

Cambridge University Press
978-1-107-56985-0 - The Life of Isaac Newton
Richard S. Wesrfall
Frontmatter
[More information](#)

THE LIFE OF ISAAC NEWTON

Cambridge University Press
978-1-107-56985-0 - The Life of Isaac Newton
Richard S. Wesfall
Frontmatter
[More information](#)

Cambridge University Press
978-1-107-56985-0 - The Life of Isaac Newton
Richard S. Westfall
Frontmatter
[More information](#)

The Life of Isaac Newton

Richard S. Westfall



Cambridge University Press
978-1-107-56985-0 - The Life of Isaac Newton
Richard S. Wesrfall
Frontmatter
[More information](#)

CAMBRIDGE
UNIVERSITY PRESS

University Printing House, Cambridge CB2 8BS, United Kingdom

Cambridge University Press is a part of the University of Cambridge.

It furthers the University's mission by disseminating knowledge in the pursuit of education, learning and research at the highest international levels of excellence.

www.cambridge.org

Information on this title: www.cambridge.org/9781107569850

© Cambridge University Press 1993, 2015

This publication is in copyright. Subject to statutory exception and to the provisions of relevant collective licensing agreements, no reproduction of any part may take place without the written permission of Cambridge University Press.

First published 1993

Canto edition 1994

7th printing 2007

Canto Classics edition 2015

Printed in the United Kingdom by Clays, St Ives plc

A catalogue record for this publication is available from the British Library

ISBN 978-1-107-56985-0 Paperback

Cambridge University Press has no responsibility for the persistence or accuracy of URLs for external or third-party internet websites referred to in this publication, and does not guarantee that any content on such websites is, or will remain, accurate or appropriate.

Cambridge University Press
978-1-107-56985-0 - The Life of Isaac Newton
Richard S. Wesfall
Frontmatter
[More information](#)

TO
JOHN SAMUEL MCGRAIL
AND
BRIAN WESTFALL MCGRAIL
IN THE FOND HOPE THAT FIFTEEN OR TWENTY
YEARS FROM NOW, WHEN THEY ARE ABLE,
THEY WILL WANT TO READ THE BOOK

Cambridge University Press
978-1-107-56985-0 - The Life of Isaac Newton
Richard S. Wesfall
Frontmatter
[More information](#)

Contents

	<i>Preface</i>	page ix
	<i>Acknowledgments</i>	xiii
	<i>A Note About Dates</i>	xv
	<i>Plates</i>	xvii
1	A Sober, Silent, Thinking Lad	1
2	The Solitary Scholar	19
3	<i>Anni Mirabiles</i>	37
4	Lucasian Professor	61
5	Publication and Crisis	85
6	Rebellion	110
7	Years of Silence	133
8	<i>Principia</i>	159
9	Revolution	191
10	The Mint	221
11	President of the Royal Society	247
12	The Priority Dispute	273
13	Years of Decline	297
	<i>Bibliographical Essay</i>	314
	<i>Index</i>	319

Cambridge University Press
978-1-107-56985-0 - The Life of Isaac Newton
Richard S. Wesfall
Frontmatter
[More information](#)

Preface

FEW MEN HAVE LIVED for whom less need exists to justify a biography. Isaac Newton was one of the greatest scientists of all times – and, in the opinion of many, not one of the greatest but the greatest. He marked the culmination of the Scientific Revolution of the sixteenth and seventeenth centuries, the intellectual transformation that brought modern science into being, and as the representative of that transformation he exerted more influence in shaping the world of the twentieth century, both for good and for ill, than any other single individual. We cannot begin to know too much about this man, and I will forbear to belabor the obvious and will say no more in justification of my book.

