Scientific Instrument Commission Bibliography 24

Twenty-fourth bibliography of books, pamphlets, catalogues and articles on or connected with historical scientific instruments – Autumn 2004

Users are invited to bring recent publications to the compiler's notice. For articles in journals, note that he has access to some forty journals, listed in Bibliography 17. Please send (notices of) publications to:

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ANDERSON, Robert, 'The Status of Instruments in Eighteenth-Century Cabinets', pages 55-61 in: R.G.W. Anderson, M.L. Caygill, A.G. MacGregor and L. Syson, eds ., *Enlightening the British. Knowledge, discovery and the museum in the eighteenth century* (London: The British Museum Press, 2003). 195 pages ; ISBN 0-7141-5010-X ; 89 b/w illustrations; £ 35. The volume contains 22 papers presented at the British Museum's 250th Anniversary Conference in April 2002.

BAIRD, Davis, *Thing Knowledge. A Philosophy of Scientific Instruments* (University of California Press, Berkeley, Los Angeles, London, 2004). 273 pages. ISBN 0 520-23249-6. From the jacket presentation: "Western philosophers have traditionally concentrated on theory as the means for expressing knowledge of the world. This provocative book challenges this fundamental notion by showing how objects themselves, specifically scientific instruments, can express knowledge."

BEDINI, Silvio A., 'Falconi, Renaissance Astrologer and Astronomical Clock and Instrument Maker', *Nuncius* 2004, fasc. 1, 31-76. A native of the Bergamasque Valley region of Lombardy, active in the early decades of the 16th century. Fifteen surviving instruments signed by or attributed to him are presently known: three astrolabes, four horary quadrants, one quadrant and six nocturlabes. Note: in recent publications, G. L'E. Turner has discussed this maker as 'Falcono'.

BEECH, Martin, 'Cometaria and the Demonstration of Kepler's 1st and 2nd Laws', *Bulletin of the Scientific Instrument Society* 82 (September 2004), 29-33. Cometaria as designed and/or constructed in the eighteenth century by J.T. Desaguliers, James Ferguson, Benjamin Martin and John Rix.

BEVILACQUA, Fabio, FALOMO, Lidia, GARBARINO, Carla (editors), *Musei e collezioni dell'Università di Pavia* **(**Università degli Studi di Pavia, U.Hoepli, Milano, 2003). 112 pages, ISBN 88-203-3265-5. 17 Euro. This book, full of colour pictures, presents the fifteen scientific and historical collections and museums belonging to the University of Pavia. Apparatus and

models preserved in the collections of physics, electrotechnics, mathematics, chemistry, physiology, medicine etc.

BRANDSTETTER, Thomas, 'Elefanten im Mond. Der prekäre Status des wissenschaftlichen Instruments', *Berichte zur Wissenschaftsgeschichte* 27, 2 (June 2004), 109-118. Article on "the precarious status of the scientific instrument", in a volume with papers from a symposium devoted to deceit and charlatanism in the sciences.

BRENNI, Paolo, 'Mystery Object Answered: The Helmholtz Myograph', *Bulletin of the Scientific Instrument Society* 82 (September 2004), 34-36.

BROOKS, Randall C., 'Forty Years of Analytical Studies', *Bulletin of the Scientific Instrument Society* 82 (September 2004), 4-10. Overview of analytical research done on historic instruments using modern techniques and equipment.

BUCHANAN, Peta, and GEE, Brian, 'Inside the Shop of an Eighteenth Century Optician. The Inventory of Nathaniel Adams of St. Martin-in-the Fields, Westminster, *Bulletin of the Scientific Instrument Society* 82 (September 2004), 10-15. Includes transcription of the inventory, dated 1741.

BURCHARD, U., 'The history and apparatus of blowpipe analysis', *The Mineralogical Record* vol. 25, no. 4 (July-August 1994), 251-277. Includes 3-page bibliography and 27 illustrations, many in color of apparatus. Beginning with antiquity, the text focuses on 18th century pioneering work in Sweden, development at the Freiberg Mining Academy, and the further refinements during the 19th century until the advent of spectroscopy.

BURCHARD, Ulrich, 'The sclerometer and the determination of the hardness of minerals', *The Mineralogical Record* vol. 35, no. 2 (March-April, 2004), 109-120; twelve illustrations of instruments; good history of the various methods to measure hardness of materials.

