Published in final edited form as:

Arch Nat Hist. 2013 April 1; 40(1): 180. doi:10.3366/anh.2013.0155.

[Review of] “Lorraine Daston and Elisabeth Lunbeck (eds.), Histories of Scientific Observation, Chicago, 2011”

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Modern philosophy of science, as Lorraine Daston and Elisabeth Lunbeck remark in their introduction to this magnificent volume, usually opposes observation “as the mere registration of data” to experimental intervention as a more “active” mode of research (pp. 3–4). Until recently, this meant that the attention of both philosophers and historians of science was myopically directed to the experimental sciences, occluding the rich and varied history that observational practices have had in natural history disciplines, not only in the early modern period, but in the nineteenth and twentieth centuries as well. It is only recently, with the rise of so-called “data-driven research” in the sciences, that this long-term trend has come to an end. The volume under review is therefore more than welcome, because it presents a concerted and thought-through effort to come to terms with the history of observation, both as concept and practice, in a wide variety of disciplines and across the ages. As other edited volumes that came out from long-term projects in Lorraine Daston’s department at the Max-Planck-Institute for the History of Science in Berlin – such as *Natural Law and Laws of Nature in Early Modern Europe* (Ashgate 2008; co-edited with Michael Stolleis) or *Things That Talk: Object Lessons from the History of Art and Science* (Zone Books 2004) – this one as well is an astounding achievement in terms of weaving a coherent tapestry out of the infinity of stories one can tell given such a broad epistemic category as “observation”.

The first part of the collection of essays under review, consisting of a set of three papers by Katharine Park, Gianna Pomata, and Lorraine Daston, is expository in nature, and covers the thirteen centuries it took for observation to rise to prominence as a widely used term to describe scientific activity. Katherine Park shows that scientific observation was “marginal” to scholastic intellectual life (Park, p. 5), but resists the temptation to reduce the medieval meaning of *observatio* to its religious sense of exacting observance of monastic rules. Instead, she points out ancient associations with divination, astronomy, and meteorology, which structurally remained at work in the calculation of daily hours for prayer and religious feasts (Park, pp. 21–23). Gianna Pomata picks up the thread where Park leaves it, namely with the emergence of more systematic (and often collective) meteorological and astronomical observational practices in the late medieval period. The rise of *observationes* as a distinct genre of scholarly literature in the sixteenth and seventeenth centuries was connected, according to her, with “new urge to share [...] the knowledge of particulars collected in the daily practice” of disciplines such as astronomy, jurisprudence, and medicine (Pomata, pp. 48, 59–60). In contrast to what in this age was characterized as *experientia* or *experimentum*, namely the knowledge gained from training or personal experience, observationes had a “community building role” (p. 64). Lorraine Daston, finally, looks at how this genre was

then consolidated “into an epistemic category essential for all the arts and sciences” in the course of the seventeenth and eighteenth centuries, and how observation and experiment – now in the sense of active interference with natural processes – became coupled as a tightly interlocked pair of complementary categories (pp. 81–82).

The rest of the volume, comprising fourteen papers, seems to fall apart, despite the effort that the editors have put in providing short introductions to the sections into which they have grouped them. The reason for this is evident. With the advent of modern science came the carving out of distinct fields of inquiry which eventually took on the form of disciplines in the context of which observation acquired widely different meanings. One would search in vain for a unified answer to the question what “scientific” observation is, as one reviewer of the volume demanded in *Isis* recently, given that the contributors to this volume present convincing case studies of the use of observation with respect to such different phenomena as the colour of blood (Domenico Bertoloni Meli on Malpighi, Boyle and Hooke), insect paedogenesis (Michael D. Gordin on the Russian entomologist Nikolai Petrovitsch Vagner), Brownian motion (Charlotte Bigg on the French physical chemist Jean Perrin’s attempt to test the reality of atoms), prize movements (Harro Maas on economists Mill, Jevons, and Keynes), or the relation of climate and disease (J. Andrew Mendelsohn on late eighteenth century medicine). What these case studies do convey successfully, however, is just how much natural history there is even to those sciences that like to refer to themselves as “exact”, and conversely, how far removed observation actually is from a passive, unmediated contemplation of nature. Observation, one can learn from this volume, takes as much discipline, mastery of technology and media, and above all patience, as experiments do.