The life that I here present is a reduced version of the full-scale biography *Never at Rest*, which I published in 1980. In reducing the work in length, I have attempted to make it more accessible to a general audience by also reducing its technical content. (Very little mathematics appears in *The Life of Isaac Newton*. I invite those who feel the lack not only of mathematics but also of other technical details to consult the longer work.) To facilitate consultation, I have retained the titles of the original chapters; and the contents of the chapters, as condensations, follow the same patterns of organization. The numbers of the chapters do not correspond, however, for in condensing I have eliminated two of the fifteen in *Never at Rest* (Chapters 1 and 4). Chapter 4 dealt with Newton's development of his fluxional method or calculus; a summary of it appears in Chapter 3, "*Anni Mirabiles*," of the present book. It should then be easy to locate fuller discussions of any issue. The present *Life* also contains no footnotes. Anyone wanting to find the source of a particular quotation should be able quickly to locate it in *Never at Rest* in the same way.

Since publishing *Never at Rest*, I have moved on from Newton to other issues concerned with the history of early modern science and have not remained actively involved with Newtonian scholarship. Though I am aware of newer work that has appeared in the interim, I have not felt that I had rethought the issues sufficiently to attempt to incorporate it. Therefore *The Life of Isaac Newton* is not, as I have already indicated, a new work of scholarship but rather a shortened version of *Never at Rest*. I have included only one item that is not in the earlier work, Kenneth Baird's discoveries about Newton's maternal grandfather. (See K. A. Baird, "Some Influences upon the Young Isaac Newton," *Notes and Records of the Royal Society*, 41 [1986–7], 169–79.) This extremely interesting information did not seem to me to require any refashioning of my presentation of Newton's childhood, and therefore I simply inserted it at the relevant location.

During the time when I was at work on Newton, I received assistance of many kinds from many sources. I acknowledged them once; I happily acknowledge them again. Grants from the National Science Foundation, the George A. and Eliza Gardner Howard Foundation, the American Council of Learned Societies, and the National Endowment for the Humanities, as well as sabbatical leaves from Indiana University, provided most of the time for study and writing, much of it in England, where the great bulk of Newton's papers exist. One of those years I had the privilege and advantage to be a Visiting Fellow of Clare Hall, Cambridge. The National Science Foundation and Indiana University also helped to finance the acquisition of photocopies of Newton's papers. The staffs of many libraries outdid themselves in kind assistance, most prominently (in proportion to my demands) the Cambridge University Library, the Trinity College Library, the Widener Library at Harvard, the Babson College Library, the Indiana University Library, and the Public Record Office. Most of the typing I owed to a succession of secretaries over the years in the Department of History and Philosophy of Science at Indiana University, but among them especially Karen Blaisdell. The help of Anita Guerini in proofreading *Never at Rest* was invaluable, and the benefits of her assistance extend to the present volume. I cannot sufficiently express my gratitude to those I have mentioned and to many others who have helped in less central ways. I can at least try to express it, and I do.

Nor can any author omit his family. In 1980 I remarked that I had

embarked on the biography of Newton by the time my children reached consciousness, and that I was finishing it as they completed their educations and set out on their own. The whole of their intimate experience of me was flavored by the additional presence of Newton. One of the happy changes wrought by the intervening years was the birth of the two grandsons to whom I dedicate this volume, while thanking all three children for their continuing encouragement and all of the joy they have brought to my life.

In the earlier work I also singled out my wife, as every male and married author surely must, and I underlined my gratitude by dedicating the book to her. She was completing a book of her own at the time. She is completing another as I publish this condensation of *Never at Rest*. There have been two others in between. I like to hope her scholarly production indicates that the support I have offered bears at least some small proportion to the support I have always enjoyed from her.

Cambridge University Press
978-1-107-56985-0 - The Life of Isaac Newton
Richard S. Wesfall
Frontmatter
[More information](#)

Acknowledgments

I WISH TO ACKNOWLEDGE permission granted me by the Trustees of the British Museum to reproduce pictures of the ivory bust by Le Marchand (Plate 5); by the University of California Press to reproduce a diagram from its edition of the English translation of the *Principia* (Figure 9); by the Bibliothèque Publique et Universitaire de Genève to reproduce the portrait of Nicolas Fatio de Duillier (Plate 2); by the Trustees of the National Portrait Gallery to reproduce the Kneller portrait of 1702 (Plate 3); by Neale Watson Academic Publications, Inc., to reproduce four diagrams from Richard S. Westfall, *Force in Newton's Physics* (London, 1971 (Figures 2, 3, 6, and 7)); by Lord Portsmouth and the Trustees of the Portsmouth Estates to reproduce the Kneller portrait of 1689 (Plate 1) and the Thornhill portrait of 1710 (Plate 4); and by the Royal Society to reproduce the Vanderbank portrait of 1726 (Plate 6).

