



THE ICHA NEWSLETTER
NEWSLETTER OF THE INTER-UNION COMMISSION FOR
HISTORY OF ASTRONOMY

No. 1 - June 2001

SUMMARY

| | |
|---|----|
| A. The Inter-Union Commission for History of Astronomy <i>by F. R. Stephenson, A. Gurshtein, S. J. Dick, W. Orchiston</i> | 2 |
| B. Commission 41 Meetings at the 2001 IAU General Assembly in Manchester <i>by S. J. Dick, W. Orchiston, W. Dick</i> | 3 |
| C. IAU Commission 41 Report 2000 <i>by S. J. Dick</i> | 8 |
| D. July 2001 IUHPS Mexico City General Assembly | 19 |
| E. History of Astronomy Working Groups <i>by F. R. Stephenson, W. Orchiston</i> | 19 |
| F. History of Astronomy at the July 2003 IAU General Assembly in Sydney <i>by W. Orchiston</i> | 21 |
| G. Publications: | |
| - The Journal of Astronomical History and Heritage <i>by J. Perdrix, W. Orchiston</i> | 22 |
| - History of Cometary Astronomy <i>by W. Orchiston</i> | 23 |
| H. News: | |
| - Colloquium in Commemoration of 1500 th Anniversary for Zu Chongzhi <i>by W. R. Dick</i> | 24 |
| - The Stewart Museum Globe Symposium, Montréal, 19-22 October 2000 <i>by J.F. Gauvin et al.</i> | 24 |
| - Colloquium on "European Astronomy in the 20th Century" <i>by W. R. Dick</i> | 25 |
| - Fifth Biennial History of Astronomy Workshop and Call for Papers <i>by S. J. Dick</i> | 26 |
| - Transit of Venus Conference, 2004 <i>by P. D. Hingley</i> | 26 |
| - Publication of Manchester Papers <i>by F. R. Stephenson, S. J. Dick</i> | 27 |
| - The C41 Web site <i>by W. Dick</i> | 27 |
| - C41 Annual Research Reports <i>by F. R. Stephenson</i> | 28 |
| - Obituary: Winfried Petri <i>by W. Kokott</i> | 28 |

A. The Inter-Union Commission for History of Astronomy

We are very pleased to report the recent formation of the Inter-Union Commission for History of Astronomy (ICHA) by the International Astronomical Union (IAU) and the International Union of the History and Philosophy of Science (IUHPS). The ICHA is an international body representing the interests of *all* professional historians of astronomy worldwide. It encourages research by members, facilitates communication between researchers, organizes scientific meetings, undertakes collaborative projects, and publishes a newsletter. The Union will also prepare recommendations for the IAU and the IUHPS, and liaise with other international organisations.

Membership is open to the entire history of astronomy community. Those who are IAU members become full members of the Commission, while those who conduct their research through the IUHPS become associate members. New members (of either kind) are elected to the ICHA at the triennial General Assemblies of the IAU (the next one is in Sydney, Australia, in July 2003).

The ICHA is governed by an Organising Committee (OC) of ten. The inaugural OC, which is based upon the current OC of IAU Commission 41, comprises:

| | |
|-----------------|--|
| President: | Professor Richard Stephenson (UK: r.stephenson@durham.ac.uk) |
| Vice-President: | Professor Alex Gurshtein (Russia: agurshtein@hotmail.com) |
| Secretary: | Dr Wayne Orchiston (Australia: wo@aaaoepp.aao.gov.au) |
| Members: | Dr Steven Dick (USA: steve.dick@usno.navy.mil) |
| | Dr Wolfgang Dick (Germany: wdi@potsdam.ifag.de) |
| | Professor Rajesh Kochhar (India: rkochhar2000@yahoo.com) |
| | Dr Tsuko Nakamura (Japan: tsuko@cc.nao.ac.jp) |
| | Professor Il-Seong Nha (Korea: SLISNHA@chollian.net) |
| | Professor Woodruff Sullivan (USA: woody@astro.washington.edu) |
| | Professor Brian Warner (South Africa: Warner@physci.uct.ac.za) |

A new OC will be elected at the Sydney General Assembly.

Production of ICHA Newsletters is the responsibility of an Editorial Board elected by the ICHA OC. The following inaugural Editorial Board has been formed: Dr Ileana Chinnici (Italy), Professor Alex Gurshtein (Russia), Dr Wayne Orchiston (Australia) and Professor Richard Stephenson. At this stage, our intention is to distribute two newsletters per year, in June and December.

The establishment of a genuine Inter-Union Commission is 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 IUHPS. During the 1970s an attempt was made to have C41 formally recognised as a joint Commission of the two Unions, but this initiative was unsuccessful. However, this did not stop colleagues from collaborating on a number of important joint projects, including the Greenwich Tercentenary Symposium in 1979, the General History of Astronomy volumes

(1982), and in more recent years (during the 1990s) the international documentation of astronomical archives.

Even though its status was unchanged, in 1994 the idea somehow took hold that C41 had become "A joint IAU-IUHPS Commission" (*IAU Transactions XXIIB*, p.207), and this notion was perpetuated through the 1994 *ICSU Yearbook* (see p.104). Once this fiction of a "Joint Commission" or "Inter-Union Commission" was established, it was subsequently accepted without question by those associated with the IAU and the IUHPS—including the undersigned!

It was only in late 2000 that the true situation was discovered, and the quest for a genuine Inter-Union Commission became a priority of the C41 OC. This proved a daunting task, and one which involved many months of research, consultation and negotiation, never-ending e-mail exchanges, frequent international telephone calls, and even meetings in Paris. As a result, we had to turn our backs on other equally-pressing C41 issues (such as production of our Commission newsletters, and the launch of four new Working Groups), and this largely explains our apparent silence since the August 2000 General Assembly in Manchester. However, all this is now behind us, and under the aegis of the ICHA historians of astronomy worldwide can look forward to an era of unprecedented harmonious co-operation and collaboration.

Professor F. Richard Stephenson (President, ICHA)

Professor Alexander Gurshtein (Vice-President, ICHA)

Dr Wayne Orchiston (Secretary, ICHA)

Dr Stephen J. Dick (ICHA OC Member & Immediate Past President, IAU C41)

B. Commission 41 Meetings at the 2000 IAU General Assembly in Manchester

Commission 41: History of Astronomy/ Histoire de l'Astronomie

President: Steven J. Dick

Vice President: F. Richard Stephenson

Secretaries (Business meeting) Wayne Orchiston, Wolfgang Dick

1. Business Session (Tuesday, August 15, 2000)

1.1 GENERAL

The Commission President S. Dick called the meeting to order at 11:00 hours, August 15 in the Blackett Theatre of Schuster Laboratory at Manchester University. W. Orchiston and W. Dick were appointed Secretaries for the session, and S. Débarbat balloteer for the elections, with Chris Sterken assisting. Of the members of the Organizing Committee, W. Dick, A. Gurshtein, I.-S. Nha, W. Orchiston and W. Sullivan were present, as well as Vice President F. R. Stephenson and Immediate Past President S. M. R. Ansari; E. Proverbio and X. Zezong were unable to attend; 24 others were in attendance and apologies were received from Prof. Warner and Dr.

Haynes. A moment of silence was observed for members deceased since the last General Assembly, including Olaf Pedersen (December 3, 1997), Helen Wright (October 23, 1997), Derek Howse (July 28, 1998), and Heino Eelsalu (July 26, 1998).

President S. Dick reported on highlights of the last triennium. A Commission web site was set up, thanks largely to the efforts of W. Dick. The President issued six Newsletters to Commission members and others. Following up on recommendations at the last GA, the Commission sponsored IAU Colloquium 178 “Polar Motion: Historical and Scientific Problems,” held in Cagliari, Sardinia on September 27-30, 1999. At the time of the General Assembly the 641 page *Proceedings*, edited by S. Dick, D. McCarthy, and B. Luzum had just appeared as volume 208 of the Astronomical Society of the Pacific Conference series. In conjunction with the U. S. Naval Observatory the Commission sponsored an around-the-world time ball drop on New Year’s Eve to usher in the year 2000, involving 20 sites in 8 countries on 6 continents. The event will be repeated for the beginning of the new millennium on January 1, 2001.

W. Orchiston reported on progress of the new *Journal of Astronomical History and Heritage*, which he and John Perdrix launched following the last GA in Kyoto. Five issues had appeared as of June 2000.

For the current GA, F. R. Stephenson and S. Dick organized Joint Discussion 6 “Applied Historical Astronomy”, held on August 11 with an audience exceeding 100. A Special Session on Astronomical Archives was to be held August 16. The research of individual Commission members remains strong; highlights are given in the *IAU Transactions*.

