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Title: Calculating Value: Reading the Scribal Technologies of Early Modern Mathematics

Abstract:

The early modern period witnessed a remarkable change in status for the mathematical disciplines. Largely neglected during the Middle Ages and given little weight in the hierarchy of academic disciplines thereafter, mathematics increasingly came to be seen as central to natural philosophy, to the study of the natural world, and as key to accomplishing useful and practical tasks in the realms of commerce, navigation, warfare, and land management.

To date, scholarly attention has focussed largely upon the expert theoreticians, authors, and producers associated with the discipline's re-emergence. Yet a wider readership of lesser abilities must also have existed: one served by the various levels of instruction offered in the workplaces of the guilds and shipyards; at institutions such as scholae triviales, gymnasia, and universities; via individual tutoring; and even auto-didactic reading. This wider audience for mathematical texts has yet to be satisfactorily recovered. As a result, our knowledge of these more quotidian users - the reasons behind their demand for materials, the ways in which they came to practice mathematics, and, indeed, their important role in effecting wider changes in this mathematical culture - remains significantly underdeveloped.

To better understand these previously unseen users and their burgeoning mathematical practice, this paper presents evidence from the Science Museum Library's Rare Books Collection to explore the use, ownership and subsequent collection of mathematical books produced between 1550 and 1750. Supplemented by macroscopic data on the representativeness of the collection as a whole, granular case-studies detail evidence of the spread of Ramist pedagogies of arithmetic, geometry, and trigonometry in sixteenth-century Germany; the interconnected use of text, instrument and theory in early modern English intellectual and navigational cultures; and the value attached to the related disciplines of mathematical astronomy and chronology at the University of Cambridge in the late 1690s.

Concluding with a reconstruction of an individual early modern library and with a discussion on the interplay between individual and institutional collections, I highlight the changing values attributed to the mathematical text in the pre-modern and modern eras. By combining the 'scribal technologies' and reading practices utilised by early modern individuals with the histories of these artefacts as material objects, this paper sheds further light on the historical culture and experience of mathematical engagement as seen from the perspective of the user-consumer.