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The first edition was issued in 1833; this is a reissue of that work, probably printed shortly after, and printed for the same publisher. John Narrien was an English astronomical writer, a mathematical professor at the Royal Military College, Sandhurst, and a Fellow of the Royal Society.

**COVER IMAGE: NOLLET [#81]**
Nasmyth was a Scottish engineer, best remembered as the inventor of the steam hammer, and as a manufacturer of machine tools. This volume, scrupulously edited by Nasmyth's friend Samuel Smiles, "abundantly illustrates Mr. Nasmyth's own definition of engineering, namely, common-sense applied to use of materials." (Preface).

$ 70


$ 850

First French edition. Pemberton was a disciple of Newton's who devoted much of his early life to the popularization of Newtonian philosophy. He is best remembered as the editor of the third edition of the Principia. "Pemberton had labored assiduously to earn Newton's favor; apparently he intended to make his position near Newton the foundation of a career. Already he was at work on a popularization of Newtonianism for those without mathematics—A View of Sir Isaac Newton's Philosophy which finally appeared in 1728 with prefatory assurances that Newton had read and approved it. He had also announced an English translation of the Principia and a commentary on it. In 1728 he received the Gresham position." –Richard S. Westfall, *DSB X*, p. 501. REFERENCES: Babson, second supplement, 104.

$ 2250
Sixth edition, "greatly improved by the author," of 'sGravedande's extensive experimentation and instruction in Newtonian physics. The experiments range from basic physics, to hydraulics, optics, electricity and astronomy. The entire work is profusely illustrated with folding engraved plates detailing, among many other experiments and apparatuses, a steam-powered Hero's Engine (plate 78), a static electricity generator (plate 79), the first magic lantern slide projector (plate 109), the prismatic effect of a rainbow (plate 120) and the known solar system (plate 122). 'sGravesande "is the author of Elements de physique demonstrstes mathematiquement. . . ou introduction a la philosophie Newtonienne which was translated from the Latin and published at Leyden in 1746. In the second volume, he gives a description of an electrical machine constructed on the plan of that of Hauksbee. It consisted merely of a crystal globe, which was mounted upon a copper stand, and against which was pressed the hand of the operator while it was made to revolve rapidly by means of a large wheel." [Mottelay].

Willem Jacob 'sGravesande was a Dutch philosopher and mathematician. Born in 's-Hertogenbosch, he studied law in Leiden, and wrote a thesis on suicide. In 1715 he visited London and King George I. He became a member of the Royal Society. In 1717 he became professor in physics and astronomy in Leiden, and introduced the works of his friend Newton in the Netherlands. He was ardently opposed to fatalists like Hobbes and Spinoza. In 1724 Peter the Great offered him a job in Saint Petersburg, but 'sGravesande did not accept. His best remembered work is Physices elementa mathematica, experimentis confirmata, sive introductio ad philosophiam Newtonianam or Mathematical Elements of Natural Philosophy.
Confirm'd by Experiments (Leiden 1720), in which he laid the foundations for teaching Newtonian physics.

'sGravesande's chief original contribution to physics involved an experiment in which brass balls are dropped with varying velocity onto a soft clay surface. This demonstrated that a ball with twice the velocity of another would leave an indentation four times as deep, that three times the velocity yielded nine times the depth, and so on. He shared these results with Emilie du Châtelet, who subsequently corrected Newton's formula $E = mv$ to $E = mv^2$.

'sGravesande was also the owner of the oldest known magic lantern, which was built around 1720 by Jan van Musschenbroek, and is currently housed at the Museum Booerhave in Leiden.

"From the outset of his teaching both physics and astronomy 'sGravesande modeled his lectures on the example of Newton in the Principia and Opticks, although in later years they incorporated other influences, especially that of Boerhaave. Moreover, he adopted from Keill and Desaguliers the notion of demonstrating to his classes the experimental proof of scientific principles, accumulating an ever larger collection of apparatus, as may be seen from successive editions of his Physics elementa mathematica, experimentis confirmata. Sive, introductio ad philosophiam Newtonianam (Leiden, 1720, 1721). The scientific reputation of 'sGravesande is enshrined in this book, which he constantly corrected and amplified in later editions. An 'official' English translation prepared by Desaguliers (to whom copies of the Latin original were sent in haste) was also issued in 1720 and 1721, and it passed through six editions. (The booksellers Mears and Woodward printed a rival version under the name of John Keill.) French translations appeared only in 1746 and 1747, but a critical review by L. B. Castel was published in the Memoires de Trevoux in May and October 1721. The book was at once welcomed by British and a number of German scholars." – DSB V, p. 510.