1.2 ELECTION OF OFFICERS, NEW MEMBERS AND CONSULTANTS

Elections duly held, taking into account absentee ballots, resulted in the following officers for the 2000-2003 triennium:

| | |
|----------------------------------|---------------------------------|
| <i>President:</i> | F. Richard Stephenson (UK) |
| <i>Vice-President:</i> | Alexander A. Gurshtein (Russia) |
| <i>Immediate Past President:</i> | Steven J. Dick (USA) |
| <i>Organizing Committee:</i> | Wolfgang Dick (Germany) |
| | Rajesh Kochhar (India) |
| | Tsuko Nakamura (Japan) |
| | Il-Seong Nha (Korea) |
| | Wayne Orchiston (Australia) |
| | Woodruff T. Sullivan (USA) |
| | Brian Warner (S. Africa) |

New members of the Commission approved were Peter Brosche (Germany), Mary Brück (UK), Meidong Chen (China PR), Ileana Chinnici (Italy), Brenda Corbin (USA), Teije de Jong (Netherlands), Hilmar W. Duerbeck (Germany), Daniel Green (USA), Won-Yong Han (Korea), André Heck (France), Bambang Hidayat (Indonesia), Masanori Hirai (Japan), Nguyen Dinh Huan (Viet Nam), Siek Hyung (Korea), Bozidan Jovanovic (Yugoslavia), Francoise Launay (France), Eun-Hee Lee

(Korea), Kurt Locher (Switzerland), Tsuko Nakamura (Japan), Bjorn Pettersen (Norway), Theodore Rafferty (USA), Clive Ruggles (UK), Lutz Schmadel (Germany), B. Soonthornthum (Thailand), Helmut Steinle (Germany), Chris Sterken (Belgium), Andreas Verdun (Switzerland), Hitoshi Yamaoka (Japan), George Wilkins (UK) and Endre Zsoldos (Hungary).

New consultants elected were Jean Pierre Cressent (France), Lu Dalong (China), Klaus-Dieter Herbst (Germany), Peter Hingley (UK), Raymond Mercier (UK), M. Nam (Korea), S. R. Sarma (India), Gilbert Satterthwaite (UK), William Sheehan (USA), and John M. Steele (UK).

Consultants reelected were James A Bennett (UK), Katherine Bracher (USA), James Evans (USA), Ruth Freitag (USA), Alexander Jones (USA), E. S. Kennedy (USA), David A. King (Germany), Stephen McCluskey (USA), V. N. Sharma (India), B. G. Sidharth (India), Joseph Tenn (USA), Benno van Dalen (Netherlands), Thomas R. Williams (USA), Yaroslaw Wlodarczyk (Poland), and Michio Yano (Japan).

The total membership of the Commission, including new members, stands at 179, plus 27 consultants.

1.3 RESOLUTIONS

On behalf of Alan Batten, the President presented a report relating to the preservation of the sites involved in measuring the Struve arc of the meridian, and their designation as World Heritage Sites, following up a resolution passed at the Hague G.A. in 1994. The meeting asked the President to convey its thanks to Dr. Batten for his continuing efforts. President Dick also reminded members of the long-standing IAU resolution on the preservation and inventory of archives; the special session at this G.A. is meant to regain momentum on this resolution.

New Commission resolutions unanimously approved include the following:

1) 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.

2) From IAU Colloquium 178 “Polar Motion: Historical and Scientific Problems” the following resolution was forwarded and approved regarding the International Latitude Service Buildings and Instruments:

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.

1.4 SYDNEY GENERAL ASSEMBLY PLANS, 2003

There was general agreement that Commission 41 should be involved in a Symposium in Sydney, that it should be the chief sponsor of a Joint Discussion, as well as hold the usual business meeting and special meetings of the Commission focusing on specific subjects, perhaps related to its working groups. It was noted that the transits of Venus would be a particularly timely subject.

1.5 RELATION OF IAU COMMISSION 41 TO IUHPS

For many years Commission 41 has been viewed as a “Joint Commission of the IAU and IUHPS”. Professor Ansari provided some clarification of this relationship as an active member of both organizations, and Prof. Gurshtein offered some elaboration. It is important that the two organizations cooperate for the benefit of both historians (which predominate in the IUHPS sessions) and astronomers (which predominate in IAU Commission 41). After some discussion the matter was referred to the incoming OC for further deliberation as to how communication and cooperation could be maximized.

Professor Ansari noted that the IUHPS will meet in Mexico City July 8-14, 2001; of special interest is a session “Astronomical Heritage of non-European Cultural Areas.”

1.6 OTHER BUSINESS

- 1.6.1 Working Groups. The Commission decided to establish the following Working Groups at the Commission level: Archives, Astronomical Chronology, Historical Instruments, and Transits of Venus. Each would have a chairperson and a clearly defined program of work for the next 3 years.
- 1.6.2 Status of Commission 41. By unanimous vote the Commission reaffirmed the following statement from the Kyoto G. A.: “History of astronomy is a discipline that overarches the entire field of study of the IAU, and therefore should not be confined to one Division. We wish to remain a separate Commission until such time as we can become a separate History of Astronomy Division.”
- 1.6.3 Vote of thanks. On behalf of Commission members, Dr. Orchiston moved a vote of thanks to Dr. Dick for his efforts as C 41 President during the past three years.

The meeting was adjourned at 12:45 PM.

2. Scientific Sessions

2.1 JOINT DISCUSSION 6 (Friday, August 11, 2000)

Friday, August 11 was devoted to JD 6 “Applied Historical Astronomy.” Participating were Commissions 4 (Ephemerides), 19 (Rotation of the Earth) and 20 (Positions and Motions of Minor Planets, Comets and Satellites), and supporting were

Division I (Fundamental Astronomy), Division II (The Sun and Heliosphere), and Division III (Planetary System Sciences).

More than 100 people in attendance heard wide-ranging papers on Babylonian observations (D. Brown), East Asian observations (F. R. Stephenson), Southern Hemisphere observations (W. Orchiston), Practical astronomy in Indo-Persian sources (S. M. R. Ansari), Early observations and modern ephemerides (E. M. Standish), Secular variation of planetary orbital elements (Y. B. Kolensik), Ancient eclipses and the Earth's rotation (L. V. Morrison), Earth orientation since AD 1600 (D. D. McCarthy), Creating modern cometary models using ancient Chinese data (D. K. Yeomans), Historical variability of the interplanetary complex (M. E. Bailey), Early telescopic sunspot records (D. V. Hoyt), Recorded long-period comet fluxes as an indicator of historic astronomical activity (D. W. Hughes), Scientific interpretation of historical auroral records (D. M. Willis), and Remnants of historical supernovae (D. A. Green). A final overview was given by W. T. Sullivan.

Poster papers included Exiguus: The Father of the Christian Era (M. Stavinschi), History of cometary exploration at Kyiv University (K. I. Churyumov), Akademische Sternkarten, Berlin 1830-59 (D. Jones), History of Astronomy in Ukraine (A. Korsun), and Sunspot records: 1853 – 1996 (J. M. Brooke et al.).

2.2 INVENTORY AND PRESERVATION OF ASTRONOMICAL ARCHIVES, RECORDS, AND ARTIFACTS (Wednesday, August 16, 2000)

The inventory and preservation of archives has been a long-standing concern of Commission 41. One of the purposes of this session was to serve as input to the Working Group on Archives reactivated at this meeting, by gaining insight into what is being done in individual countries, where progress is being made thanks to individual and institutional efforts. At the same time, the session is part of an IUHPS initiative to encourage preservation and inventory of scientific archives in general.

The session was chaired by S. Dick, and included Adriaan Blaauw (Netherlands) on the Inventory of IAU Archives, and the ESO Archives; Peter Hingley (UK) on the Royal Astronomical Society Library and Archives; George Wilkins (UK) on the Norman Lockyer Observatory Archives; Suzanne Débarbat (France) and Jean-Pierre Cressent (France) on "Alidade" and the iconographic base for astronomical archives preserved in France; Wolfgang Dick (Germany) on German Archives; Andreas Verdun (Switzerland) on the Status of the Euler Edition and Archives; Alexander Gurshtein (Russia) on Russian Archives; Brenda Corbin (USA) and Donna Coletti (USA) on Preservation and Digitization of Observatory Publications; Wayne Orchiston (Australia) on Inventory and Preservation of Archives in Australia and New Zealand; Il-Seong Nha (Korea) on The Nha Il-Seong Museum of Astronomy; S. M. R. Ansari (India) on Archives in India. Prof. Hasegawa summarized T. Nakamura's paper on Astronomical Archives in Japan.

Also mentioned was the importance of the International Catalog of Sources of the American Institute of Physics, Center for the History of Physics.

Prof. Blaauw pointed out that his inventory of IAU archives (published in 1999) covers only the years 1919-1970, and that efforts should be made to ensure that the

IAU archives since 1970 are also preserved and inventoried. This problem should be taken up by the Working Group on Archives, as should the general problem of building on this session to ensure the worldwide preservation and inventory of archives.

Steven J. Dick, Wayne Orchiston, Wolfgang Dick

C. IAU Commission 41 Report 2000

Commission 41: History of Astronomy/ Histoire de l'Astronomie

President: Steven J. Dick

Vice President: F. Richard Stephenson

Organizing Committee: S. M. R. Ansari, Wolfgang Dick, Alex Gurshtein, Il.-S. Nha, Wayne Orchiston, Edoardo Proverbio, Woodruff T. Sullivan, Xi Zezong

GENERAL ACTIVITIES OF THE COMMISSION

The membership of the Commission, as of its 50th anniversary in 1998, stands at 146 members and 19 consultants. In order to increase communications, during the report period the President issued six Newsletters to Commission members, consultants, and IAU officers. In a further attempt to increase communications, Commission 41 also instituted a web site (<http://www.astro.uni-bonn.de/~pbrosche/iaucomm41/>) in early 1998. This was largely due to the efforts of C41 Organizing Committee member Wolfgang Dick and the kindness of Prof. Peter Brosche in supplying space. The site not only contains the Newsletters, meeting notices, and a list of members, but also the Bibliography on History of Astronomy, compiled by Ruth Freitag of the Library of Congress in Washington, D.C. The site also links to the history of astronomy site maintained for several years by the History of Astronomy Working Group of the Astronomische Gesellschaft, and now also maintained on behalf of Commission 41. These sites serve not only for better communication among Commission members, but also the broader history of astronomy community.

