

A bibliography of the works of Sir Isaac Newton : together with a list of books illustrating his works / with notes by George J. Gray.

Contributors

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SIR ISAAC NEWTON

A BIBLIOGRAPHY

BY G. J. GRAY

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T. II. c

BZF (Newton)



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181 **NEWTON** (Sir Isaac) **GRAY** (George J.) A Bibliography of the Works of Sir Issac Newton. Together with a list of books illustrating his works. Sm. 4to, frontispiece: a statue of Newton, boards. 10/6

Bibliographical Society: London 1907

Gray.
10/6

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A BIBLIOGRAPHY OF THE
WORKS OF SIR ISAAC NEWTON

CAMBRIDGE

PRINTED BY JONATHAN PALMER

ALEXANDRA STREET



F. Macharia.

J. Le Keux.

STATUE OF SIR ISAAC NEWTON,
IN THE ANTE CHAPEL, TRINITY COLLEGE.

A BIBLIOGRAPHY OF THE
WORKS OF
SIR ISAAC NEWTON

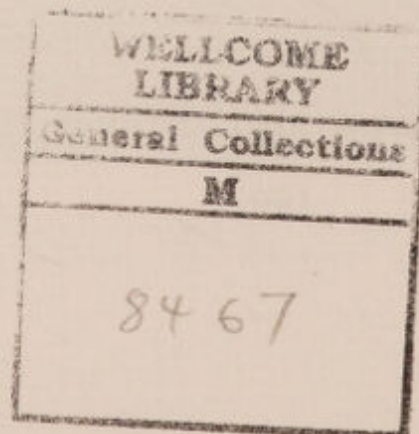
Together with a List of Books illustrating
his Works

WITH NOTES BY
GEORGE J. GRAY

Second Edition, Revised and Enlarged

Cambridge
Bowes and Bowes
1907

BZP (Newton)



NOTE

THE first edition of this work, consisting of 120 copies, printed in 1888, has become so scarce that it was thought advisable to issue a new and revised edition.

Many important additions have been made, and special attention might be called to the two issues of the first edition of the *Principia*, to the two differently dated copies of the second edition of the *Optics*, and to the six varying issues of the *Commercium Epistolicum*, etc., giving information now printed for the first time.

It is hoped that the cordial reception given to the first issue will be merited in this revised and enlarged edition.

G. J. GRAY.

October, 1907.

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Illustration facing Title-page

Statue of Newton by ROUBILIAC, from a Drawing by F. MACKENZIE,
engraved on Steel by J. LE KEUX, 1838

Works of Sir Isaac Newton

I. COLLECTED WORKS.

Isaaci Newtoni Opera quæ exstant omnia. Commentariis illustrabat Samuel Horsley, LL.D., R.S.S., Reverendo admodum in Christo patri Roberto episcopo Londinensi a sacris. 5 vols. 1779—1785. 4to. [1

Contents: Vol. I. (1) Arithmetica Universalis. (2) Tractatus de Rationibus Primis Ultimisque. (3) Analysis per *Æquationes* numero terminorum Infinitas. (4) Excerpta quædam ex Epistolis ad Series Fluxionesque pertinentia. (5) Tractatus de Quadratura Curvarum. (6) Geometria Analytica sive specimina Artis Analyticæ. (7) Methodus Differentialis. (8) Enumeratio Linearum tertii Ordinis.

Vol. II. Principiorum Libri Priores duo, De Motu Corporum.

Vol. III. (1) Principiorum Liber Tertius, de Systemate Mundi. (2) De Mundi Systemate. (3) Theoria Lunæ. (4) Lectiones Opticæ.

Vol. IV. (1) Opticks. (2) Letters on various Subjects in Natural Philosophy, published from the Originals in the Archives of the Royal Society. (3) Letters to Mr. Boyle on the Cause of Gravitation. (4) Tabulæ Duæ, Colorum altera, altera Refractionum. (5) De Problematibus Bernoullianis. (6) Propositions for determining the Motion of a Body urged by two Central Forces. (7) Four Letters to Dr. Bentley. (8) *Commercium Epistolicum*, &c., cum recensione præmissa. (9) Additamenta *Commercii Epistolici* ex Historia Fluxionum Raphsoni.

Vol. V. (1) Chronology of Antient Kingdoms amended. (2) Short Chronicle from a MS. the property of the Rev. Dr. Ekins. (3) Observations upon the Prophecies of Holy Writ, particularly the prophecies

of Daniel and the Apocalypse of St. John. (4) An Historical Account of two Notable Corruptions of Scripture, in a Letter to a Friend.

This is the only complete edition of Newton's works. It is dedicated to the King, and contains the following papers by the Editor: (1) *Logistica Infinitorum*, (2) *Geometria Fluxionum sive Additamentum tractatus Newtoniani de Rationibus Primis Ultimisque*, in Vol. I.; (3) *De viribus centralibus quæ rationem triplicatæ distantiarum a centro contrariam inter se constanter servant*, in Vol. III.

Isaaci Newtoni, Equitis Aurati, Opera Mathematica, Philosophica et Philologica. Collegit partimque Latine vertit ac recensuit Joh. Castillioneus jurisconsultus. Lausannæ & Genevæ, Apud Marcum-Michaellem Bousquet & Socios. 1744. 8 volumes. 4to. [2 The Principia, 3 vols.; Arithmetica Universalis, 1 vol.; Optice et Lectiones Opticæ, 1 vol.; Opuscula Mathematica, &c., 3 vols.]

Contents of the Opuscula Mathematica, &c.:

TOMUS I. continens Mathematica: 28 plates and 2 folding Tables. Dedicated to the Royal Society by Castillioneus.

J. Castillioneus Lectori S. De Vita Isaaci Newtoni commentariolus. I. Analysis per æquationes numero terminorum infinitas. Edita Londini, 1711. II. Methodus fluxionum et serierum infinitarum, Cum ejusdem applicatione ad curvarum geometriam, Anglice edita a J. Colsono, Londini, 1736. III. Tractatus de quadratura curvarum. Editus Londini, 1706. IV. Enumeratio linearum tertii ordinis. Edita Londini, 1706. V. Methodus differentialis. Edita Londini, 1711. VI. & VII. Solutiones problematum quorundam, editæ in *Transac. Philosoph. Mens. Jan. &c.* 1697, num. 224, 225, & 1716, num. 347 [VI. (1) Epistola missa ad . . . Carolum Montague . . . ubi solvuntur duo Problemata Mathematica a Johanne Bernoullio . . . proposita. VI. (2) De Ratione Temporis quo Grave labitur per Rectam data duo Puncta conjungentem ad Tempus brevissimum, quo, vi Gravitatis, transit ab horum uno ad alterum per Arcum Cycloidis. VII. Problematis olim in Acti Eruditorum Lipsiæ propositi solutio generalis.] VIII. & IX. Excerpta ex epistolis aut I. Newtoni aut ad eum spectantibus. Editis in *Commercio Epistolari*

Collinsii, &c. [VIII. Excerptum ex Ep. I. Newtoni ad Collinsium 10 Dec. 1672. IX. Excerpts from letters of Oldenburg, Leibnitz, and Collins.] X. Epistola prior ad Oldenburgium. Edita in Commercio Epistolico, &c. XI. & XII. Epistola posterior ad Oldenburgium. Edita in Commercio Epistolico. Et ejusdem epistola ad Collinsium, edita Londini, 1711. XIII. Excerptum ex duabus epistolis Isaaci Newtoni ad Johannem Wallisium. XIV. Epistola ad Chamberlaynum. XV. Epistola ad Abbatem Conti. XVI. Notae in epistolam Leibnitii ad Abbatem Conti.

TOMUS II. continens Philosophica. With 32 plates. Dedicated to J. A. Kilchberguer, Christoph. Steiguer, G. de Mouralt, A. Hacbrett, C. Willading, B. L. Berseth (Senators of Berne), by the Editor. XVII. De Mundi Systemate liber. Editus Londini, 1731. XVIII. Lectiones Opticae, Annis 1669, 1670, & 1671 in Scholis publicis habitae, & ex MSS. editae Londini, 1729. XIX. Scripta inserta Transactionibus Philos. Regiae Societatis Londinensis. Sub. Num^{is} 80—85, 88, 96, 97, 110, 121, 128. XX. Dissertatio de natura acidorum cum ejusdem cogitationibus variis. Edit. in praefat. Dictionarii Technici Johannis Harris. Edit. quinta, Londini, 1736. XXI. Scala graduum coloris et frigoris edita in Trans. Philos. Mensis Aprilis 1701, num. 270.

TOMUS III. continens Philologica. With 4 plates. Dedicated to J. R. Tillier, C. Steiger, C. E. de Wattenwille, M. Morlot (of Berne and Lausanne), by the Editor. XXII. Brevia Chronica a prima rerum in Europa gestarum memoria ad Persidem ab Alexandro Magno in potestatem redactam. Anglice edita Londini, 1728. XXIII. Chronologia veterum regnorum emendata. Edita Londini, 1728. XXIV. Animadversiones in observationes factas in ejusdem Brevia Chronica Gallice versa ab observationum auctore et edita Lutetiae Parisiorum. Editae in Philos. Transactionibus. Mens. Julii & Augusti 1725, num. 389. XXV. Ad Danielis Profetae vaticinia, nec non Sancti Joannis Apocalypsin, Observationes. Ex Anglica lingua in Latinam convertit, &c. Gulielmus Suderman. XXVI. Dissertatio de sacro Judaeorum cubito et de cubito aliarum

gentium. Edita Anglice in Miscellaneis operibus Johannis Gravii. Index rerum notabiliorum. Avis pour Messieurs les Relieurs. Biblo-pegum monere necesse est.

The title-page of each volume contains a vignette: medallion of Newton, with two cherubs, &c., and motto 'Noviora cecinit,' De la monce *Del.* Cl. Duflos *Scul.*

A Catalogue of the Portsmouth Collection of Books and Papers written by or belonging to Sir Isaac Newton, the scientific portion of which has been presented by the Earl of Portsmouth to the University of Cambridge. Drawn up by the Syndicate appointed the 6th November, 1872. Cambridge, at the University Press, 1888. 8vo. pp. xxx + 56. [3

Preface signed by H. R. Luard, G. G. Stokes, J. C. Adams, and G. D. Liveing.

An Appendix to the Preface contains reprints of the following papers:

- I. The form of the Solid of Least Resistance.
- II. A List of Propositions in the Lunar Theory intended to be inserted in a second edition of the Principia.
- III. The motion of the Apogee in an elliptic orbit of very small eccentricity, caused by given disturbing forces.

The Catalogue is divided into 15 sections: I. Mathematics. II. Chemistry. III. Chronology. IV. History. V. Miscellaneous Papers, chiefly on Theological Studies. VI. Letters. VII. Books. VIII. Miscellaneous Papers. IX. Correspondence, Articles of Agreement, &c., about the publication of Flamsteed's Observations. X. Correspondence between Conduitt and Fontenelle about the Éloge, Conduitt's Memoirs of Newton, London Gazette with account of Newton's funeral. XI. Drafts of fragments of Conduitt's intended Life of Newton. XII. Letters and Memoranda relating to Newton after his death. XIII. Papers on Newton's family matters and on the Mint. XIV. Books and Papers not by Newton. XV. Complimentary Letters to Newton from distinguished foreigners.

