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978-0-521-06385-2 - Before Newton: The Life and Times of Isaac Barrow

Edited by Mordechai Feingold

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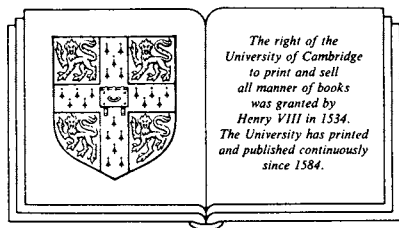
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CONTENTS

<i>List of contributors</i>	<i>page</i> vii
<i>Editor's preface</i>	ix
1 Isaac Barrow: divine, scholar, mathematician <i>Mordechai Feingold</i>	1
2 The <i>Optical Lectures</i> and the foundations of the theory of optical imagery <i>Alan E. Shapiro</i>	105
3 Barrow's mathematics: between ancients and moderns <i>Michael S. Mahoney</i>	179
4 Isaac Barrow's academic milieu: Interregnum and Restoration Cambridge <i>John Gascoigne</i>	250
5 Barrow as a scholar <i>Anthony Grafton</i>	291
6 The preacher <i>Irène Simon</i>	303
7 Isaac Barrow's library <i>Mordechai Feingold</i>	333
<i>Index</i>	373

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[More information](#)

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Frontmatter

[More information](#)

Contributors

viii

including *Three Restoration Divines* (1967, 1976) and *Neo-Classical Criticism* (1971). At present, she is completing a study on Robert South's "Description of Poland" and is engaged in a study of the contemporary English novel.

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Frontmatter

[More information](#)

EDITOR'S PREFACE

Our appraisal of historical scientific figures tends to be synonymous with their purported legacy to posterity – as adjudged by subsequent scholars; we rarely attempt to take into account their reputation among contemporaries or gauge their accomplishments within the context of their age. Obviously, a critical approach that equates historical “worth” with an appreciable contribution to future generations will – and must – be the primary focus of historians of science. Nonetheless, to use such a yardstick exclusively is to disregard the complexity of past events and to hamper seriously our ability to comprehend the precise character of the scientific enterprise; for all discoveries and breakthroughs in science, irrespective of the unique contribution of the individual who inaugurated them, cannot be considered in isolation, independent of a large community of teachers, fellow students, and scholars of the second order. The fact that the input of such persons is vague and amorphous, and cannot be assigned a simple letter in an equation, does not negate their contribution – it only makes more difficult our task of definition. And by failing to recognize this connectedness between individual genius and larger community, we not only distort the complexity and singularity of a historical moment, but also risk misconstruing the nature and magnitude of the innovation itself.

Isaac Barrow is a case in point. Esteemed by contemporaries as a profound mathematician as much as later generations esteemed him as a divine, his work had already, by the time of his death in 1677, been superseded by the discoveries of Newton and Leibniz. Nevertheless, his reputation as a mathematician persisted well into the nineteenth century, both because of and in spite of the role he played, posthumously, in the raucous calculus priority dispute. In a manner that has few, if any, parallels in the history of science, Barrow's reputation correlated inversely with the vicissitudes of the combatants. One of the tacks taken by both sides was to accuse and castigate the other as a beneficiary of Barrow's discoveries.

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Frontmatter

[More information](#)*Editor's preface*

x

To deny even the least shadow of this charge, both protagonists refused even to allude to Barrow in any context – let alone acknowledge the slightest debt. This process of silent repudiation was hastened and made explicit in the present century with the advent of meticulous and rigorous new scholarship in the history of mathematics. Partly as a reaction to J. M. Child's reckless attempt in 1916 to credit Barrow with the invention of the calculus – an effort that resulted in a vehement rebuttal by Dietrich Mahnke a decade later – the research of Joseph Hofmann and D. T. Whiteside established, respectively, the independence of Leibniz's and Newton's discoveries, at the same time denying the debt of either man to Barrow, either in the form of personally transmitted knowledge or via his publications. The verdict of both scholars was that Barrow's mathematical knowledge was derivative, and hence extraneous to the intellectual development of either Newton or Leibniz. This new orthodoxy has rapidly been assimilated and perpetuated by the more recent literature, so much so that Barrow's reputation, to use A. Rupert Hall's eloquent phrase, "once so high (at least among English speakers), seems to be descending toward the status of an elegant codifier" (*Philosophers at War* [Cambridge, 1980], p. 8).

Unfortunately, none of these scholars ever embarked on a close and sustained study of Barrow, save for those aspects conspicuously pertinent to Newtonian and Leibnizian concerns. It is the purpose of this volume, therefore, to provide the requisite evaluation. By seeking to understand Barrow's life and work primarily in the confines of the pre-Newtonian scientific framework, we believe that a more balanced picture of the essence of the man and the intellectual issues that preoccupied him will emerge. Thus, the chapters devoted to Barrow's attainments in mathematics and optics entail a substantial rethinking of his scientific acumen, while the chapters dealing with Barrow's life and times endeavor to emphasize the interdependence of his science and his religious and philosophical world views. For this reason, a sizable portion of the book is devoted to the many facets of Barrow's interests and undertakings, particularly his lifelong and incessant commitment to theology, education, and the classics.

A collective enterprise of this sort risks duplication of material among the chapters. Propitiously, all authors were fully aware of the domains and responsibilities of the other contributors, and conscious efforts were made to avoid addressing issues discussed more fully elsewhere. Thus, despite the affinity between geometry and optics in Barrow's thought, both Mahoney (Chapter 3) and Shapiro (Chapter 2) have resisted the temptation to infringe upon each other's domain. In a like manner, Gascoigne (Chapter 4) has circumvented biographical material treated in the first chapter and aspects of Barrow's theology addressed by Irène Simon (Chapter 6). For his part, the editor has followed vigilantly the decision to provide an

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Frontmatter

[More information](#)*Editor's preface*

xi

intellectual biography of Barrow, while leaving the discussion of the content of his work to the other contributors. However, no editorial policy to ensure uniformity of opinion has been employed, and, subsequently, variations in interpretation may occasionally – and perhaps wisely – be found in the respective chapters.

I wish to thank the master and fellows of Trinity College, Cambridge, for permission to use and quote material in their archives. It is also a duty, and pleasure, to acknowledge the kindness and perseverance with which the staff of the library – and in particular Dr. Timothy Hobbs – assisted our efforts. I also thank the keeper of Western manuscripts at the Bodleian Library, Oxford, for permission to provide a modern edition of Barrow's library catalogue in its possession, and to Lord Delamere for kind permission to quote from the Hartlib papers housed at Sheffield University Library. I am also grateful for information received from Mrs. Alison Sproston, assistant librarian of Gonville and Caius College, Cambridge, and Miss Suzanne Eward, librarian of Salisbury Cathedral Library. Among individuals who contributed in a variety of ways to the volume, the following friends and colleagues ought to be mentioned: Willy Applebaum, Roger Ariew, Ann Blair, I. Bernard Cohen, Michael Hunter, Elisabeth Leedham-Green, Maren Niehoff, Kristine Peterson, and Tim Wells. Last, but not least, I wish to thank the contributors to the volume, who shared my zeal for the subject matter of the book – and patiently awaited its completion – and Helen Wheeler and Mary Nevader, who lovingly attended the book while in press.