Slow progress was made on resolutions of previous General Assemblies. On the issue of preserving the sites associated with the Struve arc, Alan Batten represented Commission 41 at the Federation Internationale des Géomètres (International Federation of Surveyors) General Assembly in Brighton, U.K. On the issue of archives, Commission 41 joined an initiative of the Commission on Bibliography and Documentation of the Division of History of Science of the International Union of the History and Philosophy of Science. The goal is to make the scientific community more aware of the importance of preserving contemporary scientific archives. With his article on "The Royal Astronomical Society's Library and Archives", Peter Hingley, Librarian of the RAS, inaugurated a series of articles in the Commission 41 Newsletter on archives.

Work continued, albeit very slowly, on the *General History of Astronomy*, a long-term project of Commission 41. Volumes 2A and 2B, *Planetary Astronomy from the Renaissance to the rise of Astrophysics*, edited by Taton and Wilson, were published in 1989 and 1995, while volume 4A, *Astrophysics and Twentieth-Century Astronomy to 1950*, edited by Gingerich, was published in 1984. Work continues on Volume 3, *Stellar Astronomy, Instrumentation and Institutions from the Renaissance to the Mid-Nineteenth Century*, edited by Hoskin, and on volume 4B edited by Gingerich. A new editor is being sought for volume 1, *Antiquity to the Renaissance*.

In celebration of the year 2000 and the Millennium in 2001, Commission 41 joined with the U. S. Naval Observatory in sponsoring an around-the-world time ball drop on New Year's Eve for both years. Beginning in 1829 in Portsmouth, 1833 in Greenwich, and 1845 in the United States, time balls were historically an important means of visual time dissemination, and therefore an important part of the history of practical astronomy and navigation. At the beginning of the century, 19 were being dropped in the United States alone. As the new year sweeps around the world in 2000 and 2001, participants were expected to drop time balls at midnight local time in New Zealand, Australia, South Africa, India, Sweden, the United Kingdom, New York City Times Square, and Washington, D.C. The drops were to be timed via the Global Positioning System, for which the U. S. Naval Observatory provides the time.

At the General Assembly in Kyoto, Commission 41 sponsored Joint Discussion 17 on "History of Oriental Astronomy"; details are reported in the IAU *Highlights* for the meeting. A good deal of effort was spent during the report period organizing IAU Colloquium 178 on "Polar Motion: Historical and Scientific Problems", sponsored by Commission 41. The meeting, first suggested by Edoardo Proverbio at the Kyoto General Assembly, was held in Sardinia in September, 1999 on the occasion of the centennial of the first observations of the International Latitude Service. At the General Assembly in Manchester, Commission 41 is also sponsoring a Joint Discussion on "Applied Historical Astronomy", with F. R. Stephenson as chair of the SOC.

Among other International meetings in which Commission members participated were the Spring meeting of the Astronomische Gesellschaft on the occasion of its 200th anniversary, May 11-15, 1998, held in Gotha, Germany; the 1200th anniversary of Alfraganus, held in Uzbekistan, October 23-24, 1998; the Third International Conference on Oriental Astronomy, held in Japan, October 27-30, 1998; and the Fourth Biennial History of Astronomy Workshop at Notre Dame, Indiana, July 1-4, 1999.

Member deaths during the period included Heino Eelsalu, Derek Howse, Olaf Pedersen, and Helen Wright.

RESEARCH OF COMMISSION MEMBERS

This section is arranged geographically according to research location; of course, history of astronomy is a cross-cultural activity that knows no geographical bounds. The section is based on information provided by members, and represents only a sample of the full work of Commission 41 members. Full references to work

mentioned here are given in the Select Bibliography at the end of this report, or in the Bibliography compiled by Ruth Freitag, posted at the Commission 41 Web site.

China and Far East

Prof. Dr. Liu Ci-Yuan, Shaanxi Observatory, Lintong, Shaanxi, President of Commission on History of Astronomy of the Chinese Astronomical Society, reports that research in history of astronomy is active in China, where astronomy has flourished for thousands of years. The "Xia-Shang-Zhou Chronology Project," which attempts to understand a possible solar eclipse event in the early Zhou dynasty (11th-9th century BC), is supported by the government. Liu Ci-yuan and colleagues have a number of papers in press on the records of solar eclipses in the Ming Dynasty (1368-1644 AD). Z. Weifeng at Shantou University has been working on research and analysis of ancient records of novae and comets in China, the relation between solar activity and climate, and the general reliability of ancient astronomical records of China. In addition, Professor Jiang Xiaoyuan reports that the first Chinese Department for the History and Philosophy of Science was established in March 1999 at the Shanghai Jiao Tong University. Numerous ancient astronomical records survive in China, and many experts work on them full or part time. Because of the language barrier, this research is often unknown, but the Chinese express hope that this can change in the near future. Commission 41 should do all it can to help realize this hope.

Il-Seong Nha, retired from Yonsei University, Seoul, Korea, and now honored as Professor Emeritus, has overseen the construction of a new museum in Yecheon Prefecture. The museum exhibits astronomical works available in Korea, China, Japan and other regions of the Far East, serves the public with written material for the study of the history of Oriental astronomy, and operates a 40-cm reflecting telescope for professional and amateur research. A long-term project is the reconstruction of King Sejong's instruments, made in the 15th century.

India

Ansari and Pingree have been actively engaged in research on medieval India. For the first time, Ansari (1997a) has introduced unique astronomical manuscripts (in Arabic and Persian) of the Oriental Collection of the Salar Jung Museum (Hyderabad). These include a Commentary on al-Khâzîni's Zîj [astronomical tables] by Shîrwan Shah, dated 1166 AD; Zij-i Qutbî which is based on Zîj-i 'Ala'i and several Zîjes written in Deccan, which are translations of Sanskrit Siddhântas. In the category of theoretical astronomy, he enumerates particularly works of al-Tûsî, Birjandî, etc., and a commentary on an abridgement of Ibn Shâtîr's Zîj.

A noteworthy work is the promotion of astronomy during 15th -18th centuries by Indian Sultans and Mughal emperors (Ansari 1997c). Besides several commentaries on standard works of Central Asian astronomers, a couple of Zîjes had been compiled and dedicated to the Indian Sultans/Emperors. Of note is the Zîj-i Muhammad Shâhî (ca 1730) in which Phillipe de La Hire's Tables have been adapted in the style of Central Asia. The recent papers of Pingree (1997,1999) follow the translation of de La Hire's Tables into Sanskrit sources. Ansari (1997 b) has

discovered several manuscripts in Persian by Medieval Indian scholars, who attempted to transmit modern European astronomy into India. For the transfer of European astronomy to China, Japan and India, see also the comparative study of Ansari (1998 b).

Much work has been done in the history of astronomy in the ancient period of Indian history, using Sanskrit sources. Chatterjee (1997b, 1998) -- an expert on calendaric astronomy -- has discussed the calendars of Indonesian Bali and also that of Burma. But his major work is the thorough study of the controversy regarding the beginning of the Kâlî era of Indian Yûgâ astronomy, which is usually taken as Feb.26-27, 3102 BC. He argues also for three other possibilities, namely, Jan. 18-19, March 18-19 and April 16-17, as the beginning of the Kâlî era (Chatterjee, 1997a). In the same vein are also the series of papers by Hari (1997, 1998 a, b; 1999), dealing with the mathematical rationale of the Yûgâ system, and of the extra-long sidereal and the solar years of the ancient Indian Siddhântic astronomy. Hari theorises also that the origin of the zero-point of the Indian sidereal astronomy/zodiac is to be sought in the Hindu astrology, particularly the philosophy of Tantra. In Indian practical astronomy there is the very exhaustive mathematical study of Padmânabha's Sanskrit treatise on the astrolabe, written in 1423 AD (Ohashi, 1997) and the first ever Sanskrit treatise on astrolabe by Mahendra Sûrî, written in 1370, and on his followers (S. R. Sarma, 1999). Ohashi (1998) has also published his studies on the Indian cylindrical sundials, described in a few Sanskrit texts of 15th-16th centuries, with their English translation and modern commentary. Finally, we record here the text edition of the most significant Indian work: *The Astronomical Treatise of Nîlakantha Sômayaji* (1444-1545), along with two commentaries by the famous Indologist K.V. Sarma, with English translation by Narasimhan (Sarma, K.V. et al ,1998, Narasimhan, 1999).

Research carried out in history of astronomy and astrophysics of modern India may be found in the *Indian Journal of History of Science*. At the conclusion of the meeting "Indian Astronomy Through the Ages", held in Hyderabad on October 13, 1997, the much awaited Indian Society for the History of Astronomy (ISHA) was formed, with S. M. R. Ansari as President and B. G. Sidharth as Secretary. The Society will promote research in all aspects of the history of astronomy in general, and Indian and Asian astronomy in particular.