— A Large Paper edition was issued, printed on hand-made paper, and bound in roxburghe binding. 1888. [4

Bibliography of the Works of Sir Isaac Newton : together with a List of Books illustrating his Life and Works. By G. J. Gray. Cambridge, 1888. 8vo. pp. 40. [5]

The first edition of this work, which is now reprinted : 120 copies printed for Subscribers.

II. PRINCIPIA.

Philosophiæ | Naturalis | Principia | Mathematica. | Autore Is. Newton,
Trin. Coll. Cantab. Soc. Mathefeos | Profeffore *Lucafiano*, & Socie-
tatis Regalis Sodali. |

Imprimatur. | S. Pepys, *Reg. Soc. Præses*. | Julii 5. 1686. |

Londini, | Juffu *Societatis Regiæ* ac Typis *Josephi Streater*.
Prostat apud | plures Bibliopolas. *Anno MDCLXXXVII.* | 4to. [6]

Collation: Title, Dedication to the Royal Society, Præfatio ad Lectorem (signed Is. Newton), Halley's verses: 'In viri præstantissimi D. Isaaci Newtoni opus hocce mathematico-physicum *Sæculi Gentisque nostræ Decus egregium*' (signed Edm. Halley), 4 ll. + pp. [1]—[383], [400]—[510], + 1 l. blank, + Errata, 1 l. Sigs. A—Zz, **, Aaa—Ooo⁴, 1 lf. (errata). The leaf of Errata is sometimes bound after Halley's verses. 1 folding plate at p. 496 or after Halley's verses.

The guards to pp. 105—6 and 111—12 are left in some copies. This is explained in Halley's letter to Newton, 14 March, 1684, 'if they [the mistakes] be very material, the sheet shall be done over again, as I was forced to do the sheet D, and half the sheet P must be done, for the figure is turned upside down by ye negligence of the printer in p. 112.' It is also worth noting that the catchword at the bottom of p. 112 is 'tivi,' but 'tive' commences the next page.

— *Reissued* afterwards with a new title-page, containing a different imprint:

Londini, | Juffu *Societatis Regiæ* ac Typis *Josephi Streater*.
Prostant Vena-les apud *Sam. Smith* ad insignia Principis *Walliæ*
in Coemiterio | D. *Pauli*, aliosq; nonnullos Bibliopolas. *Anno*
MDCLXXXVII. | 4to. [7]

Collation: as previous issue. The guards of the new title-page and the fourth leaf are shown, and thus prove this edition to be the re-issue.

I have the rubbing of the binding of a copy of this edition, which was bound in red morocco, with sides and back elaborately tooled and inlaid with dark green leather, with a leather label inside the cover—

Ex Dono
Sam: Smith
Bibliop. Lond.

John Dunton (*Life and Errors*, 1818, I. 207) says of him, 'Mr *Samuel Smith*, bookseller to the Royal Society deals very much in Books of a Foreign growth, and speaks French and Latin with a great deal of fluency and ease. His Shop is very beautiful, and well furnished . . . His Partner, *Benjamin Walford*, is a very ingenious man, and knows Books extraordinary well.'

The years 1685 and 1686 will ever be memorable in the life of Newton and the history of science. It was in these two years, and in the early months of 1687, that the *Principia* was composed and given to the world. On the 21st of April, 1686, Edmund Halley announced to the Royal Society 'that his worthy country-man, Mr Isaac Newton, has an incomparable *Treatise of Motion almost ready* for the press,' and at the next meeting, 28th April, 'Dr Vincent presented to the Society a manuscript treatise entitled *Philosophie Naturalis Principia Mathematica*, and dedicated to the Society by Mr Isaac Newton.' This was the first book, and the printing of it was referred to the consideration of the Council, Mr. Halley in the meantime was to make a report of it to the Council. At the next meeting, 19th May, it was ordered 'that Mr Newton's book should be printed *forthwith* in quarto, and that Mr Newton's opinion be desired as to printing, volume, cuts, and so forth.' It was again ordered, 2nd June, 'that Mr Newton's book be printed, and that Mr Halley undertake the business of looking after it, and printing it at his own charge, which he engaged to do.' The first sheet in proof was sent to Newton, June 7th, 1686. Halley undertook the labour of editing, and the expense of printing the *Principia*, and thus earned the gratitude of Newton and posterity. On the 30th of June the President (Samuel Pepys) was desired by the Council to license the work, and after having obtained Newton's leave, in July, to substitute wooden cuts for copper-plates, the printing was commenced. The Second Book, though ready for the press in the autumn, was not sent to the Society until March, 1687; the Third Book was presented to the Society on the 6th of April, and the complete work was published in midsummer of 1687, Newton's copies being sent him on the 5th of July.

'R. T. G.' in the *Dictionary of National Biography* says, 'The *Principia* was published, but without a date, about Midsummer, 1687.' I have not heard of any undated copies of the *Principia*.

From Halley's letters to Newton it would seem that he contemplated using two or three printers to expedite the printing. On Feb. 24th, 1687, he said, 'I will employ another press to go on with the second part, which I understand you have ready.' On March 7th, 'I received . . . your Second Book, which this week I will putt to the press having agreed with one that promises me to get it done in 7 weeks . . . the first book will be finished about the same time.' Then, April 5th, he says, 'the first part will be finished within this three weekes, and considering the shortness of the third over the second, the same press that did the first will get it done as soon as the second can be finished by another press; but I find some difficulty to match the latter justly.'

After examining the book, it seems unlikely that the First and Second Books were printed by different printers. There is nothing to indicate this. The paging and signatures run on correctly, the First Book ending on p. 235 and the Second Book commencing on p. 236; and these pages are signature Gg² of the sheet. It seems most likely that both Books were printed by the same printer. With the Third Book it is different; this was undoubtedly printed by another printer. The general heading is in a different type, and not printed uniformly with the headings of the other Books. Then there is the omitted paging between the Second and Third Books, though the last page of the Second Book was altered from 384 to 400 to show the omission was known, and the * used as signature to the last sheet of the Second Book, to avoid the overlapping of signatures.

The price of the work was fixed by Halley (Letter to Newton, 5th July, 1687) 'to be 9 shillings bound in calves leather and lettered.' To booksellers his terms were, 'in quires at 6 shillings to take my money as they are sold, or at 5^{sch.} a piece certain for ready, or else at same time; for I am satisfied that there is no dealing in books without interesting the Booksellers, and I am contented to let them go halves with me, rather than have your excellent work smothered by their combinations.'

The edition was small, and we know that besides giving copies away, he sent Newton twenty copies to give to his friends, and forty for him to place with the Cambridge Booksellers. Cotes, in his Preface to the second edition of the *Principia*, states that copies of the first edition were scarce, and could only be obtained at an immense price. Sir Wm. Browne, when at college, gave more than two guineas for a copy, and owing to the difficulty of procuring one at a reasonable price, the father of Dr. John Moore, of Glasgow, transcribed the whole work with his own hand.—Brewster's *Newton*, I. 337.

Philosophiæ | Naturalis | Principia | Mathematica. |

Auctore | Isaaco Newtono, | Equite Aurato. |

Editio Secunda Auctior et Emendatior. |

Cantabrigiæ MDCCXIII. | 4to. [8

Collation: Title, Dedication to the Royal Society, Auctoris Præfatio ad Lectorem, Maii 8, 1686. Auctoris Præfatio, Mar. 28, 1713. Editoris Præfatio, Maii 12, 1713. 12 ll. + Index Caputum, 1 l. + pp. 1—484, + Index Rerum Alphabeticus, 4 ll. (Corrigenda on verso of last leaf). Sigs. a—c⁴d²B—Qqq⁴Rrr². One plate opposite p. 465.

750 copies were printed by Cornelius Crownfield, the printer to the University of Cambridge.

Many alterations were made in this edition, the date May 4, 1686, being added to Newton's Preface to the first edition.

Cotes, in addition to editing the work, wrote a Preface, and also added the 'Index Rerum Alphabeticus.'

Dr. Richard Bentley was entrusted with the task of issuing this second edition, and on the 10th of June, 1708, he sent to Newton the first sheet set up as a specimen, and had bought a hundred reams of paper, 'it being impossible to have got so good in a year or two (for it comes from Geneva), if I had not taken this opportunity with my friend Sir Theodore Jansen, the great paper merchant of Britain. I hope you will like it, and the letter too, which upon trials we found here to be more suitable to the volume than a greater, and more

pleasant to the eye . . . Note that the print will look much better when a book is bound and beaten.' Nothing more seems to have been done until the 21st of May, 1709, when Bentley wrote to Professor Roger Cotes that he had arranged with Newton for him to superintend the new edition of the *Principia*. The correspondence between Newton and Cotes during the printing of the work has been published, edited by Dr. Edleston (*see* No. 383) from the originals in Trinity College Library.

Five sheets were printed off by October 20th, 1709, but the work was not finished until the first week of March, 1713, when Cotes wished Bentley to write the Preface, but at the request of Newton and Bentley he wrote the Preface himself. On the 25th of June, 1713, Cotes announced to the author 'that the book is finished.' In July, Bentley wrote to Newton, 'You will receive by the carrier, according to your order, six copies; but pray be so free as to command what more you shall want. We have no binders here that either work well or quick, so you must accept them in quires. I gave Roger (Cotes) a dozen . . . I have sent (though at great abatement) 200 already to France and Holland. The edition in England to the last buyer is 15s in quires, and we shall take care to keep it up for the honour of the book.'

On the 27th of July, Newton personally presented a copy to the Queen.

The whole profits of this edition were taken by Bentley. On one occasion Newton wrote to Cotes (Oct. 14th, 1712) concerning the correction of an error which would 'require the reprinting of about a sheet and a half . . . I will pay the charge of reprinting it.' In a conversation with Newton, John Conduitt asked him 'how he came to let Bentley print his *Principia*, which he did not understand. 'Why,' said he, 'he was covetous, and I let him do it to get money.'—Brewster's *Newton*, 1855, I. 314.

Philosophiæ | Naturalis | Principia | Mathematica. |

Auctore | Isaaco Newtono, Eq. Aur. |

Editio tertia aucta & emendata. |

Londini: | Apud Guil. & Joh. Innys, Regiæ Societatis topographos. | MDCCXXVI. | 4to. [9

Collation: Royal Privilege to W. and J. Innys, half Title, Title, Dedication to the Royal Society, Halley's Verses, Newton's Prefaces to the first and second editions, Roger Cotes's Preface to the second edition, Newton's Preface to the third edition, 12 Jan. 1725-6, and Index Caputum, 17 ll + pp. 1-530 + Index Rerum, 3 ll + Catalogus Librorum prostantium apud Guil. & Joh. Innys, 1 lf. Sigs. 5 ll + a-c, B-Yyy⁴ + 1 lf. Portrait of Newton, æt. 83, I. Vanderbank pinxit 1725, Geo. Vertue Sculpsit, 1726.

— *A Large Paper Edition* was also printed on thick paper. 13 × 9 inches. Folio. [10

Only 12 copies were printed, evidently for presentation. Dr. James Bradley (to whom Newton presented a copy) says 'that they were all originally bound with gilt leaves in red morocco, to a pattern which was much used for the Harleian Library.'