☞ Babson 70; Mottelay p. 181.
With the Richard S. Westfall Introduction


$ 65

Facsimile Reprint of the original 1855 edition with Westfall's added introduction. See William H. Crew's note on the year 1726/7 and Newton's death (included within, laid in).


Geoffrey N. Cantor (born 1943) is Emeritus Professor of the History and Philosophy of Science at the University of Leeds and Honorary Senior Research Associate at UCL Department of Science and Technology Studies at University College London. He has written about Michael Faraday, the wave theory of light and the responses of the Quaker and Jewish religions to science.

Gale Christianson taught a variety of courses at Indiana State University, but his research was in the history of science, which was published, earning him academic respect. He retired in 2003.

Remarkably, this biography of Christianson and that of Westfall, were written as scholar "neighbors" – G.C. was in Terre Haute, and Westfall in Bloomington at Indiana University. Both produced Newton biographies that were published at the same year. The Westfall book is more detailed, written for a more serious audience. The G.C. biography is "more approachable." They cover much of the same ground, cite some of the same anecdotes, but they are different books. "In contrast [to Westfall], Christianson has set himself the goal of interpreting a forbidding genius to a wide readership, while paying attention to the historical context…. written at a greater distance from its subject, with more depth of field." *Journal for the History of Astronomy*, vol.18, no. 3, AUG, p.224, 1987.


$85

First edition. Frank Edward Manuel was an American historian, Kenan Professor of History, emeritus, at New York University and Alfred and Viola Hart University Professor, emeritus, at Brandeis University. Frank Edward Manuel was among the most respected European intellectual historians of the twentieth century. "Manuel's wide-ranging scholarly interests inspired groundbreaking works on utopias, Christian Hebraism, historiography, and philosophers such as Isaac Newton, Karl Marx, and Henri Saint-Simon. A prolific author, he wrote, co-wrote, or edited 20 books. His most popular work, Utopian Thought in the Western World (written with his wife), won the American Book Award. Other notable publications included The Politics of Modern Spain (1938), The Age of Reason (1951), The New World of Henri Saint-Simon (1956), The Eighteenth Century Confronts the Gods (1959), Shapes of Philosophical History (1965), A Portrait of Isaac Newton (1968), Freedom from History (1971), The Changing of the Gods (1983), The Broken Staff: Judaism Through Christian Eyes (1992), A Requiem for Karl Marx (1995), and Scenes from the
End: The Last Days of World War II in Europe (2000). Even as he approached age 90, Manuel remained active. Shortly before his death he was near completion on the book, Varieties of Historical Experience, and in 2004, his wife published their coauthored work, James Bowdoin and the Patriot Philosophers. Manuel was the recipient of numerous awards. He was a Guggenheim Fellow in 1957-58, a Center for Advanced Study in the Behavioral Sciences Fellow in 1962-1963, and a Phi Beta Kappa visiting scholar in 1978. He was also a member of the Institute for Advanced Study at Princeton University, and a Fellow of the American Academy of Arts and Sciences. Along with the American Book Award, Utopian Thought in the Western World won the Melcher Prize and the Phi Beta Kappa Ralph Waldo Emerson Award. Manuel received honorary degrees from the following institutions: Union Theological Seminary (1979); Brandeis University (1986); and the Hebrew-Union College-Jewish Institute of Religion (1998).” [Brandeis] 


J.E. McGuire is Emeritus Faculty, Professor of History and Philosophy of Science, University of Pittsburgh, "Among McGuire's research interests are issues of time, temporality, and historicity in the development of early modern thought. He wrote Descartes's Changing Mind with Peter Machamer (Princeton University Press, 2009) and is completing a book-length study of Aristotle's modal theories with James Bogen. McGuire is continuing a research project concerned with the commentary tradition on Aristotle's thought. He also has further studies of Newton in various stages of development. Recently, McGuire completed a lengthy study of the main transition points in the development of the philosophy of science during the 20th century, to be published in Portuguese. He was elected, for 2011, to the Sarton Chair and the medal award at Ghent University, Belgium."