CASI, Fausto, 'A Medieval Astrolabe in the Tradition of Jean Fusoris', *Nuncius* 2004, fasc. 1, 3-29. With a revised list of astrolabes in Fusoris' tradition, numbering twenty-two, plus nine that are considered copies.

CONNOR, R.D. and SIMPSON, A.D.C., edited by A.D. MORRISON-LOW, *Weights and Measures in Scotland* (Edinburgh: NMS Enterprises Limited – Publishing, 2004). Ca. 800 pages, hardback. £50. Orders to: publishing@nms.ac.uk

DENMARK: 'SIS Annual Study Conference to Denmark, 2nd-7th May 2004', *Bulletin of the Scientific Instrument Society* 82 (September 2004), 23-28. Report of visit to instrument collections in and around Copenhagen. A CD-ROM version, with more text and hundreds of photographs taken by delegates, is available through Mike Cowham for £ 10 including p&p. For details, mike@brownsover.fsnet.co.uk.

FRANZ, Helmut, *Steinheil Münchener Optik mit Tradition 1826-1939 (1995) Vier Generationen Familienunternehmen Wissenschaft und Technik* (Stuttgart: H. Lindemanns Verlag, [2001]).

ISBN 3-89506-197-2. 455 pages. This magnificent volume retraces the long history of the family Steinheil and its famous firm. Its scientific instruments, photographic apparatus and objectives are carefully described and well illustrated.

GREENSLADE, Thomas B., 'Apparatus for Natural Philosophy: Half-Models of Steam and Gasoline Engines', *Rittenhouse* Vol. 18, No. 1 (# 59), 12-20. Abstract: Engine models found their way into the science classroom in the mid 19th century and apparatus manufacturers responded by producing a variety of types of models that changed in response to both technology and teaching expectations.

GREENSLADE, Thomas B. Jr., 'The Siren', *The Physics Teacher*, Vol. 42 (October 2004), 418-419. An illustrated article on the most important types of acoustical sirens (Cagniard de la Tour, Dove, Opelt, etc.).

GURNEY, Alan, *Compass. A Story of Exploration and Innovation* (New York, London: W. W. Norton and Co., 2004). 320 pages, cloth, ISBN 0393050734. $22.95.

JAPAN: *Headwaters of Science and Technology in Pre-Modern Japan - Galileo - Leeuwenhoek - Ikkansai: 3rd International Symposium on Edo no Monozukuri* (Yoshida Printing Co., 2003), xii+173+5 pages, ISBN 4-9902-0140-X. Contains the contributions (English/Japanese) of the symposium held in the Nagahama Royal Hotel, 7-10 November 2003, discussing scientific instruments in the context of pre-modern Japanese culture and science.

JAPAN: *Edo jidai no kagaku gijutsu* (Science and Technology in the Edo Period) (Shiritsu Nagahamajo rekishi hakubutsukan (Nagahama Castle Historical Museum), Nagahama, 2003), 187+v pages, ISBN 4-88325-241-8. Describes the life and work of the Nagahama gunsmith and instrument maker Ikkansai Kunitomo (1774-1840). Japanese text only. Includes many b/w and colour illustrations of guns, scientific instruments and astronomical drawings made by Ikkansai Kunitomo. To order: http://www.citynagahama.shiga.jp/section/rekihaku/.

JENSEN, Claus, 'Perspektivkasser og matematik', *Matilde* 19, March 2004, 20-25 plus back cover. Overview of the shapes etc. of the six preserved Dutch 17th-century perspective boxes in museums in Copenhagen (3), The Hague, Detroit and London. Text in Danish.

KILE, Daniel E., *The Petrographic Microscope – Evolution of a Mineralogical Research Instrument.* Special Publication No. 1, November-December 2003, to The Mineralogical Record. 96 pages including an 11-page bibliography and 108 mostly-color figures, most of early microscopes and related-apparatus. Includes chapters on the historical development of the petrographic microscope, descriptions of accessories, and what can be measured and how. $20 from The Mineralogical Record, Inc., minrec@aol.com or 520-297-6709.

KING, DAVID A., 'A *Vetustissimus* Arabic Treatise on the *Quadrans Vetus*', *Journal for the History of Astronomy* 33 (2002), 237-255.

KING, DAVID A., 'Towards a History from Antiquity to the Renaissance of Sundials and Other Instruments for Reckoning Time by the Sun and Stars', *Annals of Science* 61:3 (2004), 377-389.