Ten copies are accounted for by Brewster (II. 383)—

1 in Trinity College Library.

1 in Queens' College Library, the copy given by Newton to J. F. Fauquier.

1 in the Royal Society Library, presented by Martin Folkes in the name of the President, 31 March, 1726.

1 in the Oxford Observatory, the copy given to Bradley.

6 sent to Fontenelle, for the Academy of Sciences, for himself, and for the principal mathematicians in Paris.

There are also two copies in the British Museum; one in the King's Library, with the arms of George I. on the cover; one in the Grenville Library, with the bookplate of Sir John Buckworth.

This is the last edition revised by the Author. Roger Cotes died in 1716, so that a new editor had to be found, and Newton entrusted Henry Pemberton with the work of passing the third edition through the press. Printing commenced either at the end of 1723 or the beginning of 1724, and the work completed in February, 1726, and in March, or shortly afterwards, published. On the authority of John Conduitt, Pemberton received two hundred guineas from Newton for the work.

Many alterations were made, and Halley's verses were printed nearly in the form in which they appeared in the first edition. Some of the differences between the second and third editions are printed in Brewster's *Life of Newton* (1855, pp. 549—556, or 1860, II. 304—309, 314—319) from a list made by the late Professor John Couch Adams.

The Royal Privilege is as follows:

GEORGE R.

Whereas Our Trusty and well beloved *William Innys* and *John Innys* of Our City of London, Booksellers, have by their Petition represented unto Us, that they have at great Charge and Expense printed a new and correct Edition of a Book intituled, *Philosophiæ Naturalis Principia Mathematica; Auctore Isaaco Newtono Eq. Aur. Editio tertia aucta & emendata*: And the sole Right and Title of the Copy of the same, being vested in the said *William Innys* and *John Innys*, they have humbly besought Us to grant them Our Royal Privilege and License, for the sole printing and publishing thereof for the Term of fourteen Years: We being willing to give all due Encouragement to Works of this Nature, which tend to the Advancement of Learning, are graciously pleased to gratify them in their Request, and do, by these Presents, agreeable to the Statutes in that Behalf made and provided, for Us, Our Heirs and Successors, give and grant unto them the said *William Innys* and *John Innys*, their Executors, Administrators and Assigns, Our Royal License for the sole printing and publishing the said Book intituled *Philosophiæ Naturalis Principia Mathematica; Auctore Isaaco Newtono, Equite Aur.* for the term of fourteen Years from the date hereof, strictly forbidding all Our Subjects within Our Kingdoms and Dominions to reprint the same, either in the like or in any other Volume or Volumes whatsoever, or to Import, Buy, Vend, Utter or Distribute any Copies thereof reprinted beyond the Seas, during the aforesaid term of fourteen Years, without the Consent or Approbation of the said *William Innys* and *John Innys*, their Heirs, Executors, and Assigns under their Hands and Seals first had and obtained, as they shall answer the contrary at their Peril. Whereof Our Commissioners and other Officers of Our Customs, the Master Wardens and Company of Stationers, are to take Notice that due Obedience be rendered thereunto. Given at our Court at St. James's the twenty fifth Day of March, 1726, in the twelfth Year of Our Reign.—By his Majesty's Command, TOWNSHEND.

In 1739 the first volume of an edition of the *Principia*, with commentary by T. Le Seur and F. Jacquier, was published at Geneva (see No. 14), and this edition was afterwards re-edited by J. M. F. Wright, and published at Glasgow in 1822 (see No. 17).

Reprints and Later Editions.

The year following the publication of the second edition of the *Principia*, the work was reprinted at Amsterdam :

Philosophiæ | Naturalis | Principia | Mathematica. | Auctore | Isaaco
Newtono, | *Equite Aurato*. | Editio Ultima | Auctior et Emen-
dator. | Amstaelodami | Sumptibus Societatis, | MDCCXIV. 4to. [11

Collation: Title; Dedication; Auctoris Praefatio ad Lectorem, Maii 8, 1686; Auctoris Praefatio, Mar. 28, 1713; Editoris Praefatio, Maii 12, 1713; 13 ll + Index Capitum, 1 l. + pp. 1—484 + Index Rerum Alphabeticus, 4 ll. 1 Plate opposite p. 465. Sigs. [a]⁴, b—c⁴d², A—Ppp⁴Qqq².

Dr. Bentley's statement in his letter of 25th June, 1713, that he had sent 200 copies of the second edition of the *Principia* to France and Holland (*see* No. 8) might lead to an expectation that this edition consisted of the sheets sent out from Cambridge. But it is not so. The entire work was reset in Amsterdam, and the text corrected according to the Corrigenda and the single correction noted on p. 484 of the Cambridge edition of 1713. The woodcuts and plates were also re-engraved. The *Journal Littéraire de la Haye* (for July and August, 1713) says: "Une compagnie de libraires imprime ici 'Philosophiæ Naturalis Principia Mathematica,' sur la seconde édition qui vient de paraître en Angleterre. Deux presses roulent continuellement pour avancer cet ouvrage." (Rigaud's *Newton*, p. 106.)

Philosophiæ | Naturalis | Principia | Mathematica. | Auctore | Isaaco
Newtono, | *Equite Aurato*. | Editio Ultima | *Cui accedit* Analysis
per Quantitatum Series, Fluxiones ac Differen-|tias cum *Enume-*
ratione Linearum tertii ordinis. | Amstaelodami, | Sumptibus
Societatis. | M.D.CCXXIII. | 4to. [12

Collation: Title, &c. (as in 1714 edition), 14 ll. + pp. 1—484, + Index, 4 ll. + *Analysis per Quantitatum Series*, &c.: Title, Praefatio Editoris (W. Jones), Index Opusculorum quae in hoc Libro continentur, 6 ll. + pp. 1—107, reverse of 107 blank. 1 plate opposite p. 465, and 2 folding plates: No. 1. Tabulae Curvarum simpliciorum quae cum Ellipsi et Hyperbola comparari possunt; No. 2. Residuum Tabulae, opposite p. 66 of the *Analysis*. Sigs. [a], b, c⁴d², A—Ppp⁴Qqq², a⁴b²A—N⁴O².

This edition re-set, with the plate and diagrams re-engraved. In the *Analysis per Quantitatum Series*, head and tail-pieces and woodcut initials are used. One tail-piece used several times has in the oval centre the initials G. W. with the 4 mark.

Philosophiae | Naturalis | Principia | Mathematica. | Auctore | Isaaco
 Newtono, Eq. Aurato. | *Perpetuis Commentariis illustrata, com-*
muni studio | PP. Thomae Le Seur & Francisci Jacquier. | *Ex*
Gallicana Minimorum Familia, | Matheseos Professorum. | Gene-
 vae, | Typis Barrillot & Filii Bibliop. & Typogr. | 1739—40—42.
 3 vols. 4to. [13

Collation: Vol. I. Half-title, Title, 2 ll. ; *Rerum Mathematicarum Studio-*
sis, Philosophiae Newtonianae Interpretes (dated “*Romae in Regio*
Conventu SS^e Trinitatis, An. 1739”), v—viii ; Newton’s Dedication
 to the Royal Society, ix ; Prefaces to 1st, 2nd, and third editions,
 Roger Cotes’s Preface, and Halley’s Verses, xi—xxxiv ; Index Capi-
 tum, Errata, xxxv—xxxvi + pp. 1—548.

Vol. II. Half-title, Title, Dedication to the Royal Society by Le Seur and
 Jacquier, Monitum (dated from Rome, 1740), 4 ll. + pp. 1—422 +
 Index Sectionum de motu corporum, Errata, 1 l.

Vol. III. *Pars I.* Title, Dedication to Cardinal Armando Gastoni de
 Rohan de Soubise, Monitum (dated 1742), PP. Le Seur et Jacquier
 Declaratio, Editoris monitum, 4 ll. + pp. 1—374. *Pars II.* Title ;
 Introductio ad Lunae Theoriam Newtonianam, v—viii + pp. 375—
 677 + Index, pp. 678—703.

In addition to the *Principia*, the following works are printed in Vol. III. :

1. Daniel Bernoulli, *Traité sur le Flux et Reflux de la Mer*, p. 133.
2. C. MacLaurin, *De Causa Physica Fluxus et Refluxus Maris*, p. 247.
3. L. Euler, *Inquisitio Physica in causam Fluxus ac Refluxus Maris*, p. 283.

These three works gained the Prize given by the Royal Academy of Sciences in 1724
 for resolving the Problem relating to the Motion of the Tides from the theory of gravity.

Philosophiae | Naturalis | Principia | Mathematica ; Auctore | Isaaco
 Newtono. Eq. Aurato ; | *Perpetuis Commentariis illustrata, com-*
muni studio | PP. Thomae Le Seur & Francisci Jacquier, | *Ex*
Gallicana Minimorum Familia, | Matheseos Professorum. | Editio
 altera longè accuratior & emendatior. | Coloniae Allobrogum, |

Sumptibus Cl. & Ant. Philibert Bibliop. | MDCCLX. | 3 vols.
4to. [14

Collation: Same as 1739 edition, except that in Vol. I. the preliminary matter ends with p. xxxii; pp. xxxiii—xxxvi of the 1739 edition (Halley's Verses, &c.) are omitted.

Sir Isaac Newton's *Principia* reprinted for Sir William Thomson, LL.D.,* late Fellow of St. Peter's College, Cambridge, and Hugh Blackburn, M.A., late Fellow of Trinity College, Cambridge; Professors of Natural Philosophy and Mathematics in the University of Glasgow. Glasgow, James Maclehose, Publisher to the University. Printed by Robert Maclehose. MDCCCLXXI. 4to. [15

Collation: pp. xxxvi + 538.

"Finding that all the editions of the *Principia* are now out of print, we have been induced to reprint Newton's last edition without note or comment, only introducing the 'corrigenda' of the old copy and correcting typographical errors.

W. T.
H. B."

University of Glasgow, 1871.

A reprint of the 1726 edition. The portrait was not reproduced: and the Royal Patent to W. and J. Innys not reprinted.

Philosophiae Naturalis Principia Mathematica. Illustrata commentationibus potissimum Joannis Tessanek. Et (quibusdam in locis) commentationibus veterioribus clarissimorum T. Le Seur et F. Jacquier. Pragae, 1780—5. 2 vols. 4to. [16

Philosophiae Naturalis | Principia | Mathematica. | Auctore | Isaaco Newtono, Eq. Aurato. | Perpetuis commentariis illustrata, | communi studio | PP. Thomae Le Seur et Francisci Jacquier | ex Gallicana minimorum familia, | matheseos professorum. | Editio nova; | summa cura recensita. |

* Created Lord Kelvin.

Glasgae: | Ex prelo Academico, | Typis Andreae et Joannis M. Duncan. | Veneunt apud Lackington & Soc., R. Priestley, G. & W. B. Whittaker, | J. Cuthel, G. Cowie & Soc., J. Collingwood, Treuttel & Würtz, et | Treuttel, jun. & Richter, Londini; | necnon Parisiis, et Argentorati | apud Treuttel & Würtz. | 1822. | 4 vols. Roy. 8vo. [17

Collation: Vol. I. Title; Lectori S. Typographi [Ex Aed. Acad. Glasg. Ipsi Nonis Junii, 1822], 2 ll.; Rerum Mathematicarum studiosis, philosophiae Newtonianae interpretes, pp. vii, viii; Newton's Dedication and Prefaces to first and second editions, ix—xii; Cotes's Preface, xiii—xxvii; Author's Preface to third edition, and Halley's Verses, xxviii—xxx; Index capitum voluminis primi, xxxi + pp. 1—423 + Index propositionum libri primi, 425—430.