I wish further to acknowledge the permission and courtesy given me by Babson College (for the Grace K. Babson Collection); the Bodleian Library; the Syndics of the Cambridge University Library (for the Portsmouth Papers and other manuscripts); the University of Chicago Library (for the Joseph Halle Schaffner Collection); the Syndics of the Fitzwilliam Museum, Cambridge; the Jewish National and University Library (for the Yahuda manuscripts); the Provost and Fellows of King's College, Cambridge (for the Keynes manuscripts); the Warden and Fellows of New College, Oxford; the Royal Society; the Controller of H.M. Stationery Office (for crown-copyright records in the Public Record Office); and the Master and Fellows of Trinity College, Cambridge, to cite manuscripts.

The University of California Press has allowed me to quote from the Cajori edition of Newton's *Principia*; Cambridge University Press to

Cambridge University Press
978-1-107-56985-0 - The Life of Isaac Newton
Richard S. Westfall
Frontmatter
[More information](#)

quote from I. Bernard Cohen and Alexandre Koyré, eds., *Isaac Newton's Philosophiæ Naturalis Principia Mathematica*; from B.J.T. Dobbs, *The Foundations of Newton's Alchemy*; from A. R. and M. B. Hall, eds., *Unpublished Scientific Papers of Isaac Newton*; from H. W. Turnbull et al., eds., *The Correspondence of Isaac Newton*; and from D. T. Whiteside, ed., *The Mathematical Papers of Isaac Newton*; Dover Publications, Inc., to quote from its edition of Newton's *Opticks*; Harvard University Press to quote from I. Bernard Cohen, ed., *Isaac Newton's Papers & Letters on Natural Philosophy*; Oxford University Press to quote from John Herivel, *The Background to Newton's 'Principia'*; and from Frank Manuel, *The Religion of Isaac Newton*; and *The Notes and Records of the Royal Society* to quote from R. S. Westfall, "Short-writing and the State of Newton's Conscience, 1662." I gratefully acknowledge all of their kindnesses.

A Note About Dates

BECAUSE ENGLAND had not yet adopted the Gregorian calendar (which it treated as a piece of popish superstition), it was ten days out of phase with the Continent before 1700, which England observed as a leap year, and eleven days out of phase after 28 February 1700. That is, 1 March in England was 11 March on the Continent before 1700 and 12 March beginning with 1700. I have not seen any advantage to this work in adopting the cumbersome notation 1/11 March, and the like. Everywhere I have given dates as they were to the people involved, that is, English dates for those in England and Continental dates for those on the Continent, without any attempt to reduce the ones to the others. In the small number of cases where confusion might arise, I have included in parentheses O.S. (Old Style) for the Julian calendar and N.S. (New Style) for the Gregorian.

In England the new year began legally on 25 March. Some people adhered faithfully to legal practice; many wrote double years (e.g., 1671/2) during the period from 1 January to 25 March. Everywhere, except in quotations, I have given the year as though the new year began on 1 January.

Cambridge University Press
978-1-107-56985-0 - The Life of Isaac Newton
Richard S. Wesfall
Frontmatter
[More information](#)

Cambridge University Press
978-1-107-56985-0 - The Life of Isaac Newton
Richard S. Wesfall
Frontmatter
[More information](#)

