Stillman Drake. *Galileo at Work: His Scientific Biography*. Chicago: University of Chicago Press, 1978. Pp. xxiii, 536. \$25

Stillman Drake has attempted to apply precise measurement in his scientific portrait of Galileo Galilei, measurement based in large part on the biographical treasure trove provided by the twenty volumes, edited by Antonio Favaro, of the National Edition of Galilei's works, correspondence and other related documents. Indeed, Drake's prodigious output on Galilei has made him Favaro's equal in the English-speaking world.

In any biographical work the perspectives of author and subject are not always coincident, perhaps in some sort of proportion to historical distance. One point that Drake does not clarify, and it is a seminal point, is that Galilei conceived of his intellectual activities not necessarily from the standpoint of scientist, but rather as a *letterato* or man of letters, a true citizen of the republic of letters. This concept is affirmed many times in the course of Galilei's correspondence with his contemporaries. For Galilei, as not for us, there was no distinct boundary line between theoretical and applied knowledge; a 'scientist' was a *letterato* since, in order to communicate his ideas to his public and his peers, he was required to employ the alphabet or other accepted symbolic codes. *Lettere* were a basic tool.

This being so, it is only correct that Drake does not totally ignore 'non-scientific' aspects of Galilei's career in his 'scientific' biography, focussing from time to time on his familial affections and duties, his relationships with his intellectual peers, his complex even courtier-like role in the academic and princely circles of his time and his unflinching involvement in the political and religious ramifications of his intellectual contributions. Galilei's genuine interest in scriptural matters is evinced in Drake's translation of his 1613 letter to Castelli (Chapter 12: III). This letter surely confirms on Galilei the title of *letterato*, rather than simply 'scientist.'

While Drake relies on a narrative based on a chronological analysis, he does not, as another reviewer has pointed out, assume the task of integration. Nor is it his intention to do so, except in the areas where he feels that too little, or too much erroneous, has already been claimed. The reader searching for 'on-going debate' on the role of empirical bent would, however, be subtly rewarded. On the other hand, the scientific reader may be disappointed by inequalities in interpretation of matters scientific.

Galileo at Work is not standard biography. The appeal for readers who are not already conversant with the literature on and of Galilei may be limited, except for those willing to plunge in at the deep end using the Preface and the notes. Readers nourished on the chronological conventions of narrative biography may find the strictly sequential structure disconcerting.

Any such reservations could probably have been forestalled by a clearer statement of the parameters of Drake's inquiry in his Preface. The first image presented by the narrative is an essentially 'literary' one of Galilei in his gardening clothes, an image based on the connotations of role and costume. However, the Preface goes on to claim for the work a rigidly 'scientific' structure based on the chronology of Galilei's letters and other documents. Drake falls between two stools. The singularity of his title is belied by the intermittent bipolarity of the presentation of

ception of this bifurcated presentation is underscored by the rather self-conscious overrider on p. 360 that he will be forced to ignore the letters of Galilei to his daughter Virginia since this is a 'scientific biography.'

One feature of the work that will disconcert the specialist reader is Drake's frequent omission to cite the precise sources of his information. His credibility is not questioned, but it is a regrettable omission. Several typographical errors came to this reviewer's attention (pp. 190, 239 and 358).

However, any criticisms should not detract from the breadth and depth of scholarship and organization evidenced by this book. Particularly enlightening are Drake's analyses of Galilei's skirmishes with the established order of the Church. Drake has not attempted to write fictional biography, but has chosen to present the reader with a 'factional' account, on occasions interspersed by subjective analysis. This reviewer would have welcomed a greater participation on the part of the biographer in his narrative. Should one take at face value Drake's claim (p. xxii) to have 'no opinion' whatsoever on Galilei's philosophical opinions and beliefs? Galilei certainly held such opinions and beliefs as Drake's narrative bears testimony. But then his chosen vehicle is 'scientific' biography. Should biography be so defined?

ANNE REYNOLDS, *University of Sydney*

Richard A. Goldthwaite. *The Building of Renaissance Florence. An Economic and Social History*. Baltimore and London: The Johns Hopkins University Press, 1980. Pp. xviii, 459. \$29.50.

Among distinguished American students of the Italian Renaissance, Richard Goldthwaite stands out both as a pioneer and as a proselytizer. He is a pioneer in his original use of private ledgers and account books of Renaissance businessmen to unlock the secrets of family structure and artistic patronage. Building upon the methods of his spiritual mentors, Raymond de Roover and Frederic C. Lane, over the past fifteen years Goldthwaite has moved beyond their discussions of the firm and partnership to investigate the nature of family structure, private patronage and construction of the Renaissance palace. As a proselytizer, Goldthwaite has constantly asserted his conviction that the proper study of Renaissance Italy lies in an understanding of material culture, industry and trade, the role of the entrepreneur and, in general, forms of economic life, rather than in political and intellectual history. His position as a pioneer charting new regions and his enthusiasm for his own innovative brand of economic history have led to the notable achievements of this volume, as well as to some of its ambiguities and drawbacks.

The most obvious triumph of this volume is its bold conceptual scheme based on the now conventional division of demand pull and supply push in economic change. Goldthwaite treats the question of demand for construction only in terms of private family palaces, not communal projects or ecclesiastical architecture, and restricts his discussion to Florentine building against its European back-