Vol. II. Title; Le Seur and Jacquier's Dedication to the Royal Society; Monitum, 1740; Index sectionum de motu corporum voluminis secundi & admonitio, 3 ll. + pp. 1—316 + Index propositionum libri secundi, 317—320.

Vol. III. Title; Contenta partis primae tomi tertii; Le Seur and Jacquier's Dedication to Cardinal Rohan; Monitum, 1742; Le Seur and Jacquier's Declaratio; Editoris Monitum, 6 ll. + Introductio ad tertium librum Philosophiae Naturalis Is. Newtoni, ix—xxi + pp. 1—341 + Index propositionum in voluminis III. part 1, 343—4.

Vol. IV. Title, half-title, 2 ll. + Introductio ad Lunae Theoram Newtonianam, iii—vi + pp. 1—202 + Index propositionum in voluminis III. part 2, 203.

Edited by John Martin Frederick Wright.

Philosophiae Naturalis | Principia | Mathematica. | Auctore | Isaaco Newtono, Eq. Aur. | Perpetuis commentariis illustrata, | communi studio | PP. Thomae Le Seur et Francisci Jacquier, ex Gallicana minimorum familia, math. proff. | Editio nova, summa

cura recensita. | Glasguae: | excudit Georgius Brookman; Impensis T. T. et I. Tegg, Londini; | et R. Griffin et soc.; Glasguae. MDCCCXXXIII. 2 vols. Royal 8vo. [18

Collation: Vol. I. Title; Lectori S. Typographus [Glasguae: Ipsi nonis Jul. 1833]; Newton's Dedication to the Royal Society, 3 ll.; Rerum Mathematicarum studiosis, Philosophiae Newtonianae interpretes, vii, viii; Le Seur and Jacquier's Dedication to the Royal Society, ix; Auctoris praefatio ad lectorem, x—xii; Auctoris praefatio ad Ed. secundam, xii; Editoris praefatio in editionem secundam, xiii—xxvii; Auctoris praefatio in Editionem tertiam, xxviii; Halley's Verses, xxix, xxx; Index Capitum voluminis primi, xxxi; Index Sectionum de motu corporum, xxxii; Admonitio, xxxii + pp. 1—740 + Index propositionum libri primi et secundi, pp. 741—752.

Vol. II. Title, Dedication to Cardinal Rohan; Monitum; Le Seur and Jacquier's Declaratio; Editoris monitum; Contenta, 4 ll.; Introductio ad tertium librum Philosophiae Naturalis Is. Newton, ix—xxxvi + pp. 1—202 + Index propositionum, 203—205.

In J. M. F. Wright's *Commentary on Newton's Principia*, Glasgow, 1833, the author speaks of 'the flattering manner in which the Glasgow edition of Newton's *Principia* has been received, a second impression being already on the verge of publication.'

John Martin Frederick Wright, of Trinity College, Cambridge, B.A. In addition to editing Newton's *Principia*, he wrote *Alma Mater, or Seven Years at the University of Cambridge* [1815 to 1821], by a Trinity Man, 2 vols., 1827; *Solutions of the Cambridge Problems*, 1800 to 1820, 2 vols., 1825; *Self-Examination in Algebra*, 1825; *Self-Examination in Euclid*, 1829; *The Private Tutor*, 2 vols., 1830; *Elementary Treatise of the Theory of Numbers* (from the Private Tutor), 1831; *Collection of Cambridge College Examination Papers, with Supplement*, 4 vols., 1831—2; *Hints and Answers, being a Key to the Cambridge College Examination Papers*, 1831; *Commentary on Newton's Principia*, 2 vols., 1833; and probably edited the collections of Cambridge Problems, 1801—20 and 1821—1836.

De | Mundi | Systemate | liber | Isaaci Newtoni. | Opus diu integris suis partibus desideratum. | *In Usus Juventutis Academicæ.* | Londini: | Impensis J. Tonson, J. Osborn & T. Longman, | T. Ward & E. Wicksteed, & F. Gyles. | MDCCCXXI. 4to. [19

Collation: Title; Newtoni Princip. Math. Lib. III. initio, pp. iii, iv + pp. 1—108. Sigs. A²B—O⁴P². 2 Plates: Tab. I, II.

Augustus De Morgan in his *Budget of Paradoxes* (p. 83) says: 'I greatly doubt that Newton wrote this book.' But a copy of the work in manuscript is in Trinity College Library, Cambridge, partly in the handwriting of Roger Cotes. "The title there given is '*De Motu Corporum Liber*,' and not '*De Mundi Systemate*,' as in the printed book. This tract, drawn up '*methodo populari ut a pluribus legeretur*,' was intended to form the third book of the *Principia*, but readers who have not mastered the principles, says the author, '*vim consequentiarum minime percipient, neque praejudicia deponent quibus a multis retro annis insueverunt*,' and therefore '*ne res in disputationes trahatur, summam libri illius transtuli Propositiones, more Mathematico, ut ab iis solis legantur qui principia prius evoluerint*.'"—Edleston's *Correspondence of Newton and Cotes*, p. xcvi.

The English translation of this work was printed first (in 1728, see No. 30) along with a Preface on the state of Astronomy. The second edition, which evidently appeared immediately after the Text had been printed, omitted this Preface, and in its place gave the extract from the *Principia* (in English) as printed in the Text and mentioned above, whilst the translation was added to agree with the printed text.

Abridgments and Portions of the "Principia."

Excerpta quaedam | e | Newtoni | *Principiis Philosophiae Naturalis*, |
cum notis variorum. | Cantabrigiae: | Typis Academicis excude-
bat J. Bentham. | Veneunt apud T. & J. Merrill, et J. Nicholson,
Cantabrigiae; J. Fletcher et | D. Prince, Oxoniae; B. Dod,
J. Whiston & B. White, et J. Nourse, Londini; | Tesseman,
Ebor.; Kincaid & Bell, Edinburgiae; R. & A. Foulis, Glas-
guiae; | et Gul. Smith, Dublini. | M.DCC.LXV. 4to. [20

Collation: Title, and List of Subscribers, x pp. + 180. 12 Plates: Tab.
I. to XII.

Edited by John Jebb, educated at Peterhouse, afterwards a Fellow of the College;
M.D. of St. Andrews University, d. 1786.

Excerpta ex Principiis Naturalis Philosophiae, cum annotationibus
Thomae Le Seur et Francisci Jacquier. Oxon. 1831. 8vo. [21
Contains Newton's Preface of May 8, 1686, and Roger Cotes's Preface.

Principia. Book I. Sections I. II. III. in the original Latin, with
explanatory notes and references. Edited by William Whewell,
D.D., Master of Trinity College, &c. London: John W. Parker,
West Strand. MD.CCC.XLVI. 8vo. [22

Pp. vii + 66. Printed from the text of the third edition of the *Principia*.

These three sections were used as a text-book at Cambridge. Other editions, in English,
were issued in 1821, 1826, etc. (see pp. 20, 21).

Translations: English.

The | Mathematical | Principles | of | Natural Philosophy. | By Sir
Isaac Newton. | Translated into *English* by Andrew Motte. | To
 which are added, | The Laws of the Moon's Motion, according | to
 Gravity. | By John Machin *Astron. Prof. Gresh.* and | *Secr. R.*
Soc. | In Two Volumes. | London: | Printed for Benjamin Motte,
 at the *Middle-Temple-Gate, in Fleetstreet.* | MDCCCXXIX. | 8vo. [23

Collation: Vol. I. Title + Dedication to Sir Hans Sloane, by Motte,
 2 ll. + Translations of Newton's Preface to the first edition, and
 extracts from those to the second and third editions, and Cotes's
 Preface, 16 ll. + pp. 1—320. Plate I p. 45, II 50, III 76, IV 80, V 86,
 VI 94, VII 100, VIII 110, IX 118, X 126, XI 132, XII 136, XIII 143,
 XIV 154, XV 158, XVI 162, XVII 176, XVIII 198, XIX 206, XX 222,
 XXI 268, XXII 282, XXIII 298, XXIV 308, XXV 320. Sigs. Title + A²,
 A, a, B—X⁸.

Vol. II. Title + pp. 1—393 + Index, 6 ll. + Appendix, pp. i—viii +
 [*Machin's Law of the Moon's Motion*], pp. 1—71 + Errata (reverse
 of p. 71). Plate I p. 16, II 44, III 54, IV 68, V 90, VI 120, VII 140,
 VIII 172, IX 198, X 272, XI 278, XII 288, XIII 296, XIV 320, XV 336,
 XVI 344, XVII 345, XVIII 358, XIX Appendix viii; 3 Plates (Figures 1,
 2, 3) at the end of the work, and 2 folding plates at pp. 352, 377.
 Sigs. Title + B—CC⁸, Dd³, a⁴, A—D⁸E⁴.

Frontispiece to each volume and some head-pieces, 'A. Motte invenit & fecit.'

A Large Paper copy is in the British Museum.

Memoirs of Andrew Motte (the translator) and Benjamin Motte (the publisher) are in
 the *Dictionary of National Biography*.

The | Mathematical | Principles | of | Natural Philosophy. | By | Sir
 Isaac Newton. | Translated into English | by Andrew Motte. | To
 which are added, | *Newton's System of the World*; | A Short |
 Comment on, and Defence of, the Principia, | by W. Emerson. |
 With | The Laws of the Moon's Motion | According to Gravity. |
 By John Machin, | *Astron., Prof. at Gresh., and Sec. to the Roy.*

Soc. | A New Edition, | (with the Life of the Author; and a Portrait, taken from the Bust in | the Royal Observatory at Greenwich) carefully revised and corrected by | W. Davis; | Author of the "Treatise on Land Surveying," the "Use of the Globes," | Editor of the "Mathematical Companion," &c. &c. &c. | In Three Volumes. | London: | Printed for H. D. Symonds, No. 20, Paternoster Row. | 1803. | Printed by Knight & Compton, Middle Street, Cloth Fair. | 8vo. [24

Collation: Vol. I. Portrait, J. Allen delint., E. Scriven sculpt., [London, Published Nov. 10, 1802, by H. D. Symonds, Paternoster Row], Title; Dedication to the Rev. Nevil Maskelyne, Astronomer Royal, by Wm. Davis; To the Reader by W. Davis, London, January, 1803; Andrew Motte's Dedication to Sir Hans Sloane, Bart., vii, viii; Newton's Preface to the first edition of the *Principia*, with extracts from those to the second and third editions, and extracts from Roger Cotes's Preface, ix—xxxi; Life of Newton, xxxiii—lx + 1—211 + Index, 4 pp. 25 Plates: Plate 1—xxv., *W. Newman sc.*, 27 *Widegate Street, Bishopsgate*.