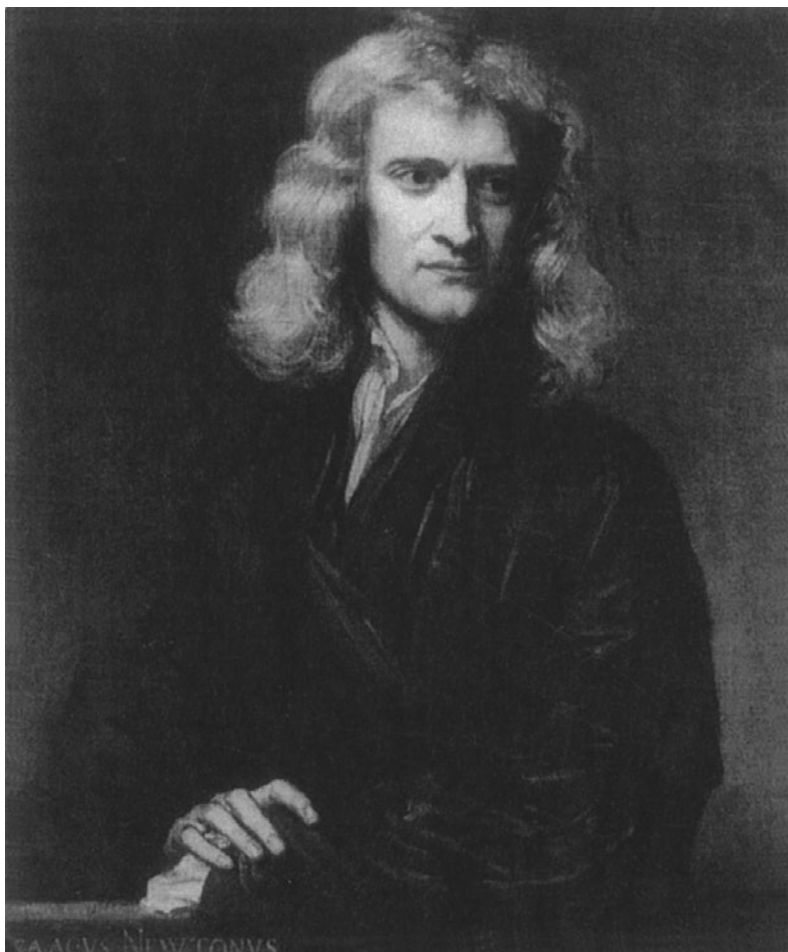


Plate 1. Newton at forty-six. Portrait by Sir Godfrey Kneller, 1689. (Courtesy of Lord Portsmouth and the Trustees of the Portsmouth Estates.)

Cambridge University Press
978-1-107-56985-0 - The Life of Isaac Newton
Richard S. Wesfall
Frontmatter
[More information](#)



Plate 2. Nicolas Fatio de Duillier. Artist unknown. (Courtesy of the Bibliothèque Publique et Universitaire de Genève.)

Cambridge University Press
978-1-107-56985-0 - The Life of Isaac Newton
Richard S. Wesfall
Frontmatter
[More information](#)