An early treatment of the history of Newtonian optics. Based on a thesis of 1965 (Cornell). Robert Schofield, the noted Priestley authority, reviewed this work and supported the author's achievement. Even though he points out a few "minor" errors, he offers, "Staffens' work is a thoughtful and thoroughly professional synthesis of recent analytical studies of an important science during an important period." [The American Historical Review, Volume 82, Issue 5, December 1977, Page 1244]. J.A. Lohne, of Norway, reviewed this book, noting that Steffens deals with Newton's *Opticks*, and the *Principia*, but not on Newton's *Optical Lectures*. The author offers aspects from other English scientists who employed the microscope ("men of achromatic lenses"), including Benjamin Martin, Thomas Melvil, Priestley, and Michell, but does not mention 'sGravesande. He does reference Euler (on optics).

$ 5,000

**NEWTON'S FINAL EDITION OF THE OPTICKS**: Fourth edition, corrected. "This is the final edition, revised by Newton." "This new edition is carefully printed from the Third Edition, as it was corrected by the Author's own Hand, and left before his Death with the Bookseller." -- Advertisement.
"Newton's contributions to the science of optics -- his discovery of the unequal refractions of rays of different color, his theory of color, and his investigations of 'Newton's rings,' to mention only a few of the most noteworthy -- place him among the premier contributors to that science. . . . Today we recognize that his work on optics offers unique rewards in its exciting, innovative conjunction of physical theory, experimental investigation, and mathematics, and in the revealing glimpse that it provides of a crucial period in the evolution of experimental science." -- Alan E. Shapiro, The Optical Papers of Isaac Newton: Volume 1, (1984), p. xi.

This edition contains the full set of 11 Observations, and 31 queries or questions. As written by the respected Newton scholar, Richard S. Westfall, "From the perspective of natural philosophy, the 'Quaestiones' were the first of the series of speculations that form the warp on which he wove the fabric of his scientific career. Throughout his life, his speculations turned on a limited set of crucial phenomena which seem to have functioned in his eyes as keys to the understanding of nature. Nearly all of them appear in the 'Quaestiones.'" -- Westfall, p. 96.

"Whereas the Principia is a mathematical work involving intricate geometrical relationships and only a handful of major experiments, the Opticks overflows with detailed accounts of reflection and refraction, the separation of white light into the colors of the spectrum, the manner of the eye's operation, the formation of images by lenses, the colors of the rainbow, the construction of the reflecting telescope, and much more. Unable to contain himself, the author introduces many subjects that have little or nothing to do with the behaviour and analysis of light: metabolism and digestion, the circulation of the blood, the creation of the world and the Great Flood of Noah, the scientific method, even the images that haunt the dreams of madmen. Moreover, Newton wrote the Opticks in English, making its contents accessible to a far wider audience than the Principia, whose classical Latin had stymied many potential readers. His friend John Locke, who had only months to live, was baffled by the earlier work, but read the Opticks 'with pleasure, acquainting myself with everything in them.'" -- Gale E. Christianson, Isaac Newton, Oxford University Press, 1996.


Alan E. Shapiro’s research is on Newton and his optical research, and he is the editor of *The Optical Papers of Isaac Newton*. Most of the book presents the *Lectiones Opticae* and the Optica with the original Latin on the left and the translation, duly annotated and cross referenced, on the right.

