

Scientific Instrument Commission Bibliography 14

This bibliography covers the years 1996 and 1997. Many titles were supplied by the former Secretary, prof. G.L'E. Turner, and the librarians of the Museum of the History of Science, Oxford and the Museum Boerhaave, Leiden. Their contribution is gratefully acknowledged.

Selection for inclusion in a bibliography is unavoidably subjective. No articles have been included from the following two quarterly journals, which deal exclusively with the history of scientific instruments:

- The Bulletin of the Scientific Instrument Society, ed. Dr. Willem D. Hackmann, Museum of the History of Science, Oxford, is international in scope. It contains articles about instruments, book and exhibition reviews, reports on meetings, visits to museums and collections and news from the antiques trade. Appropriate material from the Bulletin will be referenced in Physics Abstracts. In 1996 and 1997 volumes 48 to 55 appeared with a total 328 pages, which included some 50 articles. The Bulletin is sent free to members. For membership and back issues: 31 High Street, Stanford in the Vale, Faringdon Oxon SN7 8LH, UK. Abstracts from current Bulletins appear on the SIS Website: <http://www.sis.org.uk>
- Rittenhouse. Journal of the American Scientific Instrument Enterprise, ed. Dr. Deborah Jean Warner, National Museum of American History, Washington, USA, "aims to increase and diffuse knowledge about scientific instruments made and/or used in the United States". In 1996 and 1997 issues 38 to 44 (=Vols. 10, nrs. 2 to 4 and Vol. 11, nrs. 1 to 4) appeared with 27 articles covering 226 pages. For subscriptions and back issues: P.O. Box 151, Hastings-on-Hudson NY 10706, USA

ADLER, Jacob, 'J. S. Delmedigo and the Liquid-in-Glass Thermometer', *Annals of Science*, 54 (1997), 293-299.

ALBANI, M., and U. GLESSNER, 'Un instrument de mesures astronomiques à Qumrân', *Revue biblique*, 104, 1 (1997), 88-115.

ALDER, Ken, 'Innovation and Amnesia: Engineering Rationality and the Fate of Interchangeable Parts Manufacturing in France', *Technology and Culture*, 38 (1997), 273-311. The gunsmith Honoré Blanc's introduction c.1790 of precision workshop techniques, including sets of gauges, for making standard-size, interchangeable parts.

ALLART, Barbara, 'De sfygmograaf in Engeland (1860-1900). Hoe een fysiologisch instrument in de geneeskunde terecht kwam', *Gewina*, 20 (1997), 69-81. The 'scientification' of medicine: how the sphygmograph entered medicine.

ALLMAYER-BECK, Peter E. (ed.), *Modelle der Welt. Erd- und Himmelsgloben* (Wien: Brandstätter, 1997) 384 pp., ISBN 3-85447-733-3. Lavishly produced survey of old globes in

Austria, also contains survey of globe makers all over the world (pp. 238-319). Also some planetariums, armillary spheres, etc.

ANDERSON, R.G.W., 'Early Scientific Instruments and Horology', Chapter 15=pp. 286-295 in Marjorie Caygill & John Cherry (eds.), A. W. Franks: Nineteenth-Century Collecting and the British Museum (London: British Museum Press, 1997) 372 pp., ISBN 0714117633. Franks (1826-1897) was the Curator who extended the Museum's collecting policy to include, among other things, historic scientific instruments.

ANDREWES, William J. H. (ed.), *The Quest for Longitude* (Cambridge, Mass.: Collection of Historical Scientific Instruments, Harvard University, 1996) 437 pp., ISBN 0-9634329-0-0. Papers given at 'The Longitude Symposium', Harvard, 1993. An essay review of this volume is BENNETT, J.A., 'Horology, History and Harrison', *Antiquarian Horology*, 23 (1997), 451-456.

ANDREWS, A.D., 'Cyclopaedia of telescope makers' Parts 5 (Sea-Sim), 6 (Sin-Syk) and 7 (T-Z), in *The Irish Astronomical Journal* 23 (1996), 57-117 and 215-242 and 24 (1997), 125-192. Final installments in a series begun in 1992.

APPLEBY, John H., 'A New Perspective on John Rowley, Virtuoso Master of Mechanics and Hydraulic Engineer', *Annals of Science*, 53 (1996), 1-27.

ARNALDI, Mario & Karlheinz SCHALDACH, 'A Roman Cylinder Dial: Witness to a Forgotten Tradition', *Journal for the History of Astronomy*, 28 (1997), 107-117.

ASHWORTH, William J., 'Memory, Efficiency, and Symbolic Analysis: Charles Babbage, John Herschel, and the Industrial Mind', *Isis*, 87 (1996), 629-653. An early 19th-century philosophy of mathematical analysis, and its implications for the mechanical analogy and mechanisation of human thought.

AUTOMATONS: three articles in *La Revue (Musée des Arts et Métiers, Paris)* 20 (1997) deal with the museum's automatons: Louis ANDRÉ, 'La mécanique au temps des automates' (19-27), Claudette BALPE, 'Vaucanson, mécanicien et montreur d'automates' (35-37) and Clive LAMMING, 'Les automates-jouets Fernand Martin' (38-44). English summaries.

BASSO RICCI, M., and others, *Due Secoli di Strumenti Geomagnetici in Italia (1740-1971)* (Bologna: Editrice Compositori, 1997) 234 pp., 106 ill., ISBN 88-7794-091-3. Geomagnetic instruments in Italy; with English summary.

BEDINI, S.A., 'Surveying Instruments: Collectors and Collections', *Professional Surveyor (USA)*, 16 (1996), 6-10, 12 and 15-16. American makers and museums of surveying instruments.

BEDINI, Silvio A., 'The Transit in the Tower: English Astronomical Instruments in Colonial America', *Annals of Science*, 54 (1997), 161-196.

BEEM, Arnoud R., *De historie van het hoortoestel* (Duiven: Cator Creatieve Communicatie, 1997) 118 pp. ISBN 90-76256-01-2. Hearing aids from the author's collection.

BENNETT, J.A., 'The Instrument Trade in Britain', *Annals of Science* 54 (1997), 197-206. Essay review of Gloria Clifton, *Directory of British Scientific Instrument Makers 1550-1851* (London, 1995).

BENNETT, Jim & Stephen JOHNSTON, *The Geometry of War 1500-1750* (Oxford: Museum of the History of Science, 1996). 85 pp. ISBN 0-903364-08-5. Exhibition handbook and catalogue on instruments for gunnery, fortification, etc.