Russia

After the collapse of the USSR, a large-scale project to compose a realistic history of astronomy in Russia was successfully fulfilled under the aegis of Academician V.V.Sobolev (1915-1999) of St. Petersburg and Dr. A. A. Gurshtein of Moscow. The late Academician V. V. Sobolev served as the editor-in-chief. The coordinator of the project was Prof. A. K. Kolesov, of St. Petersburg University. This new historical narrative was performed without the ideological prejudice common for previous historical writings in the former Soviet Union. The result of this project has just been published as a collective monograph *The History of Astronomy in Russia and the USSR*, with fourteen authors. Janus-K Publishers issued the book in Moscow

in 1999. The volume is in Russian and contains 592 pages. The circulation of the book is 1,000 copies. It is the most reliable source to check the historical development and accomplishments of Russian and Soviet astronomy.

The disciples of the well-known Soviet astronomer I. S. Shklovsky completed another important historical project, a new edition of Shklovsky's book *Intelligence, Life, Universe*. The title is a paraphrase of the famous Shklovsky treatise *Universe, Life, Intelligence*, originally published by the Soviet Academy of Sciences in 1962. In 1966 it was translated into English under the title *Intelligent Life in the Universe*. The new book includes a collection of memoirs of his sixty disciples and colleagues from both Russia and abroad. The book was issued at the end of 1996.

Gurshtein has continued his large-scale project in the field of archaeoastronomical analyses of the genesis and evolution of the archaic constellations. Besides publications in Russian, his current results were published in a number of English-language presentations. Gurshtein and colleagues in Russia performed a broad circle of new archaeoastronomical investigations. They were published in two thematically oriented issues of *Astronomical and Astrophysical Transactions* (Vols. 17 and 19, 1998 and 1999), the English-language Russian magazine published by Gordon and Breach Science Publishers. The most noticeable achievement in this field is the publication of the *Transactions* of the international conference held in the Shternberg State Astronomical Institute (Moscow University), November 19-24, 1997. The coordinator of the project was Dr. E.N.Kaurov.

Under the editorship of Gurshtein, the Moscow astronomer A.V. Kozenko has issued the book *Arthur Stanley Eddington (1882-1944)* in Russian. D. D. Polojntsev, Pulkovo Observatory, St. Petersburg, has done work on the astronomer Numerov, and on astronomical aspects of an ancient Bolivian monument.

In Moscow, work was completed on the history of the founding of the Institute for Space Research, Russian Academy of Sciences, and scientific investigations within this research institution. The book will be printed at the beginning of the year 2000. Gurshtein has written a chapter on the history of the Department of the Moon and Planets.

Estonia

Izold Pustyl'nik, research associate at Tartu Observatory in Estonia, is working on the scientific legacy of Ernst Öpik. He reports that the paper on the history of astronomy at Tartu by Heino Eelsalu, recently deceased, will appear in the *Journal of Astronomical History and Heritage*.

Europe

During the past three years research in history of astronomy in the Département d'Astronomie fondamentale de l'Observatoire de Paris has concentrated on scientific cartography during the 17th and 18th centuries (Débarbat), astronomical instruments and archives (Débarbat, Poulle, Savoie), and general historical studies (Débarbat, Lerner, Pantin, Segonde, Toulmonde). Three exhibitions were organized at the Paris Observatory, involving S. Débarbat among the organizers: "Cassini-Huygens - Le temps d'un voyage" on the occasion of the launching of the Cassini-Huygens probe to

Saturn (Sept.-Oct 1997); "Mémoire d'argile - Mémoire vive", a confrontation between Babylonian and present astronomy (Oct - Nov 1998); and "Soleil - Tout feu - Tout flamme (May - Aug 1999), on the occasion of the total solar eclipse to be seen from the North of France. All were open to the public.

At the Institut d' Astrophysique in Paris, Simone Dumont has continued research, including an inventory of astronomical objects found in museums and elsewhere in France. The inventory is being carried out with the help of amateur astronomers and members of the Commission on History of Astronomy of the Société astronomique de France. R. Nadal, Observatoire Midi-Pyrenees, has co-authored articles on an astronomical fresco at the Ummayyad baths of Qusayr'Amra in Jordan, and a book containing the first French translation of the asterisms of Eratosthenes, including a catalog of 736 stars used by Eratosthenes to describe 42 constellations.

M. Stavinschi reports that interest in Romanian history of astronomy has lately increased due to the rich documentary material still unexplored, as well as the need to include Romanian astronomy in the world context. Recent investigations by Stavinschi, E. Botez and others have emphasized Romanian contributions to astronomy during the Middle Ages, including celestial mechanics, solar eclipse observations, and scientific personalities such as Chryssanthos Notaras and Constantin Gogu. The results were communicated at various international meetings organized in Romania and abroad, including the International Conference "Mysterium Cosmographicum 1596-1996" (Prague), the National Congress of the Scientific Societies in France (1996), JENAM 1997 (Thessaloniki, Greece), the Conference of the European Astronomical Society (Gdansk, Poland, 1997), JENAM 1998 (Prague), and the Spring Meeting of the Astronomische Gesellschaft (Gotha, Germany, 1998).

On 1 April 1998 the Bucharest Observatory of the Astronomical Institute celebrated its 90th anniversary. This constituted an opportunity for a retrospective look at the history of modern Romanian astronomy. Conferences on this topic were presented at various international and national scientific meetings, including the 4th Yugoslav-Romanian Astronomical Meeting (Belgrade), the 2nd Russian-Romanian Colloquium (St. Petersburg), JENAM 1998 (Prague), and the Annual Scientific Session of the Astronomical Institute (Bucharest).

In Germany The "Arbeitskreis" for the History of Astronomy met in connection with the meetings of the Astronomische Gesellschaft, with Wolfgang Dick as the main organizer. In 1998 the 200th anniversary of the first astronomical meeting of astronomers at Seeberg Observatory was celebrated by a special meeting at Gotha (May 11-15). P. Brosche was mainly engaged in the study of the German astronomy of the 18th and 19th centuries. The focus of his work is the astronomy in Gotha and F.X. von Zach.

A new series in history of astronomy, the *Acta Historica Astronomiae* edited by Wolfgang Dick and Juergen Hamel, is described below in the section on "Journals and Newsletters". W. Kokott has been researching the Alfonsine Tables, relying on the well-known past research by E. Poulle and others.

In Italy, E. Proverbio's major publication was the second volume of *Giovan Stefano Conti: Lettere a Ruggiero Giuseppe_Boscovich*. Proverbio also continued work on the inventory of archives in Italy. F. Bònoli, Curator in Chief of the astronomical museum at the University of Bologna and Editor of the *Giornale di Astronomia*, has studied the astronomical researches in the Bologna "Studium" since Middle Ages, and the development of astronomical instruments and observations.

Anita Sundman, Stockholm Observatory, has included history of astronomy in her projects aimed at children and young people. In an educational television series (Utbildningsradion) in the spring 1999 Swedish astronomical history was presented in order to attract the attention of primary school teachers with little training in science, and to encourage them to explore astronomy in class beyond the traditional textbooks.

In the United Kingdom, Michael Hoskin continues his work on the history of astronomy and field work in archaeoastronomy, and continues to serve as editor *for Journal for the History of Astronomy*. F. Richard Stephenson continued a variety of work in applied historical astronomy, including Earth's past rotation, historical supernovae and the accuracy and reliability of early measurements. His extensive investigations of Earth's past rotation, in collaboration with Dr L.V. Morrison, cover the period from 700 B.C. to the present day and mainly utilised pre-telescopic observations of eclipses observations from Babylon, China, Europe and the Arab world. There were two main aims of this research: (a) to delineate as accurately as possible the variation in the Earth's rotational clock error (ΔT), as measured directly from the historical data; and (b) to use these results to define changes in the length of the mean solar day over the past 2700 years.

Early observations of "new stars" - giving details of position, changing brightness, etc. - are of particular significance in astrophysics, since no outburst of a galactic supernova has been definitely recorded since the invention of the telescope. In 1997, Prof Stephenson began to re-investigate the historical records of supernovae in collaboration with Dr D.A. Green of MRAO. In recent years, Green and others have made tremendous progress in investigating and cataloguing supernova remnants, while more historical information (Chinese and Arab) is slowly becoming available.

North America

The American Astronomical Society celebrated its centennial at its summer, 1999 meeting in Chicago, and Commission 41 members were heavily involved. D. Osterbrock served as overall Chair of the Centennial Committee; D. DeVorkin, chair of the Society's Historical Astronomy Division (HAD) through 1998, served as editor of a volume on *The American Astronomical Society's First Century*, and also delivered the opening keynote address at the centennial meeting; DeVorkin and S. Dick served on the HAD committee producing the centennial display, chaired by S. Schechner; and V. Trimble took over as HAD Chair in January 1999, and thus was chair at the time of the centennial. S. Dick continued work on the history of the Naval Observatory and the history of the extraterrestrial life debate. D. DeVorkin completed

his biography of Henry Norris Russell. T. Hockey, Secretary-Treasurer of the Historical Astronomy Division of the American Astronomical Society, published a volume on observations of Jupiter before photography. D. Osterbrock produced a history of Yerkes Observatory, and numerous articles, especially on W. Baade and S. Chandrasekhar. K. Pang produced articles on ancient eclipse records and long-term ephemerides. At Brown University K. Plofker continues her work on subjects related to the history of Indian astronomy. V. Trimble's work focused largely on the history of distance measurement in astronomy, especially the Hubble constant. C. Wilson has continued his work on the history of celestial mechanics, with contributions to the *Storia della Scienza*, the *General History of Astronomy*, and the *Encyclopedia of Astronomy and Astrophysics*.