Vol. II. Title + pp. 1—321 + Index, 10 pp. 19 Plates: Plate 1—xix. 1 Table to face p. 278, and folding table to face p. 300.

Vol. III. Title; Contents (of the System of the World), iii—vi + System of the World, pp. 1—82; Emerson's Short Comment on the *Principia*, 83—175; Emerson's Defence of Newton, 177—192; Machin's Laws of the Moon's Motion, 193—231. Plates at pp. 4, 16, Plate 1 p. 95, II 101, III 130, IV 162, V 174, and 2 at end of the volume.

A memoir of William Davis is in the *Dictionary of National Biography*.

— New Edition. London: | Printed for Sherwood, Neely, and Jones, Paternoster-|Row; and Davis and Dickson, St. Martin's Le Grand. | 1819. | Printed by J. Compton, Middle Street, Cloth Fair, London. | 3 vols. 8vo. [25

Collation as in 1803 edition, except that the plates in Vol. III. are to be found at pp. 4, 16, 195, II 101, III 130, IV 164, V 174, with the 2 at the end of the volume. The plates and tables in this edition are all printed to fold three times in the work.

The Mathematical Principles of Natural Philosophy by Sir Isaac Newton; Translated into English by Andrew Motte. To which is added, Newton's System of the World; with a Portrait taken from the Bust in the Royal Observatory, Greenwich. First American Edition, carefully revised and corrected, with a Life of the Author, by N. W. Chittenden, M.A., &c. New York: Published by Daniel Adee, 107 Fulton-street, 1848. 8vo. pp. 581 [26]

— Another Edition. New York: G. P. Putnam, 1850. 8vo. [27]

Collation: Title; Dedication 'To the Teachers of the Normal School of the State of New York, pp. 3, 4; Introduction to the American Edition, v—vii; Life of Newton, 9—61; The *Principia*, lxx—507; System of the World, 509—572; Contents, 573—581.

Portrait of Newton in 1848 edition, 'printed by Wm. Worts'; in 1850 edition, 'New York, Daniel Adee, 1848,' 'printed by Wm. Worts.'

Mathematical | Principles | of | Natural Philosophy. | By Sir Isaac Newton, Knight. | Translated into English, | and illustrated with | a Commentary, | by Robert Thorpe, M.A. | Volume the the first. London: Printed for W. Strahan and T. Cadell, in the Strand. MDCCLXXVII. 4to. [28]

Collation: Title; Dedication to the Duke of Northumberland; Advertisement, 2 pp.; List of Subscribers' names, 6 pp.; Introduction by the Editor (Thorp), xv—xxxii; Newton's three prefaces, Cotes's preface, and Halley's verses, xxxiii—lx + 1 — 360 + Index and Errata, 1 lf. Plates 1—XXII.

Only the first volume was printed.

Natural Philosophy. Second Edition. London: Printed by A. Strahan, Printers-street, for T. Cadell, jun., and W. Davies, in the Strand, 1802. 4to. [29

Re-issue with new title; and without the Dedication and List of Subscribers' Names.

A | Treatise | of the | System | of the | World. | By | Sir Isaac Newton. | Translated into English. | London: | Printed for F. Fayram at the South En-|trance under the *Royal Exchange* | M DCC XXVIII. | 8vo. [30

Collation: Title; Preface (Extract from the *Principia*, Book III, concerning this work, 'and a short account of Astronomy, and the state it was in when Newton wrote'); iii—xxiv + pp. 1—154 + Errata, 1 lf. Plates at pp. 6, 29.

This 'Preface' was not reprinted in the second or third editions.

— The Second Edition, wherein are interspersed some Alterations and Improvements. London: Printed for F. Fayram, at the South Entrance under the *Royal Exchange*. M DCC XXXI. 8vo. [31

Collation: Half-title; Title; 'From Sir Isaac Newton's Mathematical Principles, Lib. III. Introd.' v, vi; Contents, 9 pp. + pp. 1—152. Plates at pp. 6, 29.

"We have in this Edition added, in the Margin, References to the *English* Translation of the *Principia* lately published, directing to the several Pages in that Translation, where the Things here treated of are proved: And that the Asterisk in the Margin is designed to show how far the Discourse in the *Principia* is the same with what is found in this Treatise."

—*Note on Half-title.*

The substitution of the extract from the *Principia*, in place of the long Preface in the first edition, brought the work to conform to the text which was first printed earlier in the same year (*see* No. 19), whilst additions were made to the translation so as to make the matter agree with the printed text. This points to the fact that the translation was made from a manuscript which slightly varied from the one used in the printing.

— The Third Edition. London: Printed for B. Motte and C. Bathurst, at the *Middle Temple-Gate*, in *Fleet-street*. MDCCXXXVII. 8vo. [32

This was a re-issue of the previous edition, with a cancel title-page clearly shown in the copy examined.

This translation [by Andrew Motte?] of the '*System of the World*,' was reprinted with Motte's translation of the *Principia*, edited by William Davis, 1803 (*see* Nos. 24 and 25). Although the translation was printed in 1728, the text was not printed until 1731 (*see* No. 19).

Principia. Book I. Sections I. II. III., with copious notes and illustrations, and a great variety of deductions and problems. By the Rev. John Carr, M.A., Late Fellow of Trinity College, Cambridge. 6 plates (84 figures). London [printed by Francis Humble & Co., Durham], 1821. Second Edition, improved and enlarged. 6 plates. Cambridge [printed by Francis Humble, of Durham], 1826. 8vo. [33]

The work consists of : I. Newton's text entire (in English). II. General Introduction to the three Sections, comprising a concise account, with examples, of the Methods of Exhaustions and Indivisibles, and the doctrine of Limits. III. Notes explanatory of Newton's text. IV. Collection of Miscellaneous Problems, with Solutions.

Principia [Book I. Sections I. II. III.], with notes, examples, and deductions : containing all that is read at the University of Cambridge. By J. M. F. Wright, B.A. Cambridge, 1830. Roy. 8vo. [34]

Plates i. to v. engraved by Jos^h Neele, 352 Strand.

The translation of the text is immediately followed by Notes, Examples, and Deductions. An Appendix gives a number of Problems selected from Examination Papers.

Principia. Book I. Sections I. II. III., with an appendix ; and the IXth and XIth Sections. Edited by John H. Evans, M.A., Fellow of St. John's College. Cambridge, 1834. Second Edition, 1837. Third Edition, 1843. Fourth Edition, 1855. 8vo. Fifth Edition, edited by P. T. Main, M.A., Fellow of St. John's College, Cambridge. 1871. Fcap. 8vo. [35]

The Appendix gives 'the few Propositions of the VIIth and VIIIth Sections now generally read in the University.'

Only Sections I. II. III. were edited in the 1834 edition, IX. and XI. being added to the Second Edition.

For the Fifth Edition, Mr. Main says in his preface that the first three sections of the *Principia*, together with the chapters headed 'Definitiones' and 'Axiomata, sive Leges Motûs' [added to this edition] have been translated from the Latin edition of Le Seur and Jacquier. And a collection of Examples from University and College Examination Papers has been added.

Principia. Book I. Sections I. II. III., and part of the VIIth Section, with a preface recommending a geometrical course of mathematical reading, and an Introduction on the Atomic Constitution of Matter, and the Laws of Motion. By George Leigh Cooke, B.D., Sedleian Reader in Natural Philosophy, and formerly Fellow and Tutor of Corpus Christi College, in the University of Oxford. Oxford, 1850. 8vo. [36]

Principia. Book I. Sections I. II. III., with notes and illustrations. Also A Collection of Problems principally intended as examples of Newton's methods. By Percival Frost, M.A., Late Fellow of St. John's College, Cambridge. Cambridge, 1854. Cr. 8vo. Second Edition, 1863. 8vo. Fifth Edition, 1900. [37]

Translation: French.

Principes mathématiques de la philosophie naturelle. Par feu Madame la Marquise du Chastelet. 2 volumes. 1759. 4to. [38]

Gabrielle Emilie de Tonnelier de Breteuil, Marquise du Chastelet, was a pupil of Clairaut, under whose supervision she translated the *Principia*, forming the first part of the above, from the 1726 edition. The second part consists of commentary extracted from Clairaut.

Translation: German.

Sir Isaac Newton's mathematische Principien der Naturlehre. Mit Bemerkungen und Erläuterungen herausgegeben von J. Ph. Wolfers. 1872. 8vo. [39]

Illustrations.

- Abbatt, Richard. A short Introduction to the Principia; or, the first step in physical astronomy. 1868. 8vo. [40]
- Addison. Defence of the Newtonian Philosophy. In Fontenelle's Plurality of Worlds, translated by Wm. Gardiner. 1757. [41]
 An Oration spoken in the Theatre at Oxford, 7 July, 1693 [see Brewster's *Newton*, 1855 I. 334].
- Ball, W. W. Rouse. An essay on Newton's Principia. 1893. Cr. 8vo. [42]
 I. Introductory. II. Investigations in 1666. III. Investigations in 1679. IV. Investigations in 1684. V. Preparation of the *Principia*, 1685—1687. VI. Analysis of the *Principia*. VII. Investigations from 1687—1726. VIII. Appendices [Correspondence between Hooke and Newton, 1678—1680; Halley and Newton, 1686—1687, &c.]. Contains a reprint of the tract *Propositiones De Motu* from the MS. in the archives of the Royal Society.
- A Newtonian fragment, relating to Centripetal Forces. 1892. (Proceedings of London Math. Society.) [43]
- Banières, Jean. Examen et réfutation des Éléments de la philosophie de Newton de M. de Voltaire. 1739. 8vo. [44]
- Baumann, J. J. Die Lehren von Raum, Zeit, und Mathematik in der neueren Philosophie . . . Suarez . . . Newton. 1868. 8vo. [45]
- Bentley, Richard. Correspondence [edited by Christopher Wordsworth]. 2 vols. 1842. 8vo. [46]
 250 printed. Contains letters of Bentley, Newton, and Cotes about the second and third editions of the *Principia*.
- Betti, Enrico. Teorica delle forze che agiscono secondo la legge di Newton, &c. 1865. 8vo. [47]
- Boscovich, R. J. De Solis et Lunae defectibus libri V., versibus pertractati, Astronomiae Synopsis et Theoria Luminis Newtoniana. Venetiis, 1761. 8vo. [48]
- Boys, C. V. On the Newtonian Constant of Gravitation. Transactions of the Royal Society (Vol. 186). 1895. [49]

- Bremond, P. *L'Uraniade . . . Scènes dialoguées, au sujet des hypothèses Newtoniennes, &c.* 1844. 8vo. [50]
- Bresner, M. R. *The Newtonian System of Philosophy, &c.* 1868. 8vo. [51]
- Brinkley, John (Bishop of Cloyne). *On Sir Isaac Newton's first solution of the problem for finding the relation between resistance and gravity, &c.* 1808. 4to. [52]
- Brougham, Henry, Lord. *Tracts mathematical and physical.* 1860. Cr. 8vo. [53]
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III. OPTICS

Opticks: | or, a | Treatise | of the | Reflexions, Refractions, | Inflexions, and Colours | of | Light. | Also | Two Treatises | of the | Species and Magnitude | of | Curvilinear Figures. |
London, | Printed for Sam. Smith, and Benj. Walford, | Printers to the Royal Society, at the *Prince's Arms* in | *St. Paul's Church-yard*. MDCCIV. | 4to. [174

Collation: Title and Advertisement, 2 ll. + Book I. of Optics, pp. [1]—[144] + Books II. and III., pp. [1]—[137] + 1 blank: + Title: *Enumeratio Linearum Tertii Ordinis* [138] + 1 blank + [139]—[162]: *Tractatus de Quadratura Curvarum*, [163]—[211] + 1 lf. of Errata. Sigs. Title and Advertisement, 2 ll. and A—S, Aa, Bb, Dd—Ss⁴ + 1 lf. inserted between Tt 1 and 2 + Tt—Ddd⁴, Eee², 19 Plates: Book I. part 1, plates 1—v after p. 80; Book I. part 2, plates 1—iv after p. 144; Book II. plates 1, ii after p. 48; Book III. plate 1 after p. 137; Enumeration, plates 1—vi after p. 162; Tractatus, plate 1 after p. 211.