$3000

Second Jesuit edition (amended and corrected), based on the text of the third London edition of the *Principia*. This version is valued for its excellent annotations and copious commentary, which is nearly the same length as the *Principia* itself. It contains Newton's Dedication to the Royal Society; Prefaces to the first, second and third editions and Roger Cotes's Preface. In addition, the Jesuits' edition of the Principia is prized for the inclusion of the important treatises on the theory of the tides: Daniel Bernoulli's *Traite sur le Flux et Reflux de la Mer*, Colin MacLaurin's *De Causa Physica Fluxus et Refluxus Maris*, and Leonardo Euler's *Inquisitio Physica in causam Fluxus ac Refluxus Maris*. These three works gained the prize given by the Royal Academy of Sciences in 1724 for resolving tidal problems relating to the theory of gravity. They represent the most significant discovery concerning tidal mechanics between the
publication of the Principia and the discoveries of Laplace. Babson, 31; Gray, 14; Wallis, 14.


$ 875
FIRST EDITION. Pemberton's *A view of Sir Isaac Newton's philosophy* is a popularization of Newtonianism for those without mathematics. It appeared in 1728; the preface contains Pemberton's recollections of Newton, especially in old age, and assures the reader that the master had read and approved the work. This work remains one of the most valuable contemporary printed sources on Newton, the account of a close friend. The work also includes a poem on Sir Isaac Newton by Richard Glover (1712-1785, poet and Member of Parliament, written in Glover's 16th year), Pemberton's introduction on Newton's method of reasoning in philosophy, and a long list of subscribers. Dedicated to Sir Robert Walpole with Walpole's engraved arms. This book is important typographically as the first book printed in any of the Caslon's roman types (see James Mosley in *JPHS*, III, (1967), p. 74). With its fine headpieces and initials by J. Pine, its well-balanced pages, and fine paper, it is one of the best English books of the period and was clearly intended as a showpiece for the new type. A pencil notation in the preliminaries ascribes this binding to John Brindley (fl. 1720-1750), an important London publisher and book-binder. Brindley began as a book-binder and established his book-selling business in 1728 in New Bond Street. Brindley held the appointment of bookbinder to Queen Caroline and to Frederick, Prince of Wales; a number of presentation bindings to them on books published by Brindley are in King George III's library at the British Library. Brindley's most characteristic tools, a pair of crowned dolphins within circular wreaths is illustrated in Foot, *The Henry Davis gift*, II, 166 and described in Maggs, Catalogue 1075, I, 150. The spine decorations in this Pemberton volume compare favorably with the example in The Henry Davis gift catalogue. John Brindley "was not, however, the only London binder of his day to use tools of this type." Nixon, *Five centuries of English bookbinding*, 64, p. 148.
"Dr. Pemberton studied under Boerhaave, prepared the Fifth London Pharmacoepoeia and was invited by Newton to edit the third (1726) edition of the Principia. This study of Newton's philosophy is interesting as being the account of a close friend. The preface contains the author's recollections of Newton, especially in his old age. There is also a poem on Sir Isaac by Richard Glover (poet and M.P., 1712-1785) written in his 16th year; the author's introduction on Newton's method of reasoning in philosophy; and a long list of subscribers." [Babson].

Typographically this volume is important as the first book printed in any of William Caslon's roman types. Also notable are the elegant pictorial head- and tail-pieces engraved by J. Pine after J. Grison. "Pemberton's work on the mechanism of accommodation was nearly his last independent work, for he was determined to join the circle of Newton's epigones. He attempted, unsuccessfully, to approach the master through John Keill. But Richard Mead, Newton's friend and physician, showed Newton a paper in which Pemberton refuted Leibnitz' measurement of the force of moving bodies À¢â‚¬"" an obsequious essay larded with references to 'the great Sir Isaac Newton.' Although the measure of the force of moving bodies was not an issue germane to Newtonian mechanics, Newton was apparently pleased with the attack on Leibnitz. He made Pemberton's acquaintance, and Pemberton sought to cement the relation by contributing another obsequious essay on muscular motion, which converted itself into a panegyric on Newtonian method, to Mead's edition of Cowper's Myotomia reformata, completed in 1723 and published in 1724" - DSB.

PROVENANCE: Isaac Milner (1750–1820), mathematician, natural philosopher, an inventor, the President of Queens' College, Cambridge and Lucasian Professor of Mathematics. See: J.W. Parker, The Life of Isaac Milner, F.R.S., Dean of Carlisle, President of Queen's College, and Professor of Mathematics in the University of Cambridge 1842. Parker records of Milner's admiration for his teachers, Newton, Prof. Joseph Black (Chemistry). In September of 1798 Milner was elected to the mathematical chair at Cambridge, the same chair once occupied by Sir Isaac Newton.