In Canada, Alan Batten has been active in work on the Struve arc, and the new *Journal of Astronomical History and Heritage*.

Australia/New Zealand

W. Orchiston, a founding editor of the new *Journal of Astronomical History and Heritage*, continued research on a broad array of subjects related to the history of astronomy in Australia and New Zealand. With help from their co-authors, Raymond and Roslynn Haynes have jointly researched and published the history of Australian astronomy from Aboriginal astronomy to the present.

JOURNALS AND NEWSLETTERS

Two new journals in the field joined the venerable *Journal for the History of Astronomy*. *Culture and Cosmos: A Journal of the History of Astrology and Cultural Astronomy* issues its first volume in Spring/Summer 1997, with Nicholas Campion as editor. The journal had as one of its goals the study of the broader impact of astronomical ideas on human society. Following discussions at the IAU General Assembly in Kyoto, in June 1998 Commission 41 members Wayne Orchiston and John Perdrix inaugurated the *Journal of Astronomical History and Heritage*. The journal publishes all aspects of astronomical history, including studies that place the evolution of astronomy in political, economic and cultural context. The first edition (vol. 14, number 1) of the journal *Archaeoastronomy: The Journal of Astronomy in Culture* appeared in June, 1999 under an expanded editorial board and a new publisher, the University of Texas Press. The journal, published since 1977, will maintain its high standards with a more regular publication schedule.

Wolfgang Dick and Juergen Hamel serve as editors of a new series of history of astronomy books known as *Acta Historica Astronomiae*. The series will comprise monographs, proceedings of conferences, general and thematic collections of articles, editions of manuscripts, bibliographies, inventories of astronomical archives, as well as graduate and doctoral theses. Reprints and translations of interesting historical works may also be published.

The Working Group for the History of Astronomy in the Astronomische Gesellschaft (AG) continued to issue newsletters in printed and in electronic form, including "Mitteilungen zur Astronomiegeschichte" (Nos. 9 to 14), "Elektronische

Mitteilungen zur Astronomiegeschichte" (Nos. 16 to 42), "Electronic Newsletter for the History of Astronomy" (Nos. 16 to 38). Wolfgang R. Dick functioned as editor.

SELECT BIBLIOGRAPHY

Given below are only some of the highlights of the work of Commission members during the report period. A more complete bibliography is compiled by Ruth Freitag of the Library of Congress, and appears on the Commission 41 Web site, in the Newsletter of the Historical Astronomy Division of the American Astronomical Society, and the *Journal of Astronomical History and Heritage*.

- **Ansari, S. M. R.** 1997a. "Rare Arabic-Persian Manuscripts in Salar Jung Museum," *Salar Jung Museum Biannual Journal* (Hyderabad), vol.33-34 (1996-1997), 13-20.
- **Ansari, S. M. R.** 1997b. "Modern Astronomy in Indo-Persian Sources," *Proceedings of the Joint-Discussion-17: History of Oriental Astronomy*, at the 23rd IAU General Assembly, held in Kyoto (Japan), Aug.25-26, 1997, Ed. S.M.R. Ansari, Kluwer Academic Publisher (Dordrecht), to be published.
- **Ansari, S. M. R.** 1997c. "Promotion of Astronomy by Indian Monarchs during 15th -18th Centuries." *Proceedings of the 600th Birth Anniversary Conference of King Sejong*, held in Seoul (Korea), Sept.1, 1997, Ed. Changbom Park, to be published.
- **Ansari, S. M. R.** 1998. "Post-Telescopic Astronomy in China, Japan and India," paper read at The Third International Conference on Oriental Astronomy from Calendar Scholars to Telescope, held in Fukuoka (Japan), Oct.27-30,1998, to be published in the *Proceedings*, Ed. Masanori Hirai.
- **Bònoli, F., Calisi, M., Ranfagni, P.** 1997. "Classification criteria for Historical Astronomical Instrumentation," in *Atti del XVI Congresso Nazionale di Storia della Fisica e dell'Astronomia*, a cura di P. Tucci, Centro Volta, Como, maggio 1996, p. 151-174.
- **Brosche, P.** 1998. "Astronomie der Goethezeit", in *Ostwalds Klassiker der exakten Wissenschaften* Vol. 280 (Harri Deutsch, Thun und Frankfurt/M), 2nd edition.
- **Brosche, P. and Tucholke H.-J. (eds.).** 1995. "Peter Andreas Hansen (1795-1874)," *Sonderschriften der Akademie gemeinnütziger Wissenschaften zu Erfurt*, Vol. 27.
- **Brosche, P., Dick, W. R., Schwarz, O., Wielen, R. (eds.).** 1998. *The Message of the Angles - Astrometry from 1798 to 1998*. Proceedings of the International Spring Meeting of the Astronomische Gesellschaft, Gotha, May 11-15, 1998. (Thun, Frankfurt am Main) *Acta Historica Astronomiae*, Vol. 3
- **Charvet, P., Zucker, A., Brunet, J.-P. and Nadal, R..** 1998. *Le Ciel. Mythes et histoire des constellations. Les Catastérismes d'Eratosthène*. Paris, NiL editions, 1998

- **Chatterjee, S. K.** 1997a. "A Note on Kâlî Era," *Indian J. of History of Science*, Vol.32, No.1 (1997), 69-86.
- **Chatterjee, S. K.** 1997b, "Balinese Traditional Calendar," *Indian J. of History of Science*, Vol. 32, No.4 (1997), 325-347.
- **Chatterjee, S. K.** 1998. "Traditional Calendar of Myanmar (Burma)," *Indian J. of History of Science*, Vol. 33, No.2 (1998)143-159.
- **DeVorkin, D.** 1999. *The American Astronomical Society's First Century* (American Institute of Physics, Washington).
- **Dick, S. J.** 1998. *Life on Other Worlds: The Twentieth Century Extraterrestrial Life Debate* (Cambridge University Press, Cambridge).
- **Dick, S. J., Orchiston, W. and Love, T.** 1998. "Simon Newcomb, William Harkness and the Nineteenth Century American Transit of Venus Expeditions", *J. History of Astronomy*, 29, 221-255.
- **Dick, W. R., Zenkert, A.:** "Der Popularisator und der Forscher: Die Freundschaft von Bruno H. Buerger und Paul Guthnick". In: M. Iven (ed.), *Seid nicht 'gerecht', sondern guetig!*. Beitraege von und ueber Bruno H. Buerger. Berlin, Milow, 1996, p. 58-79.
- **Dick, W. R.; Hamel, J. (eds.):** "Beitraege zur Astronomiegeschichte," Bd. 1. Thun, Frankfurt am Main, 1998. 184 p. *Acta Historica Astronomiae*, Vol. 1
- **Dick, W. R.:** "Astronomennachlaesse - Bewahrung und Erschliessung," in W.R. Dick, Juergen Hamel (eds.), *Beitraege zur Astronomiegeschichte*, Bd. 1. Thun, Frankfurt am Main, 1998, p. 170-175.
- **Glass, Ian,** *Victorian Telescope Makers: The Lives and Letters of Thomas and Howard Grubb* (Institute of Physics Publishing, Bristol and Philadelphia, 1997).
- **Gurshtein, A. A.** "The Evolution of the Zodiac in the Context of Ancient Oriental History", *Vistas in Astronomy*, Vol.41, Part 4, 1997, pp.507-525. (This paper is the third part of a single investigation started with publications in *Vistas in Astronomy* in 1993 and 1995).
- **Gurshtein, A. A.** "In Search of the First Constellations", *Sky & Telescope*, Vol.93, #6, 1997 (June), pp.46-50.
- **Gurshtein, A. A.** "The Origin of the Constellations", *American Scientist*, Vol.85, #3 (May-June 1997), pp.264-273.
- **Hari, K. Chandra** (1997), "True Rationale of Sûryasiddhânta", *Indian J. of History of Science*, Vol. 32, No.3 (1997)183-190.
- **Hari, K. Chandra** (1998a), "On the Origin of 'Kaliyugâdi' Synodic Super-Conjunction," *Indian J. of History of Science*, Vol. 33, No.3 (1998)193-201.
- **Hari, K. Chandra** (1998b), "On The Origin of Sidereal Zodiac and Astronomy," *Indian J. of History of Science*, Vol. 33, No.4(1998)257-266.
- **Hari, K. Chandra** (1999), "Intricacy of the Siddhântic Solar Year," *Indian J. of History of Science*, Vol. 34, No.2 (1999), 133-144.
- **Haynes, R., Haynes, R., Malin, D. and McGee, R. (eds.),** 1996. *Explorers of the Southern Sky: A History of Australian Astronomy* (Cambridge: Cambridge University Press).