Title-page printed in red and black. It will be noticed that Newton did not attach his name to the work, only the initials 'I. N.' at the end of the *Advertisement*.

The Two Treatises added to this edition are:

1. *Enumeratio Linearum Tertii Ordinis*.
2. *Tractatus de Quadratura Curvarum*.

Newton says in the *Advertisement*: 'Part of the ensuing Discourse about Light was written at the desire of some gentlemen of the Royal Society, in the year 1675 . . . and read at their meetings, and the rest was added about Twelve Years after to complete the Theory; except the Third Book and the last Proposition of the Second, which were since put together out of scattered Papers. To avoid being engaged in Disputes about these Matters, I have

hitherto delayed the Printing, and should still have delayed it, had not the importunity of Friends prevailed upon me . . .

In a Letter written to Mr Leibnitz in the year 1676, and published by Dr Wallis, I mentioned a Method by which I had found some general Theorems about squaring Curvilinear Figures . . . And some years ago I lent out a Manuscript containing such Theorems, and having since met with some Things copied out of it, I have on this occasion made it Publick . . . And I have joined with it another small Tract concerning the Curvilinear Figures of the Second Kind, which was also written many years ago, and made known to some Friends, who have solicited the making it publick.'

Opticks: | or, a | Treatise | of the *Reflections, Refractions, | Inflections*
and *Colours* | of | Light. | *The Second Edition, with Additions.* |
By Sir Isaac Newton, Knt. | London: | Printed by W. Bowyer
for W. Innys at the | *Prince's Arms* in *St. Paul's Church-Yard.*
1717. | 8vo. [175

Collation: Title, Advertisement [to First Edition, dated April 1, 1704],
Advertisement II. [dated July 16, 1717], Corrigenda, 4 ll. + pp. [1]—
[382] + *Catalogue of Books printed for and sold by Will. Innys, at the*
Prince's-Arms in St. Paul's Church-yard, 1 l. Sigs. A⁴B—Bb⁸. 12
plates, newly engraved to suit the size of the work: Book I. part 1,
Tab. 1—v, after p. 98; Book I. part 2, Tab. 1—iv, after p. 166;
Book II. Tab. 1 and II, after p. 290; Book III. Tab. 1, after p. 382.

'In this Second Edition . . . I have omitted the Mathematical Tracts published at the
End of the former Edition, as not belonging to the subject. And at the End of the Third
Book I have added some Questions,' &c.—Newton's *Advertisement II.*

Opticks: | or, a | treatise | of the | *Reflections, Refractions, | Inflections*
and *Colours* | of | Light. | *The Second Edition, with Additions.* |
By Sir Isaac Newton, Knt. | London: | Printed for W. and J.
Innys, Printers to the | Royal Society, at the *Prince's-Arms* in
St. Paul's | Church-Yard. 1718. | 8vo. [176

Collation: As in 1717 issue.

In addition to a new title-page, the first two pages of the *Advertisement* to the first
edition have been re-imposed, slight alterations having been made in this re-issue.

Opticks: | or, a | treatise | of the | *Reflections, Refractions, | Inflections*
and *Colours* | of | Light. | *The Third Edition, Corrected.* | By Sir

Isaac Newton, Knt. | London : | Printed for William and John Innys at the | West End of St. *Paul's*. 1721. | 8vo. [177

Collation : Title-page, Advertisement I. and II., Errata, 4 ll. + pp. [1]—[382] + *Books printed for William and John Innys*, 1 lf. Sigs. A⁴B—Bb⁸. 12 plates, re-engraved : Lib. I. par 1, Tab. 1—v, after p. 98 ; Lib. I. par 2, Tab. 1—iv, after p. 168 : Lib. II. Tab. 1 & II, after p. 198 ; Lib. III. Tab. 1, p. 264 (?).

No new *Advertisement* to this edition. *Advertisement I.* has been altered to the original wording of the first edition of 1704.

Opticks : | or, a | Treatise | of the | *Reflections, Refractions, | Inflections* and *Colours* | of | Light. | *The Fourth Edition, corrected.* | By Sir Isaac Newton, Knt. | London : | Printed for William Innys at the West-|End of St. *Paul's*. MDCCXXX. | 8vo. [178

Collation : Title-page, Advertisement I. and II., Advertisement to the Fourth Edition, 4 pp. + pp. [1]—382 + 1 blank leaf. Sigs. A⁴B—Bb⁸. 12 plates as in third edition.

'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. Since Sir Isaac's *Lectioes Opticae*, which he publicly read in the University of Cambridge in the years 1669, 1670, and 1671, are lately printed, it has been thought proper to make at the bottom of the Pages several Citations from thence, where may be found the Demonstrations, which the author omitted in these Opticks.'—*Advertisement*.

Translations :

Optice : | sive de | Reflexionibus, Refractionibus, | Inflexionibus & Coloribus | Lucis | Libri Tres. | Authore Isaaco Newton, Equite Aurato. | Latine reddidit *Samuel Clarke*, A.M. | Reverendo admodum Patri ac D^{no} Joanni | Moore Episcopo Norvicensi a | Sacris Domesticis. | Accedunt Tractatus duo ejusdem Authoris | de Speciebus & Magnitudine Figurarum | Curvilinearum, latine scripti. | Londini : | Impensis Sam. Smith & Benj. Walford, Regiae

Societatis | Typograph. ad Insignia Principis in Cœmeterio D.
Pauli. | MDCCVI. | 4to. [179]

Collation: Title; Prefatio Interpretis [S. C.]; Authoris Monitio ad Lectorem; Errata, Corrigenda, & Addenda, 7 ll. + pp. 1—348: *Enumeratio Linearum Tertii Ordinis*, Title + pp. 1—24: *Tractatus de Quadratura Curvarum*, Title + pp. 1—43. Sigs. A⁴, b⁴ (1 blank), A—Oo⁴, Pp¹, Qq—Xx⁴, Yy¹, Aaa—Ttt². Plates: Lib. I. Tab. I, II at p. 90; Lib. I. Par 2, Tab. I—IV at p. 158; Lib. II. Tab. I, II, p. 206; Lib. III. Tab. I, p. 346; Curvarum Tab. I—VI; Quadr. Tab. I.

The single leaf (pp. 297—8), forming all of signature Pp, is singular.

The last line of p. 296 is

'& quorum partes quidem ne in Fumos abeant, facti (sic)
non'

whilst the first line of p. 297 is

'& quorum partes quidem ne in Fumos abeant, facti non.'

'In hac Latina Editione, relecto Libro, quaedam immutavi, praesertim perspicuitatis gratia; & non nulla Addidi, quae maximam partem in his Corrigendis & Addendis habentur. Et Quaerendorum insuper numerum in fine Libri adauxi. I. N.'

'At the request of Newton, Dr. Samuel Clarke prepared a Latin edition of his Optics, which appeared in 1706, and he was generously presented by Sir Isaac with £500, or £100 for each of his five children, as a token of the appreciation and gratitude of the author. Demoivre is said to have secured and taken charge of this translation, and to have spared neither time nor trouble in the task. Newton met him every evening at a coffee-house, and when they had finished their work he took Demoivre home with him to spend the evening in philosophical conversation.'—(Brewster's *Newton*, 1855, I. 248.)

Optice: | sive de | *Reflexionibus, Refractionibus, Inflexionibus & Coloribus* | Lucis, | Libri Tres. | Authore Isaaco Newton, Equite Aurato. | Latine reddidit Samuel Clarke, S.T.P. | *Editio Secunda, auctior.* | Londini: | Impensis Gul. & Joh. Innys Regiae Societatis Ty-pographorum ad Insignia Principis in Areâ Occidentali | D. Pauli. | MDCCXIX. | 8vo. [180]

Londini: Ex officina Gulielmi Bowyer Typographi, Kalend. Septemb. MDCCXVIII.
—printed on p. 415.

Collation: Half-title; Title; Praefatio Interpretis [S. Clarke], i—vi; Authoris Monitio *Prior* ad Lectorem [I. N. Aprilis 1^{mo}, 1704] vii—ix; Authoris Monitio *Alterâ* ad Lectorem [I. N. Julii 16^{to}, 1717] x, xi;

Errata [xi] + pp. 1—415 + 1 p. 'Catalogus Librorum prostantium apud Gul. & Joh. Innys.' Sigs. 4 ll. + a⁴, B—Gg⁴. Plates: Lib. I. Par 1, Tab. 1 to v at p. 106, Lib. I. Par 2, Tab. 1 to iv at p. 182, Lib. II. Tab. 1 and II at p. 316, Lib. III. Tab. 1 at p. 414.

— — A Large Paper edition was also issued. 4to. [181

As in the second edition of the Optics in English (1717) the two Tracts are not reprinted.

Optice: sive de Reflexionibus, Refractionibus, Inflexionibus et Coloribus Lucis, Libri Tres. Auctore Isaaco Newton, Equite Aurato. *Latine reddidit* Samuel Clarke, S.T.P. *Editio Novissima.* Lausannae & Genevae, Sumpt. Marci-Michaelis Bousquet & Sociorum. MDCCXL. 4to. [182

Collation: Portrait; Title; Dedication to John Bernoulli, by M. M. Bousquet, 1 April, 1740, 1—vii; Praefatio Interpretis, viii—xi; Authoris Monitio Prior, et Altera, ad Lectorem, xii—xv; Bibliopola Lectori S. xv, xvi; Synopsis librorum, definitionum, axiomatum, propositionum, experimentorum, observationum & quaestionum, xvii—xxxii + pp. 1—363 (pp. 331—363, Index) + 1 (Errata). With 12 plates.

The Portrait—'Daudet Sculp. Lugd.'—has this inscription, 'Isaacus Newton Eques Anno Aetat. 84. An. Chr. 1726. Apud Marcum-Michaelem Bousquet et Socios MDCCXL.' Large Initial Letters and head-pieces drawn by Papillon.

Optice . . . libri tres: accedunt ejusdem Lectiones Opticae et opuscula omnia ad lucem et colores pertinentia. Interprete S. Clarke. With Plates. Graecii. 4to. [183

At the end is the sanction for printing granted by the Officers of the Inquisition, dated 1747.