Babson 98; Barchas Collection 1637; DSB, X, pp. 500-501; Gray 132; Honeyman Sale 2442; Zeitlinger 3295.

$60

Nichol was a Scottish educator and economist, but is best remembered for his efforts to popularize astronomy. Divided into two parts—The Order and Mechanism of the Planetary System, and Physical Structure of the Orbs composing the Solar System.
"Letters to a Lady"


$50

Second edition. Nichol was a Scottish educator and astronomer. He beat out Thomas Carlyle for the position of Regius Professor of Astronomy at the University of Glasgow, where he made a strong impression on a young Lord Kelvin. While he was, professionally, a serious academic, much of Nichol's writing was devoted to the popularization of astronomy. As a writer he was talented enough to earn the praise of George Eliot, who, in 1841 letter to her friend Maria Lewis, wrote "I have been revelling in Nichol's 'Architecture of the Heavens' and 'Phenomena of the Solar System,' and have been in imagination winging my flight from system to system, and from universe to universe, trying to conceive myself in such a position and with such a visual faculty as to enable me to enjoy what Young enumerates among the novelties of the stranger man when he bursts the shell to -'Behold an infinite of floating worlds, Divide the crystal waves of ether pure, In endless voyage without port.'"

Nicholson was a British paleontologist and zoologist. He was a fellow of both the Royal Society of Edinburgh and the Royal Society of London and received the Lyell medal from the Geological Society of London in 1888.

$ 450

First edition. Nollet was extremely effective at popularizing science, making difficult mathematical principles understandable to the public. Even his instruments were meant to be accessible, as they were common-place in his public lectures and he widened the appeal and distribution of these instruments.
One of Abbe Nollet's successful publications was a three-volume work entitled L'Art des Experiences, ou Avis aux Amateurs de la Physique . . . 1770. This is a practical guide on choosing, making, and acquiring apparatus, for the layman. The collections of instruments of experimental philosophy that have survived from the eighteen century represent only a tithe of the huge quantity of such apparatus sold to private people and institutions, and constantly exchanged between individuals and at auction sales. This was the immediate effects of the immensely popular lecture-demonstration. Its long-term legacy was to lay the foundations of the industrial revolution of the nineteenth century, and of our own science-dominated age." - David M. Stewart Museum, Lewis Pyenson, Jean-Francois Gauvin.

The first professor of experimental physics at the University of Paris, Nollet was one of the first French scientists to make significant advances in the study of electricity. "Nollet's rise from the semiliterate peasantry to the top of the aristocratic Paris Academy of Sciences was a chef d'oeuvre of the Age of Reason. . . . Nollet strove ceaselessly to perfect his technique; and his last work, L'art des experiences (1770), offers the 'amateur of physics' the distillation of forty years of attention to the 'choice, construction, and use of instruments.' The establishment as well as the literate and leisured public rewarded the abbe." – DSB X p. 145.

$750

Sixth edition (though some volumes state otherwise). "Nollet's cours de physique was perhaps the most popular exhibition of its kind ever given. With carefully orchestrated demonstrations performed on some 350 different instruments, the abbe entertained his enthusiastic auditors as, in the spirit of the Enlightenment, he undertook to dispel their 'vulgar errors, extravagant fears and faith in the marvelous.' These were not mere shows, as one sees from their expanded syllabus, the famous *Leçons de physique*, which appeared in six volumes between 1743 and 1748 and was often reprinted. The presentations are lively, comprehensive, and up-to-date, with full directions for realizing the effects under study and excellent illustrations of apparatus." – John L. Heilbron, *DSB* X, p. 145.
The abbe Nollet rose from the French peasantry to become the foremost physicists of his age. The first professor of experimental physics at the University of Paris, Nollet was one of the first French scientists to make significant advances in the study of electricity. Nollet was extremely effective at popularizing science, making difficult mathematical principles understandable to the public. Even his instruments were meant to be accessible, as they were common-place in his public lectures and he widened the appeal and distribution of these instruments.

☞ DSB X.

$ 95
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