

This book presents a new view of Robert Boyle (1627–91), the leading British scientist in the generation before Newton. It comprises a series of essays by scholars from Europe and North America which scrutinise Boyle's writings on science, philosophy and theology in detail, bringing out the subtlety of his ideas and the complexity of his relationship with his context. Particular attention is given to Boyle's interest in alchemy and to other facets of his ideas which might initially seem surprising in a leading advocate of the mechanical philosophy. Many of the essays use material from among Boyle's extensive manuscripts, which have recently been catalogued for the first time. The introduction surveys the state of Boyle studies and deploys the findings of the essays to offer a reevaluation of Boyle. The book also includes a complete bibliography of writings on Boyle since 1940.

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Edited by

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Abbreviations

General

<i>Ann. Sci.</i>	<i>Annals of Science</i>
<i>BJHS</i>	<i>British Journal for the History of Science</i>
BL	Royal Society Boyle Letters
BP	Royal Society Boyle Papers
Harwood, <i>Essays</i>	<i>The Early Essays and Ethics of Robert Boyle</i> , ed. John T. Harwood (Carbondale and Edwardsville: Southern Illinois University Press, 1991)
<i>Hist. Sci.</i>	<i>History of Science</i>
<i>JHI</i>	<i>Journal of the History of Ideas</i>
Maddison, <i>Life</i>	R. E. W. Maddison, <i>The Life of the Honourable Robert Boyle, F.R.S.</i> (London: Taylor and Francis, 1969)
<i>NRRS</i>	<i>Notes and Records of the Royal Society</i>
<i>Oldenburg</i>	<i>The Correspondence of Henry Oldenburg</i> , eds A. R. and M. B. Hall, 13 vols (Madison, Milwaukee and London: University of Wisconsin Press; Mansell; Taylor & Francis, 1965–86)
<i>Phil. Trans.</i>	<i>Philosophical Transactions</i>
R.S.	Royal Society
Shapin and Schaffer, <i>Leviathan and the Air-Pump</i>	Steven Shapin and Simon Schaffer, <i>Leviathan and the Air-Pump: Hobbes, Boyle and the Experimental Life</i> (Princeton University Press, 1985)
<i>Works</i>	<i>The Works of the Honourable Robert Boyle</i> , ed. Thomas Birch, 2nd edn, 6 vols (London, 1772)

Titles of works by Robert Boyle cited within *Works* (above)

Titles are given with date of first publication and subsequent edition if Birch's text was based on this and it differs significantly from the first.

<i>Advices</i>	<i>Some Advices About Judging of Things Said to Transcend Reason</i> , appended to <i>Things above Reason</i> , below
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<i>Aerial Noctiluca</i>	<i>The Aerial Noctiluca: Or Some New Phenomena, and a Process of A Factitious Self-shining Substance</i> (1680)
<i>Christian Virtuoso, I</i>	<i>The Christian Virtuoso: Shewing, That by Being Addicted to Experimental Philosophy, a Man is Rather Assisted, than Indisposed, to be a Good Christian</i> (1690)
<i>Christian Virtuoso, I, Appendix</i>	Appendix to <i>The Christian Virtuoso</i> , ed. Henry Miles, first published in Birch's 1744 edition of Boyle's <i>Works</i> , 5 vols (London, 1744), v, 665–83
<i>Christian Virtuoso, II</i>	<i>The Christian Virtuoso, Part II</i> , ed. Henry Miles, first published in Birch's 1744 edition of Boyle's <i>Works</i> , 5 vols (London, 1744), v, 684–736
<i>Cold</i>	<i>New Experiments and Observations Touching Cold, or an Experimental History of Cold, Begun</i> (1665)
<i>Colours</i>	<i>Experiments and Considerations Touching Colours</i> (1664)
<i>Cosmical Qualities</i>	<i>Of the Systematicall or Cosmicall Qualities of Things</i> , in <i>Tracts Written by the Honourable Robert Boyle</i> ([Oxford] 1671)
<i>Cosmical Suspicions</i>	<i>Cosmicall Suspicions (Subjoyned as an Appendix to the Discourse of the Cosmicall Qualities of Things)</i> in <i>Tracts Written by the Honourable Robert Boyle</i> ([Oxford] 1671)
<i>CPE</i>	<i>Certain Physiological Essays, Written at Distant Times, and on Several Occasions</i> (1661; 2nd edn, 1669)
<i>Customary Swearing</i>	<i>A Free Discourse against Customary Swearing</i> (1695)
<i>Defence</i>	<i>A Defence of the Doctrine Touching the Spring and Weight of the Air</i> (1662)
<i>Degradation of Gold</i>	<i>Of a Degradation of Gold Made by an Anti-Elixir: a Strange Chymical Narrative</i> (1678)
<i>Effluvioms</i>	<i>Essays of the Strange Subtilty, Great Efficacy [and] Determinate Nature of Effluvioms</i> (1673)
<i>Examen</i>	<i>An Examen of Mr. T. Hobbes his Dialogus Physicus De Natura Aeris</i> (1662)
<i>Excellency of Theology</i>	<i>The Excellency of Theology, Compar'd with Natural Philosophy . . . To which are annex'd Some Occasional Thoughts about the Excellency and Grounds of the Mechanical Hypothesis</i> (1674)
<i>Exp. Obs. Physicae</i>	<i>Experimenta & Observationes Physicae: Wherein are Briefly Treated of Several Subjects Relating to Natural Philosophy in an Experimental Way</i> (1691)
<i>Final Causes</i>	<i>A Disquisition about the Final Causes of Natural Things</i> (1688)
<i>Forms and Qualities</i>	<i>The Origine of Formes and Qualities, (According to the Corpuscular Philosophy) . . .</i> (1666)
<i>Gems</i>	<i>An Essay about the Origine & Virtues of Gems</i> (1672)
<i>General History of Air</i>	<i>The General History of the Air, Designed and Begun by the Honourable Robert Boyle Esq.</i> (1692)