- **Hearnshaw, J. B.** 1997. *The Measurement of Starlight: Two Centuries of Astronomical Photometry* (Cambridge University Press, Cambridge).
- **Hockey, T.** 1998. *Galileo's Planet: Observing Jupiter Before Photography* (Institute of Physics Publishing, Bristol)
- **Hoskin, M. (ed.),** 1997. *The Cambridge Illustrated History of Astronomy* (Cambridge University Press)
- **Hoskin, M. (ed.),** 1999. *The Cambridge Concise History of Astronomy* (Cambridge University Press)
- **Narasimhan, V.S.** (1999). "Tantrasangraha, Chapter VIII (English Translation): A Revised Version," *Supplement to Indian J. of History of Science*, Vol. 34, No.2 (1999), 143-148.
- **Ôhashi, Yukio** (1997). "Early History of the Astrolabe in India," *Indian J. of History of Science*, Vol. 32, No.3 (1997), 199-295.
- **Ôhashi, Yukio** (1998), "The Cylindrical Sundial in India," *Supplement to Indian J. of History of Science*, Vol. 33, No.4 (1998), 147-205.
- **Orchiston, W.,** 1998. *Nautical Astronomy in New Zealand: The Voyages of James Cook* (Carter Observatory, Wellington).
- **Osterbrock, D.** 1997. *Yerkes Observatory, 1892-1950: The Birth, Near Death and Resurrection of a Scientific Research Institution* (Univ. of Chicago Press, Chicago).
- **Osterbrock, D.** 1995-1998. "Walter Baade: Observational Astrophysicist," *J. History of Astronomy*, 26 (1995), 1-32; 27 (1996), 301-348; 28 (1998), 283-316.
- **Osterbrock, D.** 1996. "Chandra and his Students at Yerkes Observatory," *J. Astrophysics and Astronomy*, 17, 233-268.
- **Pang, K.** 1998. "Astronomical Dating and Statistical Analysis of Ancient Chinese Eclipse Data," in J. Andersen (ed), *Highlights of Astronomy*, vol. 11B, 724-728.
- **Pang, K.** 1998. "Postglacial Rebound and Other Influences of the Earth's Secular Rotation Rate, from Analysis of Ancient Eclipse Records," in *Dynamics of the Ice Age Earth*, Patrick Wu, ed. (Trans Tech Publications, Switzerland).
- **Pingree, D.** (1997). "Philippe de La Hire at the Court of Jayasimha," *Proceedings of the Joint-Discussion-17: History of Oriental Astronomy*, at the 23rd IAU General Assembly, held in Kyoto(Japan), Aug.25-26, 1997, Ed. S.M.R. Ansari, Kluwer Academic Publisher(Dordrecht), to be published.
- **Pingree, D.** (1999). "An Astronomer's Progress," *Proceedings of the American Philosophical Society*, Vol. 143, No.1(1999), 73-85.
- **Proverbio, E.,** ed. 1996, 1998. *Giovan Stefano Conti: Lettere a Ruggiero Giuseppe Boscovich*, vols. I and II (Rome).
- **Sarma, K.V. and Narasimhan, V. S.**(1998), "Tantrasamhagraha of Nilakantha Somayâji, Sanskrit," English Translation and Exposition in Terms of Modern Mathematics, *Supplement to Indian J. of History of Science*, Vol. 33, No.1 (1998), S1-S48; No.2, S49-S90; No.3, S91-S146.
- **Sarma, S. R.** (1999), "Yantrarâja: The Astrolabe in Sanskrit," *Indian J. of History of Science*, Vol. 34, No.2 (1999)145-158.

- **Stephenson, F. R.**, *Historical Eclipses and Earth's Rotation*, Cambridge, 1997
- **Stephenson, F. R. and Nha, I.-S.**, 1997. *Oriental Astronomy from Guo Shoujing to King Sejong* (Yonsei University Press, Seoul)

Steven J. Dick

President, Commission 41

(To be published in "Reports on Astronomy", Transactions of the IAU, Vol. XXIVA.)

D. July 2001 IUHPS Mexico City General Assembly

The 21st Congress of the IUHPS will be held in Mexico City on 2001 July 8-14, and one of the scheduled sessions of interest to historians of astronomy is a 2-day symposium on "Astronomical Heritage of Non-European Cultural Areas". This symposium has been organised by Professors SMR Ansari (India) and I-S Nha (Korea) and Dr MA Moreno-Corral (Mexico), with support from IAU Commission 41 (History of Astronomy). A report on this symposium will appear in the next newsletter.

E. History of Astronomy Working Groups

Introduction

Currently IAU Commission 41 has four active Working Groups (WGs), on archives, astronomical chronology, historical astronomical instruments and transits of Venus. The aim of each WG is to foster the exchange of information and ideas between colleagues with similar research interests, and in some instances to organise collaborative research projects. Although the WGs were set up by the IAU, membership is open to the entire international history of astronomy community.

Information about the four WGs follows. If you are involved in researching any of these areas and would like to join a particular WG simply contact the relevant Committee chair person (e-mail addresses are given below). WG membership is free, and you can join immediately—there is no need to wait until the next IAU General Assembly.

The Archives WG

At the 1991 General Assembly in Buenos Aires the following C14 Resolution was adopted:

"that the Union supports the initiatives taken by them [Commissions 41 and 5]
 1. to establish a register of the whereabouts of all extant astronomical archives of historical interest;
 2. to impress on observatories and other institutions their responsibility for the preservation, conservation, and where possible, cataloguing of such archives;
 3. to search for an institution that will allocate space and funds for maintaining such a register and publishing it." (*Proceedings of the Twenty-First General Assembly*, p.77).

Commission 41 then formed an Archives WG to further the objectives of this Resolution, and in the course of the next three years some progress was made in compiling national inventories of astronomical archives.

Two archival Resolutions proposed by C41 were adopted at the 1994 General Assembly in The Hague, and a number of members presented papers on their archival researches, and there were also discussions regarding the IAU archives.

A further archival Resolution was adopted at the C41 Business Meeting at the 1997 General Assembly in Kyoto, and at the 2000 General Assembly in Manchester a half-day Special Session on "Inventory and Preservation of Astronomical Archives, Records and Artifacts" was held. Hopefully a WG Meeting will be held at the 2003 General Assembly in Sydney where colleagues will be able to report on their work during the triennium.

The Committee members of the Archives Working Group are: Dr Suzanne Débarbat (France – Chair, e-mail: Suzanne.Debarbat@obspm.fr), Dr Dan Green (USA), and Mr Peter Hingley (UK).

The Astronomical Chronology WG

This WG was formed at the 2000 Manchester General Assembly specifically in order to compile a wide-ranging internationally-approved master list of the major milestones in the history of astronomy (including key instruments, astronomical phenomena, discoveries and ideas) that profoundly influenced its development. A meeting to review progress made in addressing these objectives is planned for the 2003 Sydney General Assembly.

The Committee members of this WG are: Professor Alex Gurshtein (Russia – Chair, e-mail: agurshtein@hotmail.com), Professor Adriaan Blaauw (Netherlands), Dr Teije de Jong (Netherlands) and Professor Brian Warner (South Africa).

The Historical Instruments WG

When the Archives WG was set up in 1991 there was discussion about whether to include historical instruments within the gambut of an enlarged WG, but it was decided at that time to defer such a move until progress had been made with the archives initiative.

Subsequently, a Resolution urging preservation of surviving instruments associated with the measurement of the arc of the meridian made by F.G.W. Struve was adopted at the C41 Business Meeting at the 1997 General Assembly in Kyoto.

At the 2000 Manchester General Assembly members of C41 felt the time was right to form an Historical Instruments WG as a complement to the Archives WG. The objectives of this new WG are: to draw up an inventory of all internationally-significant astronomical instruments; to assemble a bibliography of existing publications relating to such instruments; and to encourage colleagues to carry out research and publish their results. A WEB Site has already been set up (www://my.dreamwiz.com/snha), and a start has been made on the listing of historically-significant astronomical instruments. Meanwhile, this WG also plans to

hold a meeting at the 2003 General Assembly where colleagues can report on their research work during the triennium.

Committee members of the Historical Instruments WG are: Professor Il-Seong Nha (Korea – Chair, e-mail: SLISNHA@chollian.net), Dr Wayne Orchiston (Australia) and Mr John Briggs (USA).

The Transits of Venus WG

At the 2000 General Assembly of the IAU in Manchester, the following Resolution was adopted at the C41 Business Meeting:

"Recognizing the historical importance of previous transits of Venus and the numerous transit of Venus expeditions mounted by various countries, and Noting the rarity of the upcoming transits in 2004 and 2012
Commission 41 Recommends that the sites of previous transit of Venus expeditions be inventoried, marked and preserved, as well as instrumentation and documents associated with these expeditions."

In order to take this Resolution forward, a Transits of Venus WG was formed, with the additional aims of assembling a bibliography of existing publications relating to all transits of Venus, and encouraging colleagues to carry out further research and to publish their results. A WG Meeting is planned for the 2003 General Assembly in Sydney so that colleagues can report on their work.

The Committee members of this WG are: Dr Wayne Orchiston (Australia – Chair, e-mail: wo@aaoepp.aao.gov.au), Dr Steven Dick (USA), Professor Alex Gurshtein (Russia) and Professor Rajesh Kochhar (India).