BENNETT, Jim, 'Malpighi and the Microscope', in Domenico Bertoloni Meli (ed.), *Marcello Malpighi: Anatomist and Physician* (Florence: Leo S. Olschki, 1997), 63-72.

BENNETT, J. A., 'Museums and the Establishment of the History of Science at Oxford and Cambridge', *British Journal for the History of Science*, 30 (1997), 29-46. The Museum of the History of Science and the Whipple Museum of the History of Science.

BENNETT, J.A., 'Horology, History and Harrison', *Antiquarian Horology* 23 (1997), 451-456. Essay review of W.J.H. Andrewes (ed.), *The Quest for Longitude* (Cambridge, Mass., 1996).

BENNETT, Jim, 'What is the History of Scientific Instruments? Reflections on Maurice Daumas, *Les instruments scientifiques aux XVIIe et XVIIIe siècles*', *Sphaera*, Occasional Paper no.3 (Oxford: Museum of the History of Science, 1997).

BENNETT, Jim, 'Scientific Instruments', in J. Turner (ed.), *The Dictionary of Art* (London: Macmillan, 1996), vol. 28, 208-212.

BLONDEL, Christine, 'Electrical instruments in 19th century France, between makers and users', *History and Technology*, 13 (1997), 157-182.

BOERHAAVE: *Museum Boerhaave, Leiden deel 2 / volume 2* (Leiden, Museum Boerhaave, 1996, 96 pp. Communication 269) ISBN 90-6292-112-4. Twenty-seven exhibits in full-colour with explanatory technical drawings. Bilingual. Sequel to volume 1 (same format, 40 exhibits), which appeared in 1991 at the occasion of the re-opening of the museum.

BORCHI, E, R. MACII, F. VETRANO, eds., *Convegno nazionale su "Strumenti e cultura scientifica in Italia"* (Florence: Idealpress, 1997) .

BOXMEER, H. van, *Instruments anciens de l'Observatoire Royal de Belgique* (Brussels: Observatoire Royal de Belgique, 1996) 110 pp. Catalogue of some 75 astronomical, geophysical and nautical instruments from the Royal Observatory, partly on display in the Royal Museums of Art and History in Brussels.

BRACEGIRDLE, Brian, *Notes on Modern Microscope Manufacturers* (Oxford: Quekett Microscopical Club, 1996) xiii+88pp. ISBN 0951444174 Over 200 British, European, and American firms, from 1850 to the present.

BRADLEY, J.K. & E.M. TANSEY, 'The Coming of the Electronic Age to the Cambridge Physiological Laboratory: E. D. Adrian's Valve Amplifier in 1921', *Notes and Records of the Royal Society of London*, 50 (1996), 217-228.

BRANLY: [various authors], *Musée Branly, appareils et matériaux d'experiences* (1997) 262pp. ISBN 2-9511246-0-0. Catalogue of the Branly Museum in Paris, which preserves the instruments of the physicist Edouard Branly (1844-1940), pioneer of wireless.

BREGUET, Emmanuel (& Louis ANDR), 'Un horloger en pleine révolution', *La Revue* (Musée des Arts et Métiers, Paris), 18 (1997), 36-44. Abraham-Louis Breguet (1747-1823) and his successors were makers of precision instruments for physics, electricity, and telegraphy, as well as of clocks and watches.

BREGUET, Emmanuel, *Breguet, horloger depuis 1775. Vie et postérité d'Abraham-Louis Breguet (1747-1823)* (Paris: Alain de Gourcuff, 1997) 384pp.

BRENNI, Paolo, 'Nota su alcuni strumenti recentemente acquisiti dalla Fondazione Scienza e Tecnica', *Nuncius*, 11 (1996), 135-149.

BRENNI, Paolo, Mara MINIATI, Luigi PIPPA & Anthony TURNER, *Orologi e strumenti della Collezione Beltrame* (Florence: Istituto e Museo di Storia della Scienza, 1996) 176 pp., ISBN 88-09-20921-4. Second volume in the Florence museum series, describing 373 items from this private collection, assembled since the 1960s. Mainly astronomy and time-measurement.

BRENNI, Paolo, 'Physics Instruments in the Twentieth Century', pp. 740-757 in John Krige & Dominique Pestre (eds.), *Science in the Twentieth Century* (Amsterdam: Harwood Academic Publishers, 1997) 939 pp. ISBN 90-5702-172-2.

BRENNI, Paolo, 'Les outils de la science', in *Connaissance des arts* No. 546 (January 1997), 96-103.

BRENNI, Paolo, 'Gli strumenti scientifici', in R. Mazzolini (ed.), *Le collezioni scientifici del Ginnasio Liceo "Giovanni Prati" di Trento* (Trento: Ginnasio Liceo Prati, 1997). 358 pp., no ISBN. Catalogue of several collections (instruments, natural history, geography etc.) at a school in Northern Italy.

BUCHWALD, Jed Z. (ed.), *Scientific Credibility and Technical Standards in 19th and Early 20th Century Germany and Britain* (Dordrecht: Kluwer Academic Publishers, 1996) ix+182 pp. ISBN 079 234 2410. These case-studies on instrumentation and precision standards in the development of optical and electrical scientific technologies include Myles W. Jackson, 'Buying the Dark Lines of the Solar Spectrum: Joseph von Fraunhofer's Standard for the Manufacture of Optical Glass', 1-22; Stuart M. Feffer, 'Ernst Abbe, Carl Zeiss, and the Transformation of Microscopical Optics', 23-66, and David Cahan, 'The Zeiss Werke and the Ultramicroscope: The Creation of a Scientific Instrument in Context', 67-115.

CANADA: Catalogue de la collection d'instruments scientifiques (Québec, Musée de la Civilisation / Musée de l'Amérique Française, c. 1996) 89 pp. Computer-print of standardized short descriptions of 2627 pieces of apparatus, mainly teaching apparatus from the Seminary of Québec, held in store at this Canadian museum. Details: 9, rue de l'Université, C.P. 460, Haute-Ville, Québec, Canada G1R 4R7. On the collection, see Rittenhouse 43 (May 1997), 65-74.

CARON, Bob, 'Een 18de-eeuwse vuurmachine in het Fysisch Kabinet', part 1 Teyler's Magazijn 51 (zomer 1996), 11-14, and part 2, ibidem 52 (najaar 1996), 11-14. Deals with models of Newcomen engines, in particular the model in the Teyler Museum by Edward Nairne, which is proved to be one originally acquired by Leiden University in 1772.