List of abbreviations

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<i>Greatness of Mind</i>	<i>Greatness of Mind, Promoted by Christianity</i> , appended to <i>Christian Virtuoso</i> , I, above
<i>Hidden Qualities of Air</i>	<i>Tracts: Containing Suspicions about Some Hidden Qualities of the Air</i> [etc.] (1674)
<i>High Veneration</i>	<i>Of the High Veneration Man's Intellect Owes to God; Peculiarly for his Wisedome and Power</i> (1685)
<i>Human Blood</i>	<i>Memoirs for the Natural History Of Humane Blood, Especially the Spirit of that Liquor</i> (1684)
<i>Hydrostatical Discourse</i>	<i>An Hydrostatical Discourse Occasioned by the Objections of the Learned Dr Henry More, against Some Explications of New Experiments made by Mr Boyle, in Tracts Written by the Honourable Robert Boyle</i> (1672)
<i>Hydrostatical Paradoxes</i>	<i>Hydrostatical Paradoxes, Made out by New Experiments, (For the Most Part Physical and Easie)</i> (1666)
<i>Icy Noctiluca</i>	<i>New Experiments, and Observations, Made upon the Icy Noctiluca</i> (1682)
<i>Languid Motion</i>	<i>An Essay Of the Great Effects of Even Languid and Unheeded Motion</i> (1685)
<i>Mechanical Origin of Qualities</i>	<i>Experiments, Notes, &c. about the Mechanical Origine or Production of Divers Particular Qualities</i> (1675)
<i>Medicina Hydrostatica</i>	<i>Medicina Hydrostatica: or, Hydrostaticks Applied to the Materia Medica</i> (1690)
<i>Medicinal Experiments</i>	<i>Medicinal Experiments: Or, a Collection Of Choice and Safe Remedies, For the Most Part Simple, and Easily Prepared</i> (3 vols, 1692–4)
<i>Notion of Nature</i>	<i>A Free Enquiry Into the Vulgarly Receiv'd Notion of Nature; Made in an Essay, Address'd to a Friend</i> (1686)
<i>Occasional Reflections</i>	<i>Occasional Reflections Upon Several Subjects</i> (1665)
<i>Porosity</i>	<i>Experiments and Considerations About the Porosity of Bodies, in Two Essays</i> (1684)
<i>Producibleness</i>	<i>Experiments and Notes About the Producibleness Of Chymicall Principles</i> , appended to the second edition of <i>Sceptical Chymist</i> (1680)
<i>Rarefaction of Air</i>	<i>A Discovery of the Admirable Rarefaction of the Air</i> , English translation in <i>Tracts Written by the Honourable Robert Boyle</i> ([London] 1671)
<i>Reason and Religion</i>	<i>Some Considerations about the Reconcilableness of Reason and Religion</i> (1675)
<i>Saltness of the Sea</i>	<i>Tracts Consisting of Observations About the Saltness of the Sea</i> [etc.] (1674)
<i>Salubrity of the Air</i>	<i>An Experimental Discourse of Some Unheeded Causes of the Insalubrity and Salubrity of the Air</i> , appended to <i>Languid Motion</i> , above
<i>Sceptical Chymist</i>	<i>The Sceptical Chymist: or Chymico-Physical Doubts & Paradoxes . . .</i> (1661)