Prof. F. Richard Stephenson (President, C41)

Dr. Wayne Orchiston (Secretary, C41)

F. History of Astronomy at the July 2003 IAU General Assembly in Sydney

The next IAU General Assembly is scheduled for July 14-26, at the Entertainment Centre in downtown Sydney, Australia's largest and most dynamic city. With the precedent of the 2000 Olympics in mind, those on the Local Organising Committee are working to make this a never-to-be-forgotten General Assembly.

Meanwhile, those of us working on the program are planning a veritable smorgasbord of history of astronomy offerings covering almost the full two weeks of the GA. Our aim is to provide a program that can accommodate every research taste, and an opportunity for every astronomical historian who attends and wishes to discuss his or her work to be able to do so, via either a verbal presentation or a poster paper.

In addition to the Working Group Meetings foreshadowed in an earlier article in this newsletter, we are planning Business Meetings, Science Meetings, a joint

C41/C46 session on the history of astronomy education activities, and hopefully a Joint Discussion. Here is the "History of Astronomy Package" that has been submitted to the IAU Executive Committee and the Sydney 2003 Local Organising Committee:

Joint Discussion ('The Southern Sky in Historical Perspective: From Indigenous Astronomies to Super-Telescopes'): One day
Business Meeting #1 (C41 AGM): Quarter-day
Business Meeting #2 ('National Reports'): Half-day
Education Meeting ('History of Astronomy Education'): Quarter-day
Science Meeting #1 ('Applied Historical Astronomy'): Half-day
Science Meeting #2 ('The Early Development of Australian Radio Astronomy'): One day
Science Meeting #3 ('Recent Research'): Half-day
Working Group Meeting #1 ('Archives'): Half-day
Working Group Meeting #2 ('Astronomical Chronology'): Half-day
Working Group Meeting #3 ('Historical Instruments'): One day
Working Group Meeting #4 ('Transits of Venus'): One day

As you can see, this program caters for all research tastes, with Science Meeting #3 accommodating any topics that are not covered elsewhere. But in addition, C41 may also be involved in the early stages of one or more Symposia (not listed here), and we are also planning a weekend fieldtrip to the historic Sydney and Windsor Observatories.

Clearly this is a very ambitious program and there is no guarantee that it will be approved *in toto*, nor can we automatically count of scoring the Joint Discussion (since competition for these is rather fierce). But rest assured, whatever the outcome we plan to make Sydney the best General Assembly ever for historians of astronomy. Put a marker in your diary now!

Dr. Wayne Orchiston (C41 Program Co-ordinator)

G. Publications

✓ The Journal of Astronomical History and Heritage

The two year 2000 issues of the journal contained papers on X-ray astronomy (by H. Gursky), purported lunar meteors (M. Beech and D. Hughes), Indonesian astronomy (B. Hidayat), the US 1874 transit of Venus expedition to Queenstown, New Zealand (W. Orchiston, T. Love and S. Dick), nineteenth-century longitude determinations in the Great Lakes region of the USA (by P. Whitesell), an account of South America's earliest native-born astronomer, Buenaventura Suarez S.J. (by A. Troche-Boggino), Chicago's Dearborn Observatory (by I. Bartky), and recollections by the late Hermann Brück of his days as a student and a young astronomer in Germany during the 1920s. In addition, there was Ruth Freitag's on-going "History of Astronomy" bibliography, and a number of book reviews.

Papers that appeared in the June 2001 issue are:

Guessoum, N. and Meziane, K.: "Visibility of the thin lunar crescent: the sociology of an astronomical problem (a case study)"

Hughes, D.: "Six stages in the history of the astronomical unit"

Orchiston, W.: "The English Equatorial Mounting and the history of the Fletcher Telescope"

Pigatto, L. and Zanini, V.: "Spectroscopic observations of the 1874 transit of Venus: the Italian party at Muddapur, eastern India"

Simonia, I.: "Little known aspects of the history of Georgian astronomy"

Following discussions at the Manchester General Assembly of the IAU, four new members have been added to the Editorial Board, which now comprises:

Mr John Perdrix (Australia, Managing Editor), Dr Wayne Orchiston (Australia, Papers Editor), Dr David Andrews (England), Dr Alan Batten (Canada), Dr Mary Brück (Scotland), Dr Allan Chapman (England), Dr Suzanne Débarbat (France), Dr Steven Dick (USA), Dr Wolfgang Dick (Germany), Professor Ben Gascoigne (Australia), Dr Bambang Hidayat (Indonesia), Professor Rajesh Kochhar (India), Dr Ciyuan Liu (China), Dr Tsuko Nakamura (Japan), Professor Il-Seong Nha (Korea), Professor Don Osterbrock (USA) and Professor Brian Warner (South Africa).

Further information about the journal can be obtained from Mr Perdrix (astral@iinet.net.au) while queries relating to papers should be directed to Dr Orchiston (wo@aaoepp.aao.gov.au) – note that both of these are *new* e-mail addresses. Otherwise consult our WEB Site at <http://www.astralpress.com.au>

J. Perdrix and W. Orchiston

✓ History of Cometary Astronomy

Recently, I have been researching aspects of nineteenth and early twentieth century cometary astronomy, and have completed the following papers:

Orchiston, W., 1997. The “tyranny of distance” and Antipodean cometary astronomy. *Australian Journal of Astronomy* **7**: 115-126.

----, 1998. Illuminating incidents in Antipodean astronomy: John Tebbutt and the Great Comet of 1861. *Irish Astronomical Journal* **25**: 167-178.

----, 1999a. C/1881 K1: A forgotten “Great Comet” of the nineteenth century. *Irish Astronomical Journal* **26**: 33-44.

----, 1999b. Comets and communication: amateur-professional tension in Australian astronomy. *Publications of the Astronomical Society of Australia* **16**: 212-221.

----, 1999c. Of comets and variable stars: the Afro-Australian astronomical activities of J.F. Skjellerup. *Journal of the British Astronomical Association* **109**: 328-338.

I am happy to make copies of these available to interested C41 members. Just e-mail me (wo@aaoepp.aao.gov.au) or write to me at: Dr Wayne Orchiston, Anglo-Australian Observatory, c/- 17 Russell St., Greenacre, NSW 2190, Australia.

Wayne Orchiston (Secretary, Commission 41)

H. News

/// Colloquium in Commemoration of 1500th Anniversary for Zu Chongzhi

A colloquium in commemoration of 1500th anniversary of Zu Chongzhi's pass away was held in his homeland, Laishui, Hebei, China October 10-14. The colloquium was organized jointly by the Chinese Society for History of Mathematics, Commission of History of Astronomy, Chinese Astronomical Society and the Chinese Society for History of Mechanics.

Zu Chongzhi (425-500 AD) was a great mathematician and astronomer. His achievements in science and technology include the computation of π (3.14159265), the calculation of the volume of sphere, the compilation of the Daming calendar. A lunar crater and an asteroid (No.1888) have been named after him.

More than 60 people attended this colloquium, including 4 from Japan. Fifty papers were read out at the general meeting and the separate meetings. The themes include a study on the biography of Zu and his family, analysis and translation of his scientific works, reconstruction of mechanic inventions of Zu, and other topics on the history of astronomy and mathematics.

At the same time, a Zu's museum was dedicated at a local high school, the Zu Chongzhi memorial school. The museum collects and displays writing, pictures, models about Zu's achievements and investigations, books and papers.

Wolfgang R. Dick

/// The Stewart Museum Globe Symposium, Montréal, 19-22 October 2000

The year 2000 has been the occasion for the largest and most significant collection of early globes in Canada to be removed from storage, researched, written about and exhibited to the public. The collection was assembled over the past several decades by the Stewart Museum in Montreal.

In February 2000, the exhibition *Yes! The World is Round: A Closer Look at Early Globes, Maps and Scientific Instruments*, was opened and has been viewed by more than 60,000 visitors.

All of the Stewart Museum's nearly 50 globes, dating from 1533 to the turn of the twentieth century, are on display, along with about 70 globe-related works held by the museum: scientific instruments, rare books, paintings, engravings and maps.

In June, the accompanying lavishly illustrated book *Sphaera Mundi: Early Globes at the Stewart Museum* (Montréal: Septentrion and McGill-Queen's University Press, 2000) <http://www.mcgill.ca/mqup/2000/dahl-gau.htm> co-authored by Edward H. Dahl and Jean-François Gauvin (with the collaboration of Eileen Meillon, Robert Derome and Peter van der Krogt) was launched.

The third major event was an international symposium which took place from 19 to 22 October 2000 in an early-nineteenth-century stone powder magazine on Ile Ste Helene, near the old fort housing the globe exhibition. The timing seemed ripe to bring together for the first time in Canada some of the best authorities on globes from around the world, and from all the reports we have received, it was a resounding

success.

Nine lectures were given during this three-day symposium. A broad range of topics was covered by the speakers, giving an excellent overview of the flourishing study of globes. The opening presentation on "The power of globes in antiquity" (Christian Jacob, Centre national de la recherche scientifique, France) was followed by papers on astronomy and celestial globes (Elly Dekker, The Netherlands), an analysis of the role of globes as symbols in art found in emblem books (Catherine Hofmann, Bibliothèque nationale de France), and in portraiture of the Elizabethan era (Kristen Lippincott, Royal Observatory Greenwich). An art historian discussed globes as pieces of art *per se* (Robert Derome, Université du Québec à Montréal), and the early history and impact of Dutch globe production in Europe was explained (Peter van der Krogt, Utrecht University), along with the complex subject of the restoration of badly damaged globes (Alain Roger, Bibliothèque nationale de France). The concluding paper presented a globe curator's vision for a future museum in Vienna dedicated exclusively to globes (Jan Mokre, Austrian National Library). The speakers used effectively the 45 minutes they were given for their illustrated talks (much preferred over the traditional much-too-short 10-to-20-minute lectures), and all of the talks were followed by lively 15-minute discussion periods, which invariably brought to light many interesting parallel issues. Ample time was also allotted so that participants could study the globe exhibition, in what one participant described as a "theatrical setting."