CARPINE, Christian, 'Catalogue des appareils d'océanographie en collection au Musée océanographique de Monaco', part 5: 'Instruments de sondage'=Bulletin de l'Institut océanographique 74, nr. 1441 (1996) 175 pp., ISBN 2-7260-0178-5. A combined essay review with parts 3 (1991) and 4 (1993).

CASULLERAS, Josep & Julio SAMSO (eds.), From Baghdad to Barcelona: Studies in the Islamic Exact Sciences in Honour of Prof. Juan Vernet, 2 volumes (Barcelona: Instituto 'Mill s Vallicrosa' de Historia de la Ciencia Arabe, 1996) 827 pp. Papers include Paul Kunitzsch & Elly Dekker, 'The Stars on the Rete of the So-Called "Carolingian Astrolabe"' (II, 655-672) and David A. King & Kurt Maier, 'The Medieval Catalan Astrolabe of the Society of Antiquaries, London' (II, 673-718).

CERUZZI, Paul, 'From Scientific Instrument to Everyday Appliance: The Emergence of Personal Computers, 1970-77', *History and Technology*, 13 (1996), 1-31.

CHALONER, Clinton, 'The most wonderful experiment in the world: a history of the cloud chamber', *British Journal for the History of Science* 30 (1997), 357-74.

CHANNING, Norman & Mike DUNN, *British Camera Makers: An A-Z Guide to Companies and Products* (Claygate, Surrey: Parkland Designs, 1996).

CHAPMAN, Allan, *Astronomical Instruments and Their Users: Tycho Brahe to William Lassell* (Aldershot: Variorum, 1996) 380 pp., ISBN 0-86078-584-X. Seventeen articles, originally published between 1976 and 1994, with index.

CHAPMAN, Allan, 'England's Leonardo: Robert Hooke (1635-1703) and the art of experiment in Restoration England', *Proceedings of the Royal Institution of Great Britain*, 67 (1996), 239-275.

CHAPMAN, Allan, 'James Nasmyth: Astronomer of Fire', in *The Yearbook of Astronomy 1997* (London: Macmillan, 1996), 143-167.

CLEEMPOEL, Koenraad van, & others, *Instrumentos Cientificos del Siglo XVI: La Corte Española y la Escuela de Lovaina* (Madrid: Fundación Carlos de Amberes, 1997) 248 pp. ISBN 84-87369-03-0. Exhibition catalogue on 16th-century instruments lent by museums and

collectors from over the world. An English edition without illustrations appeared as *Scientific instruments in the sixteenth century. The Spanish court and the Louvain school* (Madrid: Fundación Carlos de Amberes, 1997) 143 pp. ISBN 84-87369-04-9.

CLERCQ, Peter de, *At the Sign of the Oriental Lamp: The Musschenbroek Workshop in Leiden, 1660-1750* (Rotterdam: Erasmus Publishing, 1997) 328pp. ISBN 90-5235-104-X. Study of a leading instrument-making workshop, including transcription of eight priced trade catalogues.

CLERCQ, Peter de, *The Leiden Cabinet of Physics: A Descriptive Catalogue* (Leiden: Museum Boerhaave, 1997, 200 pp. Communication 271) ISBN 90-6292-114-0. Apparatus used in natural philosophy teaching at Leiden University, including the original instruments described in Willem Jacob 's Gravesande's *Mathematical Elements of Physics*.

CRAVEN, Maxwell, John Whitehurst of Derby. *Clockmaker & scientist 1713-88* (Ashbourne: Mayfield Books, 1996) 272 pp., ISBN 0-9523270-3-1. Whitehurst also made instruments such as balances and barometers.

DANIEL, Christopher St J. H., *Sundials, reprint with amendments* (Princes Risborough, Buckinghamshire: Shire Publications, 1997).

DAVIES, Alun C., 'Technical expertise and public decisions. British watchmaking, 1842-43: a case study', pp. 438-447 in *Technical expertise and public decisions. Proceedings of the 1996 International Symposium on Technology and Society held at Princeton University, Princeton, N.J. Library of Congress Nr 9-76267*.

[DAVIES, Roger], 'Links between the Mechanic trades', *TATHS Newsletter* (Tool and Trades History Society), 52 (1996), 9-25. The interrelationship (in skills, tools, materials, etc.) of the precision workshop trades (from optical instrument making to watchmaking to trumpet making), based on the author's experience of working in such trades.

DAWSON, Virginia P., 'Knowledge Is Power: E. G. Bailey and the Invention and Marketing of the Bailey Boiler Meter', *Technology and Culture*, 37 (1996), 493-526. Recording meter for boiler control, introduced in 1916.

DÉBARBAT, Suzanne, 'An Unusual Use of an Astronomical Instrument: The Dreyfus Affair and the Paris 'Macro-Micromètre'', *Journal for the History of Astronomy*, 28 (1997), 45-52. An 1886 instrument for measuring star positions on photographic plates, used in 1904 to investigate the counterfeit document in the Dreyfus affair.

DEKKER, Elly, 'The Copernican Globe: A Delayed Conception', *Annals of Science*, 53 (1996), 541-566.

DOHRN-VAN ROSSUM, Gerhard, *History of the Hour: Clocks and Modern Temporal Orders* (Chicago: University of Chicago Press, 1996) xii+455 pp. The early spread of public striking clocks after their invention c.1280.

DORIKENS, M., & L. DORIKENS-VANPRAET, *Onzichtbare Stralen 1896-1996: 100 jaar natuurlijke radioactiviteit* (Gent: Museum voor de Geschiedenis van de Wetenschappen, 1996). 21 pp. Catalogue of exhibition marking discovery of radioactivity.

DORIKENS, M., & L. DORIKENS-VANPRAET, *Het wetenschappelijk en cultureel erfgoed van Joseph Plateau (1801-1883)* (Gent: Museum voor de Geschiedenis van de Wetenschappen, 1996) 33 pp. Catalogue of exhibition on Belgian researcher of the physiology of vision.

DORIKENS, M., & L. DORIKENS-VANPRAET, *Koud en warm* (Gent: Museum voor de Geschiedenis van de Wetenschappen, 1997) 21 pp. Catalogue of exhibition on temperature measurement and heat.

DORIKENS, M., & L. DORIKENS-VANPRAET, *Drie 19e eeuwse instrumentmakers aan de Universiteit Gent* (Gent: Mededelingen van het Museum voor de Geschiedenis van de Wetenschappen, 1997) 10 pp. On three makers active for the University of Gent in Belgium: Jacques Bernaert, J. Vanhese and Theodore Schubart. English version appeared in *Bulletin of the SIS*, 53 (1997), 9-14.