[Thorough, critical essay review of Hester Higton's two recent volumes on sundials, for which see previous bibliographies].

KING, DAVID A., *In Synchrony with the Heavens – Studies in Astronomical Timekeeping and Instrumentation in Medieval Islamic Civilization*, 2 vols., vol. 1: *The Call of the Muezzin – Studies I-IX*, and vol. 2: *Instruments of Mass Calculation – Studies X-XVIII*, (Islamic Philosophy, Theology and Science – Texts and Studies, vol. LV), Leiden and Boston: Brill, 2004, *ca*. 2,000 pp. Contents of vol. 1: I: A survey of tables for timekeeping by the sun and stars; II: A survey of tables for regulating the times of prayer; III: A survey of arithmetical shadow-schemes for time-reckoning; IV: On the times of prayer in Islam; V: On the role of the muezzin and the muwaqqit in medieval Islamic societies; VIa: Universal solutions in Islamic astronomy; VIb: Universal solutions from Mamluk Syria and Egypt; VIIa: On the orientation of medieval Islamic architecture and cities; VIIb: Architecture and astronomy: The ventilators of medieval Cairo and their secrets; VIIc: Safavid world-maps centered on Mecca; VIII: Aspects of practical astronomy in mosques and monasteries; IX: When the night sky over Qandahar was lit only by stars ... . Contents of vol. 2: X: Astronomical instrumentation in the Islamic world; XI: An approximate formula for timekeeping (750-1900); XIIa: On the universal horary quadrant for timekeeping by the sun; XIIb: On universal horary dials for timekeeping by the sun and stars; XIII: Selected early Islamic astrolabes: including XIIIa: The neglected astrolabe -- A supplement to the standard literature on the favourite astronomical instrument of the Middle Ages; XIIIb: The oldest astrolabe in the world, from 8 th-century Baghdad; XIIIc: Astrolabes from late-9 th- and 10 th-century Baghdad; XIIId: A medieval Italian testimonial to a forgotten Islamic tradition of non-standard astrolabes; XIIIe: The origin of the astrolabe according to medieval Islamic sources; XIV: Selected late Islamic astrolabes, including: XIVa: An astrolabe made by the Yemeni Sultan al-Ashraf; XIVb: Some astronomical instruments from medieval Syria; XIVc: A monumental astrolabe from 13 th-century Damascus; XIVd: An astrolabe for the Sultan Ulugh Beg; XIVe: Two astrolabes for the Ottoman Sultan Bayazid II; XIVf: Brief remarks on astronomical instruments from Muslim India; XIVg: A universal astrolabe from 17 th-century Lahore; XV: An astrolabe from medieval Spain with inscriptions in Hebrew, Arabic and Latin; XVI: The geographical data on early medieval Islamic instruments; XVII: The quatrefoil as decoration on astrolabe retes; XVIII: A checklist of Islamic astronomical instruments to *ca*. 1500, ordered chronologically by region.

LOCK, Jeffrey, '18th Century Colonial Methods of Dividing the Needle Ring of a Surveyor's Compass', *Rittenhouse* Vol. 18, No. 1 (# 59), 1-11. Abstract: Before the introduction of the Dividing Engine, techniques and tools for producing instrument graduations varied greatly. Working from both the instruments and such known facts as available technology and estate inventories, the author explores the early surveyor's compass as a product of its specific working environment. This article was reprinted in *The American Surveyor* Magazine, Fall 2004 and can be read on-line at www.colonialinstruments.com.

MARCELIN, Franck, *Dictionnaire des fabricants français d'instruments de mesure du XVème au XIXème siècle* (Aix en Provence: Published by the author, 2004). 198 pages. Price 50 EURO plus 10 EURO p/p outside France. Directory listing more than 2300 French makers. Their names are listed on the author's webpage www.seagoing.com/franck-marcelin, which also gives an order form.

MILLS, Allan A., 'The Lodestone: History, Physics, and Formation', *Annals of Science* 61, 3 (July 2004), 273 – 319. For extended abstract: search via http://taylorandfrancis.metapress.com.