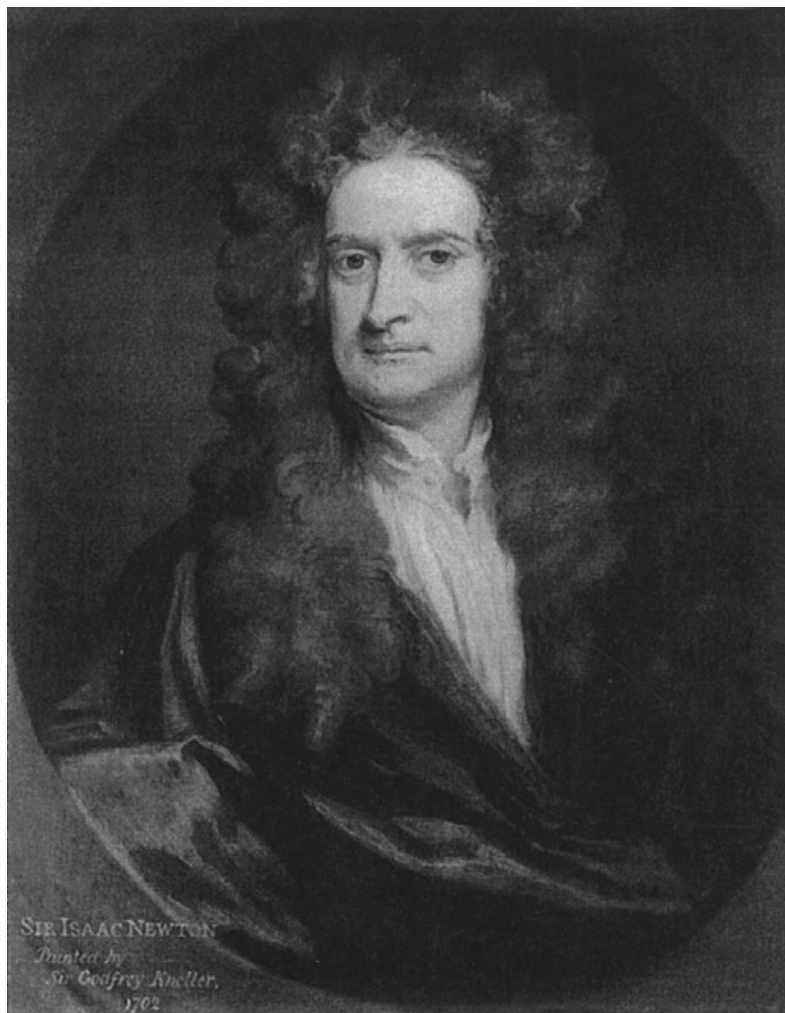


Plate 3. Newton at fifty-nine. Portrait by Sir Godfrey Kneller, 1702. (Courtesy of the Trustees of the National Portrait Gallery.)

Cambridge University Press
978-1-107-56985-0 - The Life of Isaac Newton
Richard S. Wesfall
Frontmatter
[More information](#)

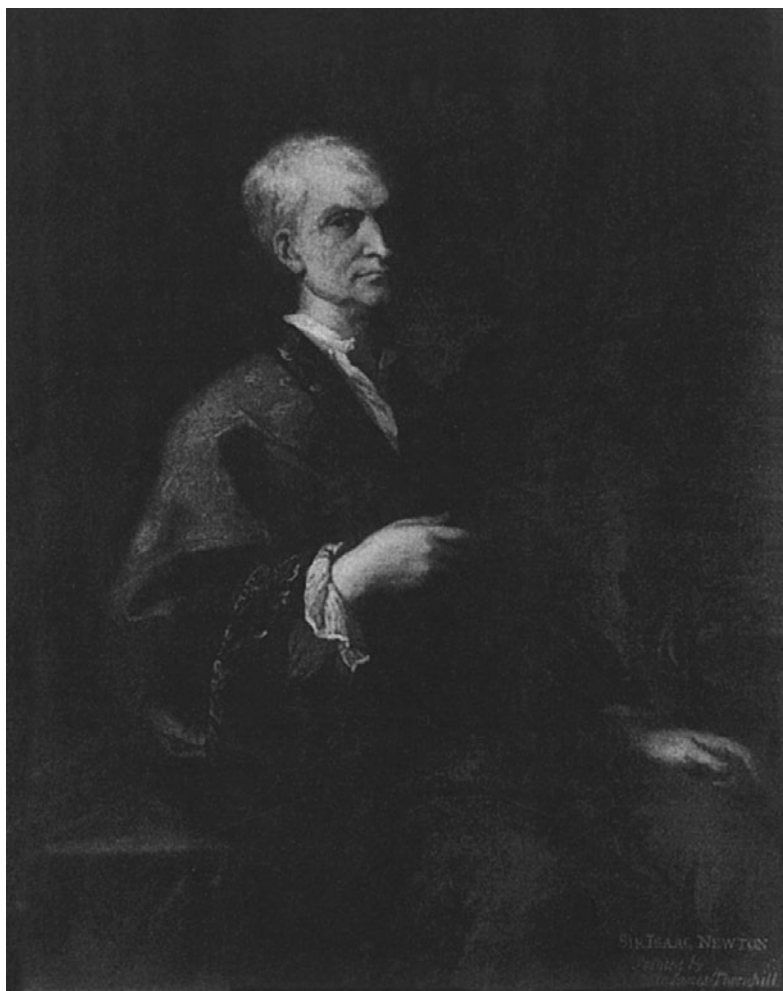


Plate 4. Newton at sixty-seven. Portrait by Sir James Thornhill, 1710. (Courtesy of Lord Portsmouth and the Trustees of the Portsmouth Estates.)