DORIKENS-VANPRAET, L. and VANDENMEERSSCHAUT, L., *Inventarislijst van oude catalogen van instrumenten. Inventory of instrument catalogues ca. 1885-1935* (Gent: Museum voor de Geschiedenis van de Wetenschappen, 1997) 16 pp. Lists 200 trade catalogues preserved at the museum in Gent.

DRINKWATER, Peter I., *The Art of Sundial Construction* (Shipston-on-Stour: P. Drinkwater, 1996, fourth edition).

EDE, Andrew, 'Colloids and Quantification: The Ultracentrifuge and its Transformation of Colloid Chemistry', *Ambix*, 43 (1996), 32-45. Developed by the Swedish physical chemist The Svedberg from 1923.

ESTACIO DOS REIS, António, *Medir Estrelas: Measuring Stars* ([Lisbon]: CTT Correios, 1997). In Portuguese and English; published by the Post Office Collectors' Club of Portugal.

FARA, Patricia, *Instruments of attraction* (Cambridge: Whipple Museum of the History of Science, 1996) 30 pp. Booklet accompanying exhibition on magnetism.

FARA, Patricia, *Sympathetic attractions. Magnetic practice, beliefs, and symbolism in eighteenth-century England* (Princeton: Princeton University Press, 1996) ISBN 0-691-01099-4.

FERRARI, Graziano, *Historical seismic instruments and documents: A heritage of great scientific value* (Bologna: SGA, 1997) ISBN 2-87977-001-7. Proceedings of a workshop held at Walferdange, 16-18 May 1994. Edited from the Centre Européen de Géodynamique et de Seismologie in Luxemburg.

FERNANDEZ, M.P. & P.C., 'Precision Timekeepers of Tokugawa Japan and the Evolution of the Japanese Domestic Clock', *Technology and Culture*, 37 (1996), 221-248.

FOISTER, Susan, Ashok ROY & Martin WYLD, *Making & Meaning: Holbein's Ambassadors* (London: National Gallery Publications, 1997) 112 pp. ISBN 1857091736. Includes an essay on the instruments depicted on this famous painting.

FOURNIER, Marian, *The Fabric of Life. Microscopy in the seventeenth-century* (Baltimore and London: Johns Hopkins U.P, 1996) 267 pp. ISBN 0-8018-5138-6.

FRÉMONTIER-MURPHY, Camille, 'Les instruments de l'ère Copernicienne', *Les cahiers de science & vie*, hors série no. 39, June 1997, 54-59.

GALLUZZI, Paolo, *Renaissance Engineers. From Brunelleschi to Leonarda da Vinci* (Florence: Istituto e Museo di Storia della Scienza, 1996) 252 pp., ISBN 88-09-20959-1. Exhibition catalogue. Machine drawings and modern working models shown in colour.

GASCOIGNE, S.C.B., 'The Great Melbourne Telescope and Other 19th-Century Reflectors', *The Quarterly Journal of the Royal Astronomical Society*, 37 (1996), 101-128.

GLASS, I.S., *Victorian telescope makers: the lives and letters of Thomas and Howard Grubb* (IOP Publishing Ltd., 1997) viii+279 pp., ISBN 0-7503-0454-5.

GLOBES: *Der Globusfreund* 43/44 (December 1995 for 1995/96) (Vienna) 364 pp. Proceedings of the VIIIth symposium of the International Coronelli Society, held in Prague, 1-4 September 1994. Twenty-six papers.

GLUCKMAN, Albert Gerard, *The invention and evolution of the electrotechnology to transmit electrical signals without wires* (Washington, Academy of Sciences, 1996) 256 pp., ISBN 0-9607222-5-4 Annotated bibliography of experiments, events and persons involved, 17th-19th centuries. Details: Institute for Physical Science and Technology, University of Maryland, College Park, Maryland 20742 USA.

GOOSSENS, N., *Microtomen* (Gent: Mededelingen van het Museum voor de Geschiedenis van de Wetenschappen, 1996) 17 pp. Short history of microtomes in Dutch and English, followed by a list of 50 extant microtomes and related items in the Museum in Gent.

GUAGNINI, Anna (ed.), *I laboratori dell' università: Un incontro Bologna-Oxford* (Bologna: Centro Internazionale per la Storia delle Università e della Scienza, Università di Bologna, 1996). Papers include Marco Bresadola Emilio Sergio, 'A Database for a Survey of Italian Laboratories since 1861' (with instruments), 43-73 and Jim Bennett, 'Science Museums as Resources for Historians', 75-84.

GUNN, A.G., 'Astronomical clocks at Armagh Observatory', *The Irish Astronomical Journal* 23 (1996), 198-204. Updated reprint, originally appeared in *Clocks* (1993).

HACKMANN, W.D., *Cameras: The Technology of Photographic Imaging: An Exhibition at the Museum of the History of Science* (Oxford: Museum of the History of Science, 1997). A separate handlist of the exhibits is also available.

HALL, A. Rupert & A.D.C. SIMPSON, 'An Account of the Royal Society's Newton Telescope', Notes and Records of the Royal Society of London, 50 (1996), 1-11. First published as separate pamphlet by the Society in 1995.

HEILBRON, J.L., 'X-Rays in the History of Science', Physica Scripta, 61 (1996), 60-66

HEINE, Gunther, 'Fact or Fancy? The Reliability of Old Pictorial Trade Representations', Tools & Trades (Tool and Trades History Society), 9 (1996), 20-27. Inaccuracies of technical detail in prints illustrating craft activities.

HENTSCHEL, Klaus, 'Measurements of Gravitational Redshift between 1959 and 1971', Annals of Science, 53 (1996), 269-295. Specially devised photoelectric spectrometers and other apparatus.

HERBERT, Ray, Seeing by Wireless: The Story of Baird Television (Sanderstead, Surrey: Published by the author, 1996). HERBST, Klaus-Dieter, Die Entwicklung des Meridiankreises 1700-1850: Genesis eines astronomischen Hauptinstrumentes unter Berücksichtigung des Wechselverhältnisses zwischen Astronomie, Astro-Technik und Technik (Bassum, Stuttgart: Verlag für Geschichte der Naturwissenschaften und der Technik, 1996) 255 pp., ISBN 3-928186-21-5. Development of the meridian circle. Originally thesis at Jena University (1991).

[HOLLAND, Julian], 'Tale of a Telescope', Macleay Museum News (University of Sydney, Australia), 7 (1996), [4]. A 3-inch refractor by West, 1857, with a letter from Henry West.