<i>Seraphic Love</i>	<i>Some Motives and Incentives to the Love of God. Pathetically Discours'd of, in a Letter to a Friend</i> (1659)
<i>Specific Medicines</i>	<i>Of the Reconcilableness of Specifick Medicines to the Corpuscular Philosophy</i> (1685)
<i>Spring</i>	<i>New Experiments Physico-Mechanicall, Touching the Spring of the Air and its Effects</i> (1660)
<i>Spring, 1st Continuation</i>	<i>A Continuation of New Experiments Physico-Mechanical Touching the Spring and Weight of the Air, and their Effects. The First Part</i> (1669)
<i>Spring, 2nd Continuation</i>	<i>A Continuation of New Experiments Physico-Mechanical Touching the Spring and Weight of the Air, and their Effects. The Second Part</i> (Eng. trans., 1682)
<i>Style of the Scriptures</i>	<i>Some Considerations Touching the Style of the Holy Scriptures</i> (1661)
<i>Theodora</i>	<i>The Martyrdom of Theodora, And of Didymus</i> (1687)
<i>Theological Distinction</i>	<i>Reflections upon a Theological Distinction, appended to Christian Virtuoso, I, above</i>
<i>Things above Reason</i>	<i>A Discourse of Things above Reason. Inquiring Whether a Philosopher Should Admit There Are Any Such</i> (1681)
<i>Usefulness, I</i>	<i>Some Considerations touching the Usefulness of Experimentall Naturall Philosophy. The First Part</i> (1663)
<i>Usefulness, II, sect. 1</i>	<i>Some Considerations of the Usefulness of Naturall Philosophy. The Second Part. The First Section. Of It's Usefulness to Physick</i> (1663)
<i>Usefulness II, sect. 2</i>	<i>Some Considerations Touching the Usefulness of Experimental Naturall Philosophy. The Second Tome, Containing the later Section Of the Second Part</i> (1671)

Preface

Robert Boyle died in the early hours of Thursday, 31 December 1691, and, though it may be more important to commemorate the anniversaries of great men's births than their deaths, it seemed a pity to allow this occasion to go unmarked. In fact, the 350th anniversary of Boyle's birth in 1977 seems to have passed virtually unnoticed: as the Bibliography appended to this volume illustrates, one has to go back to the 250th anniversary of Boyle's death in 1941 to find much commemorative activity, apart from a flurry inspired by the tercentenary of the publication of his best-known book, *The Sceptical Chymist*, in 1961. Hence it seemed appropriate to hold a gathering to mark the tercentenary of the great scientist's death, quite apart from the opportunity thereby provided to capitalise on the research on his writings and milieu which has proliferated in recent years.

It would have been possible for this event to have taken place in Oxford – where Boyle lived from 1655 to 1668 – or in London, where he shared a house in Pall Mall with his sister, Lady Ranelagh, from 1668 until their deaths within eight days of each other in 1691. Instead, it seemed better to escape from such predictable venues, and the symposium was convened near Stalbridge in Dorset; here, Boyle spent ten highly significant years of his life between 1645 and 1655, living on the estate which he had inherited from his father, the Great Earl of Cork, who had acquired it in 1636. The meeting took place between 14 and 16 December 1991 in the relaxed surroundings of the Horsington House Hotel, Horsington, Somerset, where participants were lavishly provided for through the generosity of the Foundation for Intellectual History.

Various people and organisations have assisted in making the symposium a success, and in bringing the book which has resulted from it to fruition. The indispensable support of the Foundation for Intellectual History was supplemented by that of those universities and other bodies which paid the transatlantic fares of participants. The conference was enriched by a visit to Stalbridge Park, site of the Boyles' mansion, where we were welcomed by Mr and Mrs Richard de Pelet and by Stalbridge's historian, Mrs Irene Jones. Subsequently, we drove to Yetminster to see Boyle's School, founded by John Warr with money left by Boyle, and Mrs Jenny King kindly showed us inside this attractive vernacular stone building. In the year that has since

elapsed, the contributors have proved prompt and helpful in providing revised versions of the papers that they gave at the conference. In addition, they have usefully commented on the draft of my Introduction: particular thanks are due to John Henry in this connection, and helpful comments were also provided by Scott Mandelbrote. Lastly, various contributors have suggested additions to the Bibliography, which was circulated in draft form at the Stalbridge symposium.

Help with the Bibliography was also given by Roger Gaskell, who is preparing a revised edition of J. F. Fulton's *Bibliography of Boyle*, about which he briefly spoke at the conference, and who kindly made available for use here the entries relating to secondary literature on Boyle prepared by Graeme Fyffe of the Science Museum Library. The present listing aims to include all books and articles specifically devoted to Boyle published since 1940, together with more general works in which he figures prominently – though some discretion has had to be used in this, as it might otherwise have turned into a reading-list on seventeenth-century science as a whole. It should provide an illuminating chronicle of the scholarly attention which Boyle has received over the past half century, a story which is significantly advanced by the studies which this book comprises.

Hastings

Michael Hunter