 4th International Conference on Oriental Astronomy, held in Nanyang, China; the 2001 September colloquium on "European Astronomy in the 20th Century", held in Munich, Germany; the 2001 October international symposium on "Tycho Brahe and Prague: Crossroads of European Science", held in Prague, Czechoslovakia; and the 2002 July LISA IV conference, also held in Prague.

7. Newsletters, Journals and Web Sites

With the founding of the ICHA came the new bi-annual *ICHA Newsletter* edited by I. Chinici (Italy), A. Gurshtein (Russia/USA), W. Orchiston (Australia) and F.R. Stephenson (UK), which was launched in 2001 June. Typically ~27 pages in length, this A5 publication contains information about C41 and the ICHA, including obituaries, conferences and GA meetings, the web site, research and publications by members, and the Working Groups. There is also non-C41/ICHA news about history of astronomy societies, exhibitions, internet discussion lists, journals, newsletters, conferences and web sites. In addition to paper copies, the newsletter is available on the Commission's web site (see URL below).

Apart from the *ICHA Newsletter*, ICHA members were also involved in producing other newsletters, and the following history of astronomy journals: *Archaeoastronomy: The Journal of Astronomy in Culture, Culture and Cosmos*, *Journal of the Antique Telescope Society*, *Journal of Astronomical History and Heritage* and *Journal for the History of Astronomy*. In addition, W. Dick and J. Hamel continued to edit the monograph series, *Acta Historica Astronomiae*.

During the triennium, W. Dick continued to maintain and update the C41/ICHA web site², with space kindly provided by P. Brosche. In addition to the *ICHA Newsletter*, this site also contains news of the Commissions, a list of all C41 members, and links to other history of astronomy web sites, including the invaluable one that Dick maintains on behalf of the History of Astronomy Working Group of the Astronomische Gesellschaft.

8. Select Bibliography

Given below are some publications by members of C41 and the ICHA during the report period. A full list would be prohibitively long, so those seeking a more complete bibliography should refer to the listings in the *ICHA Newsletter* and to Ruth Freitag's bibliographies which, until recently, appeared on the Commission's Web site, in the Newsletter of the Historical Astronomy Division of the American Astronomical Society, and in the *Journal of Astronomical History and Heritage*.

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²<http://www.astro.uni-bonn.de/~pbrosche/iaucomm41/>

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