

Alexander Marr, ed. *The Worlds of Oronce Fine: Mathematics, Instruments and Print in Renaissance France*.

Donington: Shaun Tyas, 2009. xv + 224 pp. + 48 b/w pls. index. append. illus. map. £40. ISBN: 978-1900289-96-2.

The name of Oronce Fine, first professor of mathematics in the Collège Royal, was proverbial for incompetence even in his own age. Henry Savile dismissed Joseph Scaliger's embarrassing attempt to square the circle by calling him "even less skilled in geometry than Oronce Fine," a quip that John Wallis later used against Thomas Hobbes. Fine's unfortunate reputation hangs over this excellent conference proceedings on his work and legacy, which urges us (in the words of the editor) not to "dismiss Fine as a lacklustre popularizer," but instead to "appreciate him as a representative of the broad sweep of sixteenth-century mathematical culture" (12). All of the papers in this collection are of a high standard. Their combined effect is to provide as full a sense of the wider mathematical culture around Oronce Fine as we are likely to obtain.

Some forty years ago, in a PhD thesis and series of articles (frequently cited in the present volume), Richard Ross strove to establish that Fine was one of the "leading early French Renaissance mathematical scientists." He succeeded in showing that some, at least, of Fine's geometrical constructions were both logically

sound and of real mathematical interest. Ross was arguing against a near-unanimous consensus for Fine's incompetence, stretching from Commandino, via Montucla, to Clagett. Ross's work furnished, in one sense, the possibility of taking Fine seriously again. Yet in the epilogue to this collection, Stephen Clucas accurately states that "if this book tells us anything, it is that Oronce Fine was not a great mathematician" (206). What, then, do we stand to learn from studying Fine's scientific career?

The answer (as the editor's exhortation suggests) is that Fine provides a window into a wide variety of mathematical communities of the early-modern period: the Collège Royal, the University of Paris, advocates of practical mathematics, instrument makers, Platonists, gentleman practitioners, and many others. Ross's enthusiasm for Fine's geometry was sustainable only by very careful selection from his works; inevitably, the authors of this collection largely move away from any internalist account of Fine's work, and locate his importance through his social, institutional, and intellectual connections and influences.

But despite the contributors' desire to move away from a purely internalist assessment of Fine, this is book largely devoted to texts (and occasionally instruments) and their legacy. There are very few documents — letters, or other archival material — of the sort that might reveal something of the man behind the printed mathematical textbooks. Even Fine's most important intellectual relationships — to his patron Jacques Lefèvre d'Étaples, and to his own students such as Jacques Peletier and Peter Ramus — remain in the realm of conjecture. The articles by Isabelle Pantin and Giovanna Cifoletti explore Fine's immediate scholarly milieu and his place in it with as much richness and detail as the paucity of the sources will allow. Pantin's contribution, in particular, brings into focus a facet of French humanism which does much to explain some peculiarities of Fine's publications. While priding themselves on their mastery of obscure and difficult subjects neglected by scholastics (from Hebrew to mathematics), French humanists at the University of Paris nevertheless also saw popularization as a goal. Fine's own publications accordingly combined practical, applied mathematics with Euclidean terminology and method (sometimes with a lamentable lack of success); they also (sometimes incongruously) invoked a high Platonic mysticism (as Angela Axworthy shows in her contribution) to justify quite prosaic results in dialling or surveying — again, a legacy of members of the d'Étaples circle and their goals.

Several articles in this collection help to illuminate the nature of practical mathematics itself, both in general and as practiced by Fine. Pascal Brioiist and Sven Dupré, examining Fine's geometry and optics respectively, both conclude that Fine was an advocate of practical mathematics, without, however, having much interest in actual practitioners of arts like engineering or mirror-making. (Adam Mosley, in an essay on Fine's cosmography, comes to a very similar conclusion, describing his work as "theoretical practical mathematics"). His mathematics was "practical" in the sense that it was *prescriptive* (in order to achieve A, do B, C, and D), rather than demonstrative; and made constant recourse to instruments (the reader was expected to have a ruler and compasses at hand). In a most interesting observation, Brioiist

conjectures that Fine's ill-advised obsession with finding a solution to problems such as the quadrature of the circle, trisection of the angle, construction of a regular heptagon, sprung directly from his adherence to this conception of practical mathematics: the apparent failure of instruments to resolve these problems provided a challenge that Fine felt obliged to address. Henrique Leitão's essay in this volume provides an excellent account of the reactions of Fine's contemporaries to his quite deluded "solutions" to these ancient problems.

Other essays — such as those by Catherine Eagleton and Anthony Turner — focus on Fine's actual practical achievements. Eagleton shows, for instance, that Fine's diagrams were used quite unaltered for the construction instruments, and that pages from the books themselves may have been used as "paper instruments." Fine's work on the *navicula* sundial was (according to Eagleton's account), rather accomplished and, in its own way, innovative. He turned a medieval genre, in which individual sundials were described in isolated treatises, into the first genuine *textbook* on dialling, leading the reader from the easiest dials through to the most complex. Jean-Jacques Briost is similarly complimentary about Fine's cartography.

There are some small editorial infelicities. In several of the papers, references did not match the numbering of the end-plates (which were all beautifully reproduced). My copy came with a slip of errata, which did not note these errors and several other minor glitches. There is no bibliography at the end either of the volume or of the individual papers. Full references are given in the notes which, thankfully, are at the foot of the page. The index does much to make up for the absence of a bibliography, since it includes complete page and note references to all authors, including modern scholars, cited however briefly.

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