HOMBERG, Gustav, 'Mechanizing the Astronomer's Vision: On the Role of Photography in Swedish Astronomy, c.1800-1914', Annals of Science, 53 (1996), 609-616.

HULIN, Nicole & Francis GIRES, Physique, c"té cours: Cabinets de physique dans l'enseignement secondaire au XIXe siècle (Périgueux: Musée du Périgord, 1997). 95 pp. ISBN 2 950 7336-3-6. Exhibition catalogue of the Collection Francis Gires.

HUMPHRIES, Alan, Trade Catalogues in the Thackray Medical Museum (Leeds: Thackray Medical Museum, 1996). Huge collection of trade catalogues of medical, surgical, etc. instruments and supplies, to 1970.

HUNT, J.L., 'James Glaisher FRS (1809-1903): Astronomer, Meteorologist and Pioneer of Weather Forecasting: 'A Venturesome Victorian' ', Quarterly Journal of the Royal Astronomical Society, 37 (1996), 315-347.

HYSOM, E.J., 'Tests of the Shape of Mirrors by Herschel', Journal for the History of Astronomy, 27 (1996), 349-352.

JENEMANN, Hans R., Die Waage des Chemikers / The Chemist's Balance (Frankfurt am Main: DECHEMA, 1997) 87 pp. ISBN 3-926959-71-1. Bilingual, expanded re-issue of 1979 publication by the balance expert, who died in 1996. With detailed bibliography.

JEZIERSKI, Dieter von, *Rechenschieber - eine Dokumentation: Geschichte Hersteller Modelle* (Stein, Germany: [published by the author], 1997) 110 pp.

JOHNSTON, Sean F., 'Making light work. Practices and practitioners of photometry', *History of Science* 34 (1996), 273-302.

JULL, Douglas, *Collecting Stanhopes* (Worthing, West Sussex: D. S. Publications [the author], 1997, 2nd edition). Holiday souvenirs and other trinkets incorporating pictures magnified by Stanhope lenses.

KEELER, C.R., *The ophthalmoscope. Atlas. A selection of 92 ophthalmoscopes built between 1851 and 1952* (Hirschberg History of Ophthalmology, 1997). 226 pp. Black/white photographs. Massive work in English and German, published privately. Details: J.P. Wayenborgh, P.O. Box 196, B-8400 Oostende, Belgium. See also Schett, Alfred.

KNORR, Wilbur R., 'Sacrobosco's Quadrans: Date and Sources', *Journal for the History of Astronomy*, 28 (1997), 187-222. KUNITZSCH, Paul, *Neuzeitliche europäische Himmelsgloben mit arabischen Inschriften* (Munich: Verlag der Bayerischen Akademie der Wissenschaften, 1997) 33 pp., ISBN 3769615921. Globes by Blaeu, Colom, Coronelli and Adams.

LACAITA, C.G., C. PAVESE, A. SILVESTRI, P. TUCCI, *La strumentazione tecnico-scientifica presso le istituzioni di formazione in Lombardia dalla 2a meta del Settecento alla 1a meta del Novecento* (Como, 1997). To be ordered from the editor: Centro di Cultura "A. Volta 3, Como (Villa Olmo, Via Cantoni 1, Como, Italy). Two illustrated volumes of typescript in xerox copy. They contain inventories and historical notes on some 30 collections of scientific instruments in universities, schools and technical institutions in Lombardy, Italy.

LAMPREY, John P., 'An Examination of Two Groups of Georg Hartmann Sixteenth-century Astrolabes and the Tables Used in their Manufacture', *Annals of Science*, 54 (1997), 111-142.

LANKFORD, John (ed.), *History of Astronomy: An Encyclopedia* (New York & London: Garland Publishing, 1997) xix+594 pp. ISBN 081530322X.

LANKFORD, John & Ricky L. SLAVINGS, 'The Industrialization of American Astronomy, 1880-1940', *Physics Today*, 49 (January 1996), 34-40.

The Lassell Telescope Project (Liverpool: National Museums & Galleries on Merseyside, 1996). Six-page hand-out on a newly-constructed replica of William Lassell's 24-inch reflector of 1845.

LEMMERS, Alan, *Techniek op schaal. Modellen en het technologiebeleid van de Marine, 1725-1885* (Amsterdam: De Bataafsche Leeuw, 1996) 390 pp., ISBN 90-6707-423-3. Study based on the Dutch Naval Model Room, a 19th-century collection of nautical scale models and some instruments in the Rijksmuseum Amsterdam. With English summary.

Les objets scientifiques: un siècle d'enseignement et de recherche à l'Ecole polytechnique. Promotions 1794 à 1900 (Ecole Polytechnique, Palaiseau, 1997). 156 pp., ISBN 2-7302-0388-5. Catalogue of an exhibition of instruments developed in France during the 19th century.

LÜHNING, Felix, Der Gottorfer Globus und das Globushaus im 'Newen Werck'. Dokumentation und Rekonstruktion eines frühbarocken Welttheaters. Part 4 in Gottorf im Glanz des Barock. Kunst und Kultur am Schleswiger Hof 1544-1713 (Schleswig: Schleswig-Holsteinisches Landesmuseum, 1997) 176 pp. Detailed study, with proposal for reconstruction in its original place in a German palace, of an enormous 17th-century terrestrial globe, which was later transferred to St. Petersburg.

LÜTHY, Christoph, 'The Life of "8K", a Vagrant Microscope Objective', *Gesnerus*, 53 (1996), 49-66.

LYSTER, Timothy, 'New Life for an Old Telescope', *Sky & Telescope*, 91 (March 1996), 32-34.

MALPHRUS, Benjamin K., *The History of Radio Astronomy and the National Radio Astronomy Observatory: Evolution toward Big Science* (Malabar, Florida: Krieger Publishing, 1996) viii+199pp. America's radio telescopes, the first of which was begun in 1957 .

McKIE, J.N., 'John Tindale (1878-1969) and the Genesis of the Radio-Telescope', *The Quarterly Journal of the Royal Astronomical Society*, 37 (1996), 663-681.

MAJOR, J. Kenneth, 'The Ell', *TATHS Newsletter* (Tool and Trades History Society), 52 (1996), 2-7. Various examples of ell rules or rods, for measuring cloth.

MARCONI'S WIRELESS TELEGRAPH CO. LTD., *Marconi Receiving and Measuring Instruments* ([British Vintage Wireless Society], 1996). Facsimile reprint of undated trade catalogue, c.1912.