NESSI e.a.: *Antique Tools and Instruments from the Nessi Collection* (Milan: 5 Continents Editions, 2004). ISBN 88-7439-124-2, 363 pages, 75 US$. This beautiful volume describes and illustrates (with many excellent colour photographs) the collection (Renaissance to 19th Century) of antique tools (fireplace utensils, kitchen implements, objects for private use, mechanical tools, etc.), scientific instruments (time-keeping, surveying and drawing, medical instruments, etc.) of the Swiss-Italian collector Luigi Nessi. Each section of this catalogue is introduced by a specific article. Authors: Luigi Nessi, Peter Plassmeyer, Marie-Véronique Clin, Alessandro Cesati, Richard Wattenmaker, Claudine Cartier. The book is available in Italian, French and English. Distribution: USA: Independent Publisher Group, www.ipgbook.com; UK: Antique Collectors' Club, www.antiquecc.com, Italy: Messaggerie Libri Spa Milano, Fax +3902 45703341, tel. +3902 457741.

NUTTALL, Bob,''A First-Rate Instrument': Joseph Lister's Microscope at Glasgow University', *Bulletin of the Scientific Instrument Society* 82 (September 2004), 17-22. This microscope in the Hunterian Museum at Glasgow University was used by the renowned surgeon Lord Lister. It had been made in 1840 by a business his father Joseph Jackson Lister (1786-1869) established with the instrument maker James Smith.

POELJE, Otto van, 'Gunter Rules in Navigation', *Journal of the Oughtred Society*, vol. 13 (2004), nr. 1, 11-22. Detailed study on the mathematical scales on Gunter rules and their application in navigation.

SATTERTHWAITE, Gilbert E., 'Airy's zenith telescopes and "the birth star of modern astronomy"', *Journal of Astronomical History and Heritage*, 6, 2003, 13-26.

SAVOIE, Denis, 'l'Heure des crepuscules sur les cadrans solaires Arabo-Islamiques', *l'Astronomie: Bulletin de la Société Astronomique de France*, vol. 118 (2004), 427-432. A study on dawn/dusk lines on Islamic sundials in the Museum of Islamic Art in Cairo.

SAVOIE, Denis, 'Cadrans solaires arabes', *Revue du Palais de la Découverte*, nr. 302 (November 2002), 31-34.

SIMMS, Dennis L., 'Buffon's burning mirrors', *Atti della Fondazione Giorgio Ronchi*, Anno LIX, 2004, N. 5, pp. 711-742.

SIMPSON, A. D. C and CONNOR, R. D., 'The Mass of the English Troy Pound in the Eighteenth Century', *Annals of Science* 61, 3 (July 2004), 321-349. Abstract: An examination of British and French weights exchanged between the Royal Society and the Académie royale des sciences in the 1730s has led to a re-assessment of the Elizabethan troy standards from the Exchequer and the suggestion that the mass of the troy pound has been revised upwards. In turn this is used to support the idea of an evolutionary relationship between the early bullion ounces of England, France, and the Low Countries.

SUNDIALS: *Biographical Index of British Sundial Makers from the Seventh Century to 1920* (£10 plus £1 p+p). A work in progress. For details contact the compiler, Jill Wilson, 14 Pear Tree Close, Chipping Campden, GL55 6DB, jill.wilson@ukonline.co.uk.

TROIANI, Silvano, BERNARDI, Maria Angela, *100 Strumenti antichi al Liceo Messedaglia* (Verona: Liceo Scientifico Messedaglie, Cierre Edizioni, 2003). 141 pages. ISBN 8883142284. A well- illustrated catalogue of a 19th century collection of scientific instruments preserved in a high school in Verona.

WARNER, Deborah Jean, 'Optical Elements of Fire Control, 1890-1921', *Rittenhouse* Vol. 18, No. 1 (# 59), 21-59. Abstract: The military context in which optical manufacturers operated stands in contrast to the better known scientific context, but American optical manufacturers devoted considerable time and reaped substantial profits from the "confidential" military work that they undertook.

ZUIDERVAART, Huib J., and GENT, Rob H. van: '"A Bare Outpost of Learned European Culture on the Edge of the Jungles of Java": Johan Maurits Mohr (1716–1775) and the Emergence of Instrumental and Institutional Science in Dutch Colonial Indonesia', *ISIS* Vol 95, Nr 1 (March 2004), 1-33. Includes a detailed description of J.M. Mohr's astronomical observatory and its instruments and their subsequent fate. Abstract: *http://www.journals.uchicago.edu/Isis/journal/contents/v95n1.html*