Optice . . . libri tres: accedunt ejusdem Lectiones Opticae, et opuscula omnia ad lucem et colores pertinentia, sumpta ex Transactionibus Philosophicis. Patavii, 1749. 4to. [184

— — Editio Altera. Patavii, 1773. 4to. [185

Traité d'Optique. Traduite par Pierre Coste, sur la seconde édition Angloise. 2 vols. 1720. 12mo. [186]

— Seconde Edition françoise beaucoup plus correct que la première. Paris, 1722. 4to. [187]

Optique, traduction nouvelle faite par M*** [J. P. Marat], sur la dernière édition originale, ornée de 21 planches. 2 vols. Paris, 1787. 8vo. [188]

Dedicated to the King by M. Beaugée, 'editeur de cet ouvrage,' etc.

Sir I. Newton's Optik. Uebersetzt und herausgegeben von Wm Abendroth. Portrait. 1898. [189]

Ostwald's 'Klassiker der exakten Wissenschaften.' 2 parts.

Optical Lectures:

Optical | Lectures | Read in the | Publick Schools | of the | University
of Cambridge, | *Anno Domini*, 1669. | By the late Sir *Isaac*
Newton, | Then Lucasian Professor of the Mathematicks. | Never
before Printed. | Translated into *English* out of the Original
Latin. | London: | Printed for Francis Fayram, at the | South
Entrance of the *Royal Exchange*. | M. DCC. XXVIII. | 8vo. [190]

Collation: Title; Preface [by the translator], dated London, June 29, 1727, pp. iii—xi; Errata 1 p. + Opticks, pp. 1—212. Sigs. A^s, B—O^s, P². 13 plates, numbered consecutively 1 to 13.

Section I. The Refrangibility of Rays is different; II. Of the measure of Refractions; III. Of the Refractions of Planes; IV. Of the Refractions of Curve Surfaces.

'It was as long ago as the year 1666, when Sir Isaac Newton first found out his Theory of Light and Colours. Upon Dr Barrow's resigning to him the Professorship of Mathematicks at Cambridge, he made A. 1669, this Discovery the Subject of his publick Lectures, in that University. In 1671 he began to communicate it to the world. . . . About the same time he intended to publish his Optical Lectures, wherein these Matters were handled more fully; together with a Treatise of Series and Fluxions. But the Disputes, which were occasioned, by what he had already suffered to come abroad, deterred him from the Design

... his Friends could not prevail upon him to print his Book of Opticks until the year 1704. . . . The present Treatise is a faithful Translation of a very correct Copy, taken from the Latin Original, as it was read in 1669 . . . and at the Bottom of the Pages we have added here and there some very short Remarks . . . we hope shortly to present the Publick with several Mathematical Pieces, that were long ago written by our great Author, though never yet printed.'—*Preface*.

Isaaci Newtoni, *Eq. Aur.* | in | Academia Cantabrigiensi | Matheseos
olim Professoris Lucasiani | Lectiones Opticae, | Annis MDCLXIX,
MDCLXX, & MDCLXXI. | In Scholis publicis habitae; | et nunc
primum ex MSS. in lucem editae. | Londini | Apud Guil. Innys,
Regiae Societatis Typographum. | MDCCXXIX. | 4to. [191

Collation: pp. xii + 291 + Addenda & Corrigenda, 5 pp. 24 plates:
Tab. 1 to 13 to part 1, and Tab. 1—11 to part 2.

'The MS. from which the Latin edition was printed was that which had been given by Newton himself to David Gregory, but after the edition had been printed the editor learned that a more perfect manuscript, containing several notes and emendations by Newton, had been presented to the University of Cambridge. These emendations were therefore printed at the end, and Bp. Horsley has included them.'—Brewster's *Newton*.

[Printed with the Optice 1747, 1749, 1773, see Nos. 183—5.]

Illustrations:

Airy, Sir G. B. On a remarkable modification of Newton's Rings.
1831. 4to. [192

— On the Phenomena of Newton's Rings which formed between two
transparent substances of different refractive powers. Plate.
1832. 4to. [193

Algarotti, Count. Il Newtonianismo per le dame, ovvero dialoghi
sopra la luce, e i colori. Napoli, 1737. 4to. [194
Also editions 1738, 1739, 1746. 8vo.

— Theory of Light and Colours, translated from the Italian [by
Mrs. Elizabeth Carter]. 2 vols. 1739. 12mo. [195
Also editions 1742, 1745. 12mo.

— Le Newtonianisme pour les dames. Traduit par Duperron de
Castera. 2 vols. 1738. [196

- Algarotti, Count. *Philosophy of Sir Isaac Newton explained, in six dialogues on Light and Colours* [translated by Mrs. Elizabeth Carter]. Glasgow, 1752. 12mo. [197]
- Amoretti, C. and F. Soave. *Seguito d' obbiezioni alla teoria del Sig. Newton intorno a' colori ed alla formazione dello spettro solare* [In *Opuscoli scelte sulle scienze, etc.* Tom. XIV.] 1778. [198]
- Baehr, J. C. *Vorträge über Newton's und Göthe's Farbenlehre.* Dresden, 1863. 8vo. [199]
- Bourgeois, C. G. A. *Examen des bases des doctrines de Newton . . . sur la Lumière et les Couleurs.* [In *Mémoire sur les Couleurs de l'Iris, etc.*] 1813. 8vo. [200]
- Cominale, C. *Anti-Newtonianismi pars prima in qua Newtoni de coloribus systema ex propriis principiis geometricæ evertitur, etc.* 1754. 8vo. [201]
- [Courtivron, G.] *Traité d'Optique où l'on donne la théorie de la lumière dans le système Newtonien.* 1752. 4to. [202]
- Dolland, P. *Some account of the Discovery . . . which led to the grand improvement of Refracting Telescopes . . . with an attempt to account for the mistake in an experiment made by Sir I. Newton, &c.* 1789. 4to. [203]
- Eberhard, J. P. J. P. E——d's . . . *Versuch einer näheren Erklärung von der Natur der Farben, zur Erläuterung der Farbentheorie des Newton.* 1762. 8vo. [204]
- Emerson, Wm. *Concerning Newton's Optics* [in his *Short comment on the Principia*]. 1770. [205]
- Fusinieri, A. *Ricerche meccaniche e diottriche sopra la causa della rifrazione della luce, ove si dimostra che coll' attrazione introdotta da Newton non si può render ragione di questo fenomeno, etc.* 1797. 8vo. [206]

- Gautier d'Agoty, Jacques. Chroa-génésie ou génération des couleurs contre le système de Newton. 1749. 12mo. [207]
- Φωτωφύσις χροαγενεσις de optice errores Isaaci Newtonis demonstrans, etc. Londini, 1750. 8vo. [208]
- Nouveau système de l'univers, sous le titre de Chroa-génésie ou critique des prétendues découvertes de Newton. [With a Supplement.] 3 parts in 2 vols. 1750—1. 12mo. [209]
- Goethe. Farbenlehre; Optik, etc. [criticised by Helmholtz in his Popular Lectures on Scientific Subjects, 1873: on Goethe's Scientific Researches.] [210]
- Gonnella, Tito. Opuscoli Matematici (1) di alcuni perfezionamenti del telescopio Newtoniano, etc. Firenze, 1841. 4to. [211]
- Graevell, F. Charakteristik der Newton'schen Farbentheorie. 1858. 8vo. [212]
- Goethe im Recht gegen Newton. 1857. 8vo. [213]
- Ueber Licht und Farben mit . . . Beziehung auf die Farbenlehren Newton's und Goethe's, etc. 1859. 8vo. [214]
- Gregory, Dr. James. Elements of Catoptrics and Dioptrics, translated by Wm. Browne. *The Second Edition*, to which is added, An Appendix by J. T. Desaguliers, containing an Account of the Reflecting Telescopes; and of the Inventors, Improvers, and Imitators of them, till they were brought to perfection by John Hadley. With original Letters which passed between Newton and Gregory relating thereto, now first published. 1735. 8vo. [215]
- The first edition did not contain the Letters between Gregory and Newton.
- Griffith, G. On the Formation of a Pure Spectrum by Newton. British Association Report, 1885. [216]

- Herschel, Sir J. F. W. On a certain remarkable instance of deviation from Newton's Scale in the Tints developed by Crystals, with one axis of Double Refraction, on exposure to Polarised Light. 1820. 4to. [217]
- Herschel, Wm. New Observations concerning the colours of thin transparent bodies, shewing these phenomena to be inflections of light, and that the Newtonian fits of easy transmission and reflection have no existence. 1800. 8vo. [218]
- [Jordan, C. W.] Observations of Newton concerning the inflexions of light accompanied by other observations differing from his, and appearing to lead to a change in his theory of Light and Colours. 1799. 8vo. [219]
- [Lardner, Dionysius.] Account of Newton's Optics. pp. 69. Library of Useful Knowledge, 1829—30. 8vo. [220]
- Leprince, H. S. Nouvelle chroagénésie, ou réfutation du traité d'Optique de Newton. 1^{re} partie. 1819. 8vo. [221]
- Lovett, R. The Reviewers Reviewed: being a Reply to the animadversions of the Monthly Review on a late pamphlet, "Sir Isaac Newton's Æther realized." 1760. 8vo. [222]
- Lucinus, Paul. Opticae juxta Newtonianas leges latinis versibus expositae. Parmae, Bodoni, 1793. 8vo. [223]
- Mollweide, C. B. Demonstrationem novam propositionis, quae theoriae colorum Newtoni fundamenti loco est, exhibet C. B. M. Lipsiae, Nov. 2, 1811. 4to. [224]
- Pfaff, C. H. Ueber Newton's Farbentheorie, etc. 1813. 8vo. [225]
- Reade, Joseph. Critical Remarks on Sir Isaac Newton's opinions on Colours, etc., in Experimental Outlines for a new Theory of Colours, Light, and Vision. Dublin, 1816. 8vo. [226]

Robinson, Bryan. Dissertation on the Æther of Sir I. Newton.
Dublin, 1743. 8vo. With Appendix, Dec. 1, 1746. 1747.
8vo. [227]

R[obinson], B[ryan]. Sir Isaac Newton's account of the Æther. with
some Additions by way of Appendix. Dublin, 1745. 8vo. [228]

Sowerby, James. A new elucidation of colours, original, prismatic,
and material; shewing their concordance in three primitives,
yellow, red, and blue; and the means of producing, measuring,
and mixing them; with observations on the accuracy of Sir I.
Newton. 1809. 4to. [229]

Wangerin, A. De Annulis Newtonianis. Dissertatio Inauguralis,
etc. [1866.] 8vo.]230

Papers by Sir Isaac Newton, printed in the Philosophical Transac-
tions of the Royal Society of London. [231]

Vol. VI. (1) Theory of Light and Colours. Vol. VII. (2) A Series of
Queries, to be determined by experiments, positively and directly con-
cluding his new theory of light and colours, 1672. (3) Account of a new
catadioptrical telescope. (4) Farther suggestions about his reflecting
telescope, together with his tables of apertures and charges for the
several lengths of that instrument. (5) Answer to some objections
made by an ingenious French philosopher (Ignatius Pardies) to the new
reflecting telescope, 1672. (6) Some considerations upon part of a
letter of M. de Bercé concerning the catadioptrical telescope pretended
to be improved and refined by M. Cassegrain. (7) Experiments pro-
posed in relation to Mr. Newton's theory of light, with observations.
(8) Answer to M. Pardies' letter on Newton's theory of light [printed
in the same vol.] 1672. (9) Answer to Mr. Pardies' second letter [in
same vol.] 1672. (10) Answer to some considerations on Newton's
doctrine of light and colours. Vol. VIII. (11) Answer, further ex-
plaining the theory of light and colours. (12) Hopes of perfecting

telescopes by reflections rather than refractions. (13) On the number of colours. Vol. IX. (14) Answer to M. Francis Linus's letter animadverting on the theory of light and colours [printed in same vol.]. Vol. X. (15) Considerations on M. Linus's reply. (16) Another letter to the same argument. Vol. XI. (17) A particular answer to M. Linus's letter. (18) Answer to Mr. [Anthony] Lucas' letter of exceptions to the theory of light and colours. Vol. XLII. Description of an instrument for observing the moon's distance from the fixed stars at sea.