McCONNELL, Anita, 'The Kraken Visited', *Annals of Science*, 54 (1997), 87-91.

MEINEL, Christoph (ed.), *Ruhmkorff, Röntgen*, Regensburg: Historische Instrumente zur Gasentladung (Regensburg: Lehrstuhl für Wissenschaftsgeschichte, Universität Regensburg, 1997), 76pp. Catalogue of exhibition of apparatus for corona discharges, X-rays etc.

MESKENS, Ad, 'Michiel Coignet's Contribution to the Development of the Sector', *Annals of Science*, 54 (1997), 143-160.

MILLBURN, John R., *The Country Showman, or, Newsletter of the Benjamin Martin Appreciation Society* (Aylesbury: Published by John R. Millburn), vol.1 no.1, December 1997.

MILLS, Allan A., 'Altitude Sundials for Seasonal and Equal Hours', *Annals of Science*, 53 (1996), 75-84.

MILLS, A.A., S. DAY & S. PARKES, 'Mechanics of the Sandglass', *European Journal of Physics*, 17 (1996), 97-109.

MÖRZER BRUYNS, Willem F.J., *Elements of Navigation in the Collection of the Mariners' Museum* (Newport News, Virginia: The Mariners' Museum, 1996) 77 pp. ISBN 0917376455.

MOORE, John, [four short papers on the practicalities of collecting and upkeep of portable dials], *Bulletin of the British Sundial Society* no. 96.2, June 1996, 16-21 (including lodestones), no. 96.3, October 1996, 2-5 & 19 no. 97.1, January 1997, 16-20 and no. 97.2, April 1997, 2-6.

MORAIN, F. and others, 'La machine à congruences', *La Revue* (Musée des Arts et Métiers, Paris), 14 (1996), 14-19. A calculating instrument for "integer factorization", the first attempt to mechanise this complicated mathematical procedure invented by Eugène Carissan (1880-1925) and his brother Pierre, and made in 1919.

MORRISON-LOW, Alison D., 'John Hughes Bennett: A Catalogue of Some Surviving Artefacts', *Proceedings of the Royal College of Physicians of Edinburgh*, 27 (1997), 183-193. Pioneer of histology teaching and of the use of the microscope in medicine.

MUSEO NACIONAL DE CIENCIA Y TECNOLOGIA, *Abriendo las Puertas de la Ciencia: Una visita al núcleo de las colecciones del Museo Nacional de Ciencia y Tecnología: Guía didáctica* (Madrid: Ministerio de Educación y Cultura, 1997). 48 pp. Catalogue of a temporary display of the museum's artefacts. Some 120 instruments shown in stamp-sized colour photographs.

NEEDHAM, Joseph, 'La boussole marine, une invention chinoise', *La Revue* (Musée des Arts et Métiers, Paris) 21 (1997), 16-19. Partial translation of a text on the Chinese contribution to the development of the mariner's compass, published in 1970.

NOORDMANS, Hans, *Volledige beschrijving van het Planetarium te Franeker en van de plannen voor de bouw van een tweede "Hemisphaerium en Planetarium"* door Eise Eisinga (Franeker: Eisinga Planetarium, 1997) 80 pp., ISBN 90-72548-10-8. Edition of manuscripts by Eise Eisinga, who in the 1770s built his large planetarium in the provincial Dutch town Franeker. Instructions for upkeep of the existing planetarium and plans for an improved new planetarium, which was never built.

NORTH, John, *Stonehenge: Neolithic Man and the Cosmos* (London: Harper Collins Publishers, 1996). The ultimate scientific instrument of antiquity; also discusses the Bush Barrow Lozenge, a gold plate which may be an instrument used in connection with Stonehenge.

OECHSLIN, Ludwig, *Astronomische Uhren und Welt-Modelle der Priestermechaniker im 18. Jahrhundert*, 2 volumes + portfolio of loose technical diagrams (Neuchâtel, Switzerland: Antoine Simonin Verlag, 1996).

OLDROYD, David, 'Counting Instruments', *Annals of Science*, 53 (1996), 297-300. Essay review of R.G.W. Anderson, J.A. Bennett & W.F. Ryan (eds.), *Making Instruments Count* (Aldershot, 1993).

OPTICS: *Magische optica. Toverlantaarns, kijkdozen en andere vermakelijkheden* (Leiden: Museum Boerhaave, 1996, 32 pp. Mededeling 270). ISBN 90 6292 113 2. Exhibition catalogue on magic lanterns, stereophotography and early moving images.

PADUA: [L. Nerini, G.A. Salandin], *Duecento anni di Fisica a Padova* (Padua: Museo di Storia della Fisica, 1996) 176 pp. Catalogue of 160 pieces of physical apparatus from the university collection from c. 1740 onward.

PATERNOSTER, G. and others, 'Studio di una lente per cannocchiale di grandi dimensioni lavorata da Evangelista Torricelli', *Nuncius*, 11 (1996), 123-134.

PATERNOSTER, G. and others, 'Nota su una lente per cannocchiale firmata "Domenico Selva"', *Nuncius*, 12 (1997), 427-431. PIASKOWSKI, Antoni M., *Dawne Lunety i Lornetki w Zbiorach Polskich* (Warsaw: Retro-Art [for the author], 1996). Terrestrial telescopes, spy glasses and binoculars, late 18th to early 20th century, from public and private collections in Poland; includes detailed technical descriptions of the optics.

POULLE, Emmanuel, *Astronomie planétaire au Moyen Age latin* (Aldershot: Variorum, 1996) xiv+303 pp. ISBN 0860785890. Reprinted papers, especially on astronomical tables and astrology; complementary to Poulle's works on medieval instruments.

PRETZER, William S. and others, 'Museums in Britain: A Traveler's Introduction', *Technology and Culture*, 37 (1996), 135-157. Three articles with editor's introduction. Mostly technology museums.

PROVOST, Sylvie, 'Le cercle de Borda et la carte des îles Canaries', *La Revue (Musée des Arts et Métiers, Paris)*, 17 (1996), 21-31. With English summary.

QING, Lin, *Zur Fruhgeschichte des Elektronenmikroskops* (Bassum: GNT-Verlag, 1996), 163 pp.

RASQUIN, Victor A., *Dictionnaire des constructeurs belges d'instruments scientifiques (des origines à 1914)* (Brussels: Comité National de Logique, d'Historie et de Philosophie des Sciences, 1996) 105 pp. Biographical dictionary of Belgian instrument makers active before 1914.