We were very fortunate with the weather, the symposium falling in that unusually warm, dry period in late autumn known in Canada as "Indian Summer." This permitted us to have all our lunches outside with a backdrop of beautiful autumn colours and allowed us to take a short hike to a lookout before the banquet, which was held at an old inn in the Laurentian Mountains north of Montréal.

The Stewart Museum Globe Symposium brought attention to a significant globe collection that no longer lies dormant in the shadows of a storage room. We are currently discussing with Jan Mokre, Secretary for the Coronelli Society, the possibility of publishing the symposium proceedings in *Der Globusfreund*, the society's scientific journal.

The Symposium Organizing Committee (Ed Dahl, Jean-François Gauvin, Céline Gignac, Nadia Hammadi, Eileen Meillon) November 2000

/// Colloquium on "European Astronomy in the 20th Century"

A Special Colloquium on "European Astronomy in the 20th Century" will be held in Munich, Germany, on September 14-15, 2001, in the framework of the Joint European and National Astronomical Meeting for 2001 (JENAM-2001). It will give the opportunity to review the development of astronomy in Europe during the last century. Emphasis will be made on the evolution of ideas, instruments and scientific results, although the history of institutions and biographies of astronomers may also be considered. The colloquium is being organized by the Working Group for the History of Astronomy in the Astronomische Gesellschaft, who invited other European astronomers to the Scientific Organizing Committee (SOC). Members of

the SOC are: Wolfgang R. Dick, Germany, Izold Pustyl'nik, Estonia, Helmut Steinle, Germany, and Christiaan L. Sterken, Belgium. The local organization is in the hand of Helmut Steinle. For the first announcement and call for papers, as well as for more information, please visit the web site at <http://www.gamma.mpe-garching.mpg.de/~hcs/JENAM2001MS/> or contact Dr. Helmut Steinle at hcs@mpe.mpg.de.

Wolfgang R. Dick

/// Fifth Biennial History of Astronomy Workshop

The Fifth Biennial History of Astronomy Workshop will be held July 5-8, 2001 at the University of Notre Dame. The workshop is sponsored by Notre Dame's Graduate Program in History and Philosophy of Science, Notre Dame's Reilly Center for Science, Technology, and Values, the History of Astronomy Special Interest Group of the History of Science Society, and the Historical Astronomy Division of the American Astronomical Society. Steven Dick and Marc Rothenberg are program co-chairs. The local arrangements chair for the workshop is Matt Dowd, who can be reached at Graduate Program in History and Philosophy of Science, University of Notre Dame, Notre Dame, IN 46556, or E-mail: Matthew.F.Dowd.11@nd.edu. Persons wishing to register should contact: Astronomy, Center for Continuing Education, Univ. of Notre Dame, Notre Dame, IN 46556, E-mail: cce.cce.1@nd.edu. The registration fee of \$75 includes the cost of the banquet. Housing is available in new air conditioned dormitories at \$29 per night for a single, \$23 per night for a double. The conference will include a book exhibit and display tables. Participants are welcome to bring materials to display. Contact Matt Dowd with regard to how much space will be needed.

Regarding transportation, flights come to the South Bend from a number of major cities. Persons arriving via Chicago can take the United Limo Bus, which runs from the United Terminal at O'Hare Airport directly to the Notre Dame campus. Round-trip fare is \$57. For a schedule and reservations, call United Limo at (800)833-5555. For those driving, ample parking is available. A campus map and parking information will be sent in the CCE information packet. To supply periodically updated information and a downloadable registration form, Matt Dowd has prepared a webpage for the workshop. The URL is given below. <http://www.nd.edu/~histast4/ndvinfo> The sixty-five historians of astronomy who attended the Fourth Biennial History of Astronomy Workshop, held at Notre Dame in July, 1999, praised the lively and informed sessions, the comfortable and informal atmosphere, and the reasonable room rates.

Steven J. Dick, U. S. Naval Observatory, 3450 Massachusetts Ave, NW Washington, DC 20392-5420, Phone 202-762-0379, Fax 202-762-1489, e-mail: dick.steve@usno.navy.mil

/// Transit of Venus Conference, 2004

This is the first announcement of a conference planned to take place in Preston, Lancashire, England area in June 2004, to coincide with the first Transit of Venus for 121 years, on the 7th of that month (Monday).

The main organiser is Professor Gordon Bromage of the University of Central Lancashire. The conference will cover all aspects of distance measurement in Astronomy, with a substantial historical element covering subjects such as Kepler's Laws, Planetary Distances, Stellar Parallaxes, and the Astronomical Unit problem, as well as transits as such. The conference will also cover all aspects of modern astronomical and cosmological distance measurement. The exact status of the conference and the form of its publication(s) are yet to be decided. Professor Bromage has kindly invited me to represent the historical interest on the Committee but somebody more appropriate may be found to take over later.

It is hoped to make arrangements for participants to safely observe the Transit, and also, if the Lancashire weather is its usual summer self, to arrange transmission of images from a more favoured site.

It is of course singularly appropriate for this Conference to be held in Preston; as well as the burgeoning astronomical programme of the University, including participation in the SALT project, there are the historical associations; only a few miles away is Much Hoole, where Jeremiah Horrocks made the first recorded observation of a Transit of Venus in 1639; (see Chapman, QJRAS, 31, 333-357) and not many more miles away is Stonyhurst College, the institution to which Father Stephen Perry SJ gave a lifetime of service.

The Preston area is also replete with scenic beauty and historical interest and if sufficient interest is shown by those accompanying the delegates it may be possible to arrange visits to areas of interest such as the Lake District, Trough of Bowland, Fylde, Bronte Country, etc. There is more to North Lancashire than Blackpool!

P D Hingley, Librarian, Royal Astronomical Society, Burlington House, Piccadilly, London W1V 0NL England, Tel 0171 734 4582 /3307 FAX 0171 494 0166 e-mail pdh@ras.org.uk

/// Publications of Manchester Papers

After discussions with authors who presented papers in the "Applied Historic Astronomy" and "Archives" sessions at the 2000 Manchester General Assembly of the IAU, we have decided not to publish the proceedings of these two sessions. Instead, we have suggested to those authors who would like to see their papers in print that they consider submitting them to the *Journal for the History of Astronomy* or the *Journal of Astronomical History and Heritage*.

*Prof. F. Richard Stephenson (President, C41)
Dr. Steven J. Dick (Immediate Past President, C41)*

/// The C41 Web Site

Since the preparation of the last Newsletter (before the Manchester General Assembly) there has been some major updating of the Commission's web site. Information on events at the Manchester GA (including abstracts of papers) has been added, and the membership list has been updated. New links to history of astronomy resources on the Internet have been added and several old links have been updated. However, several thousand links still need to be checked out, and changes to web addresses have been too numerous to keep track of. In this regard, authors of web

pages are encouraged not to change the locations of files unless there is an urgent need to do so.

A major addition to the C41 web site has been the "Finding List of Obituary Notes of Astronomers (1900-1997)" which was compiled by Hilmar W. Duerbeck and Beatrix Ott, with contributions by Wolfgang R. Dick. It contains about 3,500 references to obituaries of more than 9,000 astronomers.

Wolfgang Dick (C41 Webmaster)

/// C41 Annual Research Reports

One of the things I must do as President of C41 at the end of the triennium is prepare a report for the IAU Executive Committee on progress during my term of office, including a summary of research by members.

Towards this end, I would be grateful if members would e-mail or post me a list of their history of astronomy publications that appeared in print during the year 2000. My contact details are:

Professor F. Richard Stephenson,
Department of Physics, University of Durham,
South Road, Durham DH1 3LE, England.

E-mail: f.r.stephenson@durham.ac.uk

Prof. F. Richard Stephenson (President, C41)

/// Obituaries

Winfried Petri, 85, died on 8 April 2000 at Schliersee, Bavaria. After specializing in Indo-Tibetan Astronomy, his duties as head of Ancient and Oriental Astronomy at the Institute for the History of Sciences at Munich did not constrain his broad range of interests, which also included the history of modern (post-Copernican) astronomy as well as the Soviet space effort. His linguistic abilities did result in an impressive record of related digest papers in German journals. His retirement (1979) was not the end of these prolific activities.

Wolfgang Kokott, Munich

CONTACT

Contributions to the Newsletter can be sent to:

Dr. Ileana Chinnici
c/o Osservatorio Astronomico di Palermo G. S. Vaiana
Piazza del Parlamento, 1
90134 Palermo (ITALY)

tel. 39091233443, fax 39091233444

E-mail: chinnici@oapa.astropa.unipa.it

Editorial Board: Dr. Ileana Chinnici (Italy), Prof. Alex Gurshtein (Russia), Dr. Wayne Orchiston (Australia), Prof. Richard Stephenson (United Kingdom).