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Alison D. Morrison-Low, Sara J. Shechner and Paolo Brenni (eds), *How Scientific Instruments Have Changed Hands* (Leiden and Boston, MA: Brill, 2017), History of Science and Medicine Library, Vol. 56, No. 5, pp. xxxii + 240, \$150, hardback, ISBN: 9789004324923.

The history of science and medicine used to focus on great thinkers and their ideas. Instruments of science never received much analysis in their own right. Although historians are trained to interpret texts, within recent decades, scientific instruments have earned scrutiny due to the influence of social history and interest in the broader cultural context of scientific work. The essayists in the volume under review have been in the vanguard of instrument studies through annual symposia of the Scientific Instrument Commission, International Union for the History and Philosophy of Science. Indeed, the essays were adapted from presented papers.

This volume attests that scientific instruments, those tools that create knowledge or facilitate the production of knowledge, can be read as texts. Their design, production, exchange in the market, their lives in the hands of many users over time, are collectively facets of a scientific culture. According to the editors, the essays in this volume examine ‘the movement of instruments to that market place, and then beyond . . . across time and place, for the geographical location of instruments proves to be of critical interest’ (p. vi). In recent years, the probing of hitherto neglected sources and the increasing accessibility of digitised source materials have made possible the breadth of scholarship featured here. Essayists draw on archaeological excavations, correspondence, ephemeral trade literature, newspapers, court records, online digital collections of instruments and, of course, the instruments themselves.

Alexi Baker (Cambridge University) reminds us that scientific instruments were not always consumed only by serious people in lab coats. She examines the unusual record of the eighteenth-century merchant George Willdey, who sold both optical items and children’s toys with his staff of women, including female apprentices. Baker argues ‘for greater attention to be paid in the history of science and technology to diversified and luxury retailers such as toy men’ (p. 20). But it is the nineteenth century that attracts most of the scholarly interest shown in this volume, vexing because despite the appearance of trade catalogues, many instruments bear the names not of manufacturers but dealers or brokers downstream from the production process. Manufacturing sites cannot be identified for many scientific tools.

Trade catalogues, advertising handbills, and notices were ephemeral literature not valued for research until relatively recently. Increasingly, libraries have been cataloguing and digitising them, thus affording the research possibilities pursued by this volume’s contributors. Essayists who exploit this ephemeral literature to insightful effect include Paolo Brenni (Fondazione Scienza e Tecnica, Florence) on the prices of physics instruments; A.D. Morrison-Low (National Museums Scotland) on advertising scientific tools; Peggy Aldrich Kidwell (Smithsonian Institution) on mathematical instruments at the world’s fairs; and Gloria Clifton (formerly, National Maritime Museum, Greenwich) on the instrument trade between the United Kingdom and the United States.

Two highlights are essays by Sara Schechner (Harvard University) on European pocket sundials in early colonial America and Laura Cházaro (Instituto Politécnico Nacional), who examines how Mexican physicians ‘consumed’ sphygmographs of European import. Schechner’s essay, the longest in the volume, presents a thorough ethnohistorical study of all extant pocket sundials from American collections and those recovered by archaeological excavations. Her thesis is striking: ‘By means of close looking and critically

thinking about this material culture, we can shed light on the relationship of time to imperialism and the transmission of cartographic and ethnographic knowledge during the colonial period' (p. 119). Her study exploits long-overlooked design features of these little dials. For instance, dials frequently included gazetteers, lists of places and their latitudes where the dials might be used. The places listed, however, taken in context with other data, reveal much about 'what French, British, and Spanish administrators, instrument makers, and users thought most important to have and identify in the vastness of colonial North and South America' (p. 169).

Laura Cházaro reminds readers of a Euro-American bias in presuming that 'scientific objects and the knowledge associated with them spread from an enlightened, industrialised Europe to a pre-capitalist America devoid of science' (p. 212). Mexican physicians imported and modified sphygmographs that served a nationalist agenda by creating stereotypes of the normative Mexican body. Cházaro's bracing but too brief essay is the only one on medical tools and the only one to pry open political and national agendas: one hopes that scientific instrument scholars will follow her lead and explore similar non-European contexts.

If intended for an audience beyond the Scientific Instrument Commission, this volume would be improved by an introductory essay that defines what is meant by a scientific instrument, provides a brief historiographical overview to the state of scientific instrument studies, and creates a context for the essays that appear. Without such an essay, casual but interested readers will have difficulty getting their bearings. Joshua Nall's and Liba Taub's (Cambridge University) essay on British scientific trade literature, with slight alteration, could have functioned as such an introductory essay given its articulation of common concerns of this volume's essays. They assert that 'behind [trade literature's] elaborate designs and meticulous illustrations lies important information about instrument design, industry trends, commercial demands, makers' techniques and specialisms, and even clues to the instrument business's social context' (p. 21). Thus social context embraces state interests, private entrepreneurship, labour and business history. Richard Kremer (Dartmouth College) argues the need for a 'longitudinal survey of the development of the making and selling of mathematical, optical and philosophical instruments . . . [which] remains a desideratum for the history of science and technology' (p. 173). One looks forward to synthetic and holistic studies of the scientific instrument trade that give perspective to the many particular case studies in evidence by the well-illustrated and researched essays in this volume.

A brief complaint about the publisher. It used to be a prerogative of writing reviews that reviewers claimed a copy of the book. Brill takes a different view. They offered a pdf version of the book and, when that was rejected, sent a cheap print-on-demand paperback, with many of the rich illustrations in reduced-quality black-and-white. This book is abundantly illustrated, but Brill's parsimony precludes useful comment.

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Sighard Neckel, Anna Katharina Schaffner, Greta Wagner (eds), *Burnout, Fatigue, Exhaustion: An Interdisciplinary Perspective on a Modern Affliction* (London: Palgrave Macmillan, 2017), pp. ix+316, £88/£70, hardback/ebook, ISBN: 978-3-319-52886-1 / 978-3-319-52887-8.