RECOULES, André, *Une Histoire du Microscope* (1997) 322 pp. Standard history, strong on information about microscope makers, some of which -- especially for the twentieth century, is hard to find. Illustrated computer print, available for 220 FF. from the author: 7, Rue du 8 Mai, 03000 Moulins, France.

RICHET, Gabriel , 'Daguerre, Donné et Foucault, trois francs-tireurs créent la microphotographie', *Médecine/Sciences*, 13 (January 1997), 45-48. Centres on Alfred Donné (1801-1878); also covers the introduction of the microscope into medicine in the early 19th century.

ROSENTHAL, J. William, *Spectacles and other vision aids. A history and guide to collecting* (San Francisco: Norman Publishing, 1996) 530 pp., ISBN 0-939405-71-4. Items from the author's collection, including elegant hand-held telescopes such as opera glasses.

RUESTOW, Edward G., *The Microscope in the Dutch Republic: The Shaping of Discovery* (Cambridge: Cambridge University Press, 1996).

RUTHERFORD: *The Rutherford Museum of McGill University* (Montreal: McGill University, 1996) 26 pp. Typewritten description of the apparatus used by Rutherford, who became professor of experimental physics in 1898.

Sabix. *Bulletin de la Société des Amis de la Bibliothèque de l'Ecole polytechnique* 18 (December 1997). Issue on the possessions of this French institution. Contains general papers on scientific instruments by Paolo Brenni, Pierre-André Gallon and Jacques le Breton; also Jean Marguin, 'L'arithmomètre de Thomas No 1398', Guilhem Gallot, 'L'interféromètre de Fabry Perot' and Louis Patard, 'L'appareil à deux globes de verre de Gay-Lussac'.

SARMA, Sriramula Rajeswara, *Astronomical Instruments in the Salar Jung Museum* (Hyderabad: Salar Jung Museum, 1996). Six astrolabes and four celestial globes.

SCHAER, Roland (ed.), *Tous les savoirs du monde: Encyclopédies et bibliothèques, de Sumer au XXIe siècle* (Paris: Bibliothèque nationale de France / Flammarion, 1996). Massive exhibition catalogue, including instruments.

SCHAFFER, Simon, 'Experimenters' techniques, dyers' hands, and the electric planetarium', *ISIS* 88 (1997), 456-483. Discusses an "electric planetarium", invented by a Kentish dyer Stephen Gray, scrutinized by fellows of the Royal Society in the 1730s.

SCHETT, Alfred, *The ophthalmoscope. A contribution to the history of its development up to the beginning of the 20th century* (Hirschberg History of Ophthalmology, 1996). 425 pp. Massive work in English and German, published privately. Details: J.P. Wayenborgh, P.O. Box 196, B-8400 Oostende, Belgium. See also Keeler, C.R.

SCHMIDT, Rudolf, 'Der Gedruckte Horizontring am Gestell Alter Globen', *Information* (Internationale Coronelli-Gesellschaft für Globen- und Instrumentenkunde, Vienna), 23 (November 1996), 3-9. On globe horizon rings. With loose sheet of illustrations and English summary.

SERIO, Giorgia Forderà & Ileana CHINNICI, *L'Osservatorio Astronomico di Palermo* (Palermo: Flaccovio Editore, 1997) 175pp. ISBN 88-7804-144-0. Describes the collection of astronomical

instruments at this Sicilian observatory, which houses the famous altitude and azimuth circle built by Jesse Ramsden in 1789.

SINGMASTER, David, *Chronology of Computing* (London: South Bank University, School of Computing, Information Systems, and Mathematics, 1996).

SLUITER, Engel, 'The First Known Telescopes Carried to America, Asia and the Arctic, 1614-39', *Journal for the History of Astronomy*, 28 (1997), 141-145.

SLUITER, Engel, 'The Telescope before Galileo', *Journal for the History of Astronomy*, 28 (1997), 223-234.

SMITH, Robert W., 'Engines of Discovery: Scientific Instruments and the History of Astronomy and Planetary Science in the United States in the Twentieth Century', *Journal for the History of Astronomy*, 28 (1997), 49-77.

SOBEL, Dava, *Longitude: the true story of a lone genius who solved the greatest scientific problem of his time* (Walker Publishing Co., 1995; London: Fourth Estate, 1996) viii+184pp. John Harrison turned into a bestseller!

SORRENSON, Richard, 'The ship as a scientific instrument in the eighteenth century', *Osiris* 11 (1996), 221-236.

SOULEN, Robert J. Jr., 'James Dewar, his Flask and Other Achievements', *Physics Today*, 49 no.3 (March 1996), 32-37.

SPRANGERS, Hans, 'Van Pelt & Zonen, instrumentenmakers', *Breda's Museum Post* 6, nr.3 (December 1996), 6-7. Instrument-making workshop active in the Dutch town Breda between ca. 1835 and 1915.

STAUTZ, Burkhard, 'Mit dem himmel in der hand. Astrolabien und die Astrolabiensammlung des Deutschen Museums', *Kultur & Technik (Zeitschrift des Deutschen Museums, München)* 21 (1997), 2, 38-43. Nine astrolabes on display, including modern copy of the English "Painswick astrolabe".<

TABB, Michael, 'The Making of a Herschel 7-foot Telescope', *Bulletin (of the William Herschel Society, Bath)*, 52 (Spring 1997) [5-6]. A replica Herschel reflector made by the author for the William Herschel Museum, Bath.

TEN, Antonio E., *Medir el Metro: La historia de la prolongación del arco de meridiano Dunkerque-Barcelona, base del Sistema Métrico Decimal* (Valencia: Instituto de Estudios Documentales e Históricos sobre la Ciencia, Universitat de València - C.S.I.C., 1996).

TODESCO, Piero, 'Il Micrometro Filare di Giacomo Lusverg (Anno 1677)', *Nuncius*, 12 (1997), 93-107 and 6 plates.

TONKELAAR, Isolde den, Harold E. HENKES, Gijsbert K. van LEERSUM, *Eye and instruments. Nineteenth-century ophthalmological instruments in the Netherlands* (Amsterdam: Batavian Lion, 1996) 304 pp. ISBN 90-6707-400-4. Catalogue of the historical collection of the former Netherlands Hospital for Eye-Patients in Utrecht, established in the 1850s by F.C. Donders.