Cambridge University Press
978-1-107-56985-0 - The Life of Isaac Newton
Richard S. Wesfall
Frontmatter
[More information](#)

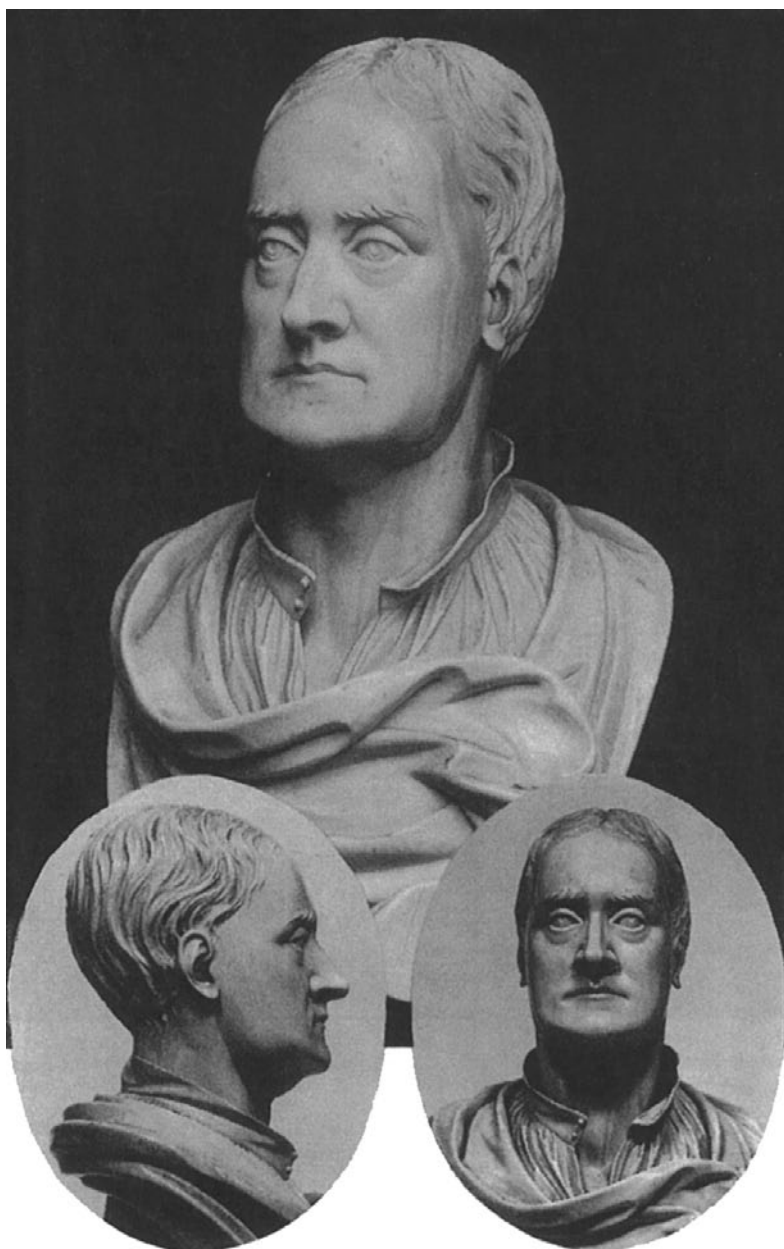


Plate 5. Newton at seventy-five. An ivory bust sculpted by David Le Marchand, 1718. (By permission of the Trustees of the British Museum.)

Cambridge University Press
978-1-107-56985-0 - The Life of Isaac Newton
Richard S. Wesfall
Frontmatter
[More information](#)



Plate 6. Newton at eighty-three. Portrait by John Vanderbank, 1726. (Courtesy of the Royal Society.)