TRADE CATALOGUE: *Scientific Handicraft: An illustrated and descriptive catalogue of scientific apparatus manufactured and sold by John J. Griffin and Sons Ltd.* 14th Edition, 1910. Facsimile hardbound reprint by the Gemmary, Inc. Fallbrook (1997) 1020 pp. Limited edition by the Gemmary, which earlier produced facsimile reprints of Taylor's *Mathematical Practitioners* and a book on the optical instruments of the firm of R. Fuess.

TREVOR PHILIP & SONS, *A Measure of Time: 25th Anniversary Trevor Philip & Sons* (London: Trevor Philip & Sons, 1997). 52 pp. Selected instruments sold or offered by the London dealer, with texts by Helen Turner.

TUCCI, Pasquale (ed.), *Atti del XVI Congresso Nazionale di Storia della Fisica e dell'Astronomia* (Como: Gruppo di Lavoro per le Celebrazioni Voltiane, 1997) From a conference held at Como in 1996. Papers include 'Classification Criteria for Historical Astronomical Instrumentation', 151-174, 'Strumenti di osservazione astronomica in uso alla Specola di Brera in Milano di cui si ha documentazione storica', 207-218; 'Uso della bussola in archeoastronomia', 323-335, and 'La collezione degli strumenti d'epoca di fisica dell' Università di Bari', 479-489.

TURNER, Anthony, 'Les globes célestes en verre', *La Revue* (Musée des Arts et Métiers, Paris), 14 (1996), 51-57.

TURNER, A. J., 'The Musée d'Histoire des Sciences, Geneva: Mathematics, light, and Pompeian delight', *Interdisciplinary Science Reviews*, 22 (1997), 256-260.

TURNER, Anthony & Emmanuel de FONTAINIEU (eds.), *Petit catalogue d'exposition: Exposition 'Pilote Hermione'* (Rochefort: La Corderie Royale, Centre International de la Mer, 1997).

TURNER, G. L'E., 'An Astrolabe Belonging to Galileo?', *Nuncius*, 12 (1997), 87-92, 5 plates.

TURNER, G. L'E., 'An English Ivory Diptych Sundial, c. 1600', *Sphaera: The Newsletter of the Museum of the History of Science*, Oxford 4 (Autumn 1996), 2-4.

TURNER, G. L'E., and DEKKER, E., 'An unusual Elizabethan silver globe by Charles Whitwell', *The Antiquaries Journal* 77 (1997), 393-401.

TURNER, Gerard L'E., *The Practice of Science in the Nineteenth Century: Teaching and Research Apparatus in the Teyler Museum* (Haarlem: The Teyler Museum, 1996) 360 pp. ISBN 90-71835-07-3. Catalogue of some 450 pieces of apparatus, acquired for the Physical Cabinet between c. 1840 and 1915.

TWIST, R.M., *Geminus of Rhodes (about 70 BC): An Introduction to the Universe with the aid of a model sphere: A Rendering in English* (Portscatho, Cornwall: R. M. Twist (for private distribution), 1997). 50 pp.

VETRANO, Flavio (ed.), *Il Gabinetto di Fisica dell' Università di Urbino: la sua Storia, il suo Museo* (Rome: Istituto Poligrafico e Zecca dello Stato, Libreria dello Stato, 1996) 260 pp. In Italian and English

VRIELYNCK, Robert, 'Tomorrow was written yesterday', *Plateau: International Quarterly Bulletin on Animated Films* (Vlaams Instituut voor Animatiefilm, Brussels), 17 no.1 (1996). Complete issue, containing versions of the article in four languages.

WAGNER, Gerhard G., *Sonnenuhren und wissenschaftliche Instrumente. Aus den Sammlungen des Mainfränkischen Museums Würzburg* (Mainfränkisches Museum, Würzburg, 1997; phone +49 931 43016) 280 pp., ISBN 3-932461-00-2.

WALKER, Christopher (ed.), *Astronomy before the Telescope* (London: British Museum Press, 1996), 352 pp. ISBN 0-7141-1746-3. Articles include J.V. Field, 'European Astronomy in the First Millennium: The Archaeological Record', 110-122 (celestial globes, geared calendrical mechanisms and sundials) and G. L'E. Turner, 'Late Medieval and Renaissance Instruments', 231-244.

WARNER, Deborah Jean & Robert B. ARIAIL, *Alvan Clark & Sons, Artists in Optics* (Richmond, Virginia: Willman-Bell, 2nd. ed. 1996) v+298 pp., ISBN 0-943396-46-8. First edition 1995. New edition, containing a descriptive catalogue of all known Clark instruments.

WENZEL, Johann, 'Das Astrolab an Uhren', *Klassik-Uhren* 19 no.6 (1996), 36-46

WESS, Jane, 'The Logic Demonstrators of the 3rd Earl of Stanhope', *Annals of Science*, 54 (1997), 375-395

WICKINGS, Jack, 'The Norman Lockyer Observatory Restores Lockyer's Famous Six-inch Telescope and the Mond Dome', *NLO News* (Norman Lockyer Observatory, near Sidmouth, Devon), July 1996, 10-14.

WILLACH, R., 'New Light on the Invention of the Achromatic Telescope Objective', *Notes and Records of the Royal Society of London*, 50 (1996), 195-210. Chester Moor Hall and John Dollond; with examination and measurements of early achromatic lenses by Linnell, Ayscough, and Dollond.

WILLIAMS, Michael R., *A History of Computing Technology*, second edition (Los Alamitos, California: IEEE Computer Society Press, 1997).

WILLMOTH, Frances (ed.), *Flamsteed's Stars: New perspectives on the life and work of the first Astronomer Royal (1646-1719)* (Woodbridge, Suffolk: The Boydell Press in association with the

National Maritime Museum, 1997). Includes paper by Hester Higton, 'Equipping an Observatory: Flamsteed and Molyneux Discuss an Astronomical Quadrant', 107-114.

WYERS, P.J.H., 'De snaar van de snaargalvanometer van Einthoven', *Gewina* 19 (1996), 80-94. Laboratory notes reveal how the Dutch physiologist W. Einthoven made the strings in the string galvanometer used in his pioneer electrocardiograph.

WIJNBERG, C.J., *Het uurwerk van de Barentz-expeditie* (Zaandam: Stichting Zaans Uurwerkenmuseum, 1996), 98 pp. ISBN 90-74083-02-1. Detailed study on a clock in the Rijksmuseum Amsterdam, which the Dutchman Willem Barentz carried on an expedition to find the Northern Passage in 1596. With technical drawings.

ZEISS , *Information: Zeiss Information with Jena Review*, no.1, August 1996. Special issue on 'Carl Zeiss: 150 Years Innovation in Optics'.