IV. FLUXIONS

The | Method of Fluxions | and Infinite Series ; | with its | Application to the Geometry of Curve-Lines. | By the Inventor | *Sir Isaac Newton, K^t* | Late President of the Royal Society. | *Translated from the Author's Latin Original | not yet made publick.* | To which is subjoin'd, | A Perpetual Comment upon the whole Work, | consisting of | Annotations, Illustrations, and Supplements, | In order to make this Treatise | *A compleat Institution for the use of Learners.* | By John Colson, M.A. and F.R.S. | Master of *Sir Joseph Williamson's* free Mathematical-School at *Rochester.* |

London : | Printed by Henry Woodfall ; | And Sold by John Nourse, at the *Lamb*, without *Temple-Bar*. MDCCXXXVI. 4to. [232

Collation : Title and Dedication to William Jones, Esq., F.R.S., pp. i—iv, Preface ix—xxiii, Contents xxiv + 1—140, Title-page to the Commentary + Contents [143], [144] + 143—339, + 1 blank + Errata 1 lf. (on reverse ; Advertisement of the British Hemisphere lately publish'd by the Author). Sigs. A², a, b, B—T⁴ (T)¹ [inserted after 3rd lf. of T], U—Uu⁴Xx² + 1 lf. One plate opposite title-page.

Fluxions. A Large Paper Edition was also printed on thick paper.
4to. [233

'I gladly embraced the opportunity that was put into my hands, of publishing this posthumous Work, because I found it had been composed with that view and design. And that my own Countrymen might first enjoy the benefit of this publication, I resolved upon giving it in an *English* Translation, with some additional Remarks of my own.

The learned Dr. Pemberton . . . had once a design of publishing the Work, with the consent and under the inspection of the Author himself . . . But since the Author's Death, as the Doctor informs us, prevented the execution of that design, and since he has not thought fit to resume it hitherto, it became needful that this publication should be undertaken by another, tho' a much inferior hand.'—*Colson's Preface.*

Colson's Commentary consists of Annotations on the Introduction, and on the First and Second Problems.

A | Treatise | of the | Method of Fluxions | and | Infinite Series, | With
its Application to the Geometry | of Curve Lines. | By Sir Isaac
Newton, Kt. | Translated from the *Latin* Original not yet | pub-
lished. | Designed by the Author for the Use of Learners. *Hac*
via insistendum est. | London: | Printed for T. Woodman at *Cam-*
den's Head in New | Round Court in the Strand; and J. Millan
next to | *Will's Coffee House* at the Entrance into *Scotland-Yard.* |
MDCCXXXVII. | 8vo. [234

Collation: Title, Preface pp. iii—xiv, Contents 2 pp. + (1)—(8), 9—180,
+ Errata 1 p. Sigs. A, a, B—Ab⁴ (the last lf. blank). 4 folding
tables, 1 at p. 137, 3 at p. 138.

'We have reason to believe that what is here delivered, is wrought up to that Perfection in which Sir Isaac himself had once intended to give it to the Publick.

The ingenious Dr. Pemberton has acquainted us that he had once prevailed upon him to complete his Design and let it come abroad. But as Sir Isaac's Death unhappily put a stop to that Undertaking, I shall esteem it none of the least Advantages of the present Publication, if it may prove a means of exciting that Honourable Gentleman, who is possessed of his Papers, to think of communicating them to some able Hand; that so the Piece may at last come out perfect and entire.'—*Preface.*

The Preface contains 'a short View of the Body of the Work.'

These editions are translations by two different persons from copies of the same manuscript. It is worth noting that the translator of the 1737 work does not mention Colson's edition, which had been issued only a very short time previous to his.

To show that the difference only lies in the mode of expressing the work in English, I give the first paragraph of the work from both editions printed side by side :

1736

Having observed that most of our modern Geometricians, neglecting the Synthetical Method of the Ancients, have apply'd themselves chiefly to the cultivating of the Analytical Art; by the assistance of which they have been able to overcome so many and so great difficulties, that they seem to have exhausted all the Speculations of Geometry, excepting the Quadrature of Curves, and some other matters of a like nature, not yet intirely discuss'd: I thought it not amiss, for the sake of young Students in this Science, to compose the following Treatise, in which I have endeavour'd to enlarge the Boundaries of Analyticks, and to improve the Doctrine of Curve-lines.

1737

Having observ'd that most of our modern Geometricians neglecting the synthetical Method of the Ancients, have applied themselves chiefly to the analytical Art, and by the Help of it have overcome so many and so great Difficulties, that all the Speculations of Geometry seem to be exhausted, except the Quadrature of Curves, and some other things of a like Nature which are not yet brought to Perfection. To this end I thought it not amiss, for the sake of young Students in this Science, to draw up the following Treatise: wherein I have endeavour'd to enlarge the Boundaries of Analyticks, and to make some Improvements in the Doctrine of Curve Lines.

Treatise of the Method of Fluxions and Infinite Series, with its application to the Geometry of Curve Lines. Translated. London, 1738. 8vo. [235]

Translation :

La Méthode des Fluxions et des suites infinies par M. le Chevalier Newton. A Paris, chez De Bure l'aîné, Libraire, Quay des Augustins, à Saint Paul, 1740. 4to. [236]

Collation : Title; Preface, iii—xxx; Errata, 1 lf.; Privilège du Roy, 1 lf.; La Méthode, 1—148. Sigs. ā, ē, ī, ō in 4's + 1 lf. + A—S in 4's, T in 2.

“Extrait des Registres de l'Académie Royale des Sciences, du 23 Décembre, 1738: Messieurs Maupertuis & Clairaut qui avoient été nommés pour examiner la Traduction d'un Traité Anglois de M. Newton sur la Méthode des Fluxions, par M. du Buffon, en ayant fait leur rapport, la Compagnie a jugé que cet excellent Ouvrage méritoit un Traducteur aussi intelligent; en foi de qui j'ai signé le présent Certificat. A Paris ce 21. Mai. 1740. Fontenelle, Sec. Perp. de l'Ac. Roy. des Sc.”

From this 'Extrait' it will be seen that this translation was done by George Louis Le Clerc, Count de Buffon.

Illustrations :

Commercium | Epistolicum | D. *Johannis Collins*, | et aliorum | de |
 Analysi | promota : | jussu | Societatis Regiæ | In lucem editum. |
 Londini : | Typis Pearsonianis, Anno MDCCXII. | 4to.

Collation : Title, Ad Lectorem, 2 ll. + pp. (1)—(122) + Errata sic Corri-
 gantur, 1 lf. Sigs. A—Gg², Hh⁴.

I have met with two varying copies of this work, which I call Edition A and Edition B.
 The variations are as follows :

Edition A : [237]

page 34, the catchword at the bottom of the page is 'nitu.'
 page 35, lines first and second are :

(35)
 'rei est : quinam sint illi numeri, quorum Tabulam ille exhibit in infi-
 nitum continuandam,' &c.

Edition B : [238]

page 34, the catchword is corrected to 'rei.'
 page 35, the first line has been corrected and re-set :

(35)
 'rei est : quinam sint illi numeri, quorum Tabulam ille exhibit in
 infinitum continuandam,' &c.

During the printing many cancels appear to have been made, and these are plainly
 shown by the reprinted pages having a guard left ; these guards show conclusively by the
 wire-marks to which pages they belong. They are pp. 43 and 44, 71 and 72, 99 and 100,
 101 and 102.

Commercium | Epistolicum | D. *Johannis Collins*, | et aliorum, | de |
 Analysi Promota, | Jussu Societatis Regiæ in lucem editum : | et
 jam | Unà cum ejusdem Recensione præmissa, & judi-|cio pri-
 marii, ut ferebatur, Mathematici | subjuncto, iterum impressum. |
 Londini : Ex officina *J. Tonson* et *J. Watts*. MDCCXXII. 8vo.

[239]

Collation : Title, Ad Lectorem, 4 ll. + pp. [1]—[250] + Errata, 1 lf. (on
 the reverse of which is a list of Books '*Lately Publish'd, neatly Printed
 in Twelves*'). Sigs. A⁴, B—Q⁸, R⁴, S². Pages 145 to 176 are wrongly
 paged, repeating the paging from 129 to 160, and p. 190 is printed
 [109].

Commercium Epistolicum. *Another issue*: Title-page the same, with different imprint: Londini: | Ex Officinâ & impensis J. Tonson, & J. Watts, | prostant venales apud Jacobum Mack-Euen, | Bibliopolam *Edinburgensem*. MDCCXXII. | 8vo. [240]

Collation: same as previous edition.

Commercium | Epistolicum | de | Varia Re Mathematica, | inter | Celeberrimos præsentis seculi Mathematicos. | viz. |

Isaacum Newtonum Equitum Auratum. |

D^{num} Isaacum Barrow.

D^{num} J. Collinium. |

D^{num} Jacobum Gregorium.

D^{num} Gulielmum Leibnitium. |

D^{num} Johannem Wallisium.

D^{num} Henricum Oldenbourgum. |

D^{num} J. Keillium.

D^{num} Franciscum Slusium. |

et alios. |

Jussu Societatis Regiæ in lucem editum. | Et jam | Una cum Recensione præmissa insignis Controversiæ inter Leibnitium & Keillium de primo | Inventore Methodi Fluxionum; & Judicio | primarii, ut ferebatur, Mathematici sub-juncto, iterum impressum. | Londini: | Impensis J. Tonson & J. Watts, Prostant venales apud J. MacEuen ad Insigne Georgii Buchanani e regione templi Sancti Clementis in vico vulgo dicto *the Strand*. 1725. | 8vo. [241]

Collation: Same as the 1722 edition, with a new title-page as given. In the copy examined the guard of the title-sheet is plainly seen. See note to next entry.

— *Another edition*. 1725.

[242]

Title-page and collation as the other *earlier* edition of the same year. The guard of the new title-sheet is plainly seen. But the difference between this (B) edition and the previous one (A) is that the third leaf of 'Ad Lectorem' has been reprinted, and a sentence altered. The sentence in Edition A is

'Quæ de Questionibus Philosophicis disputata sunt D. Des Maizeaux a D. Leibnitio & aliis accepit & in lucem edidit.'*

with the note

' Vide Epistolas D. Leibnitii ad D. Des Maizeaux 21 Aug. 1716, & D. Des Maizeaux ad Abbatem de Comitibus 21 Aug. 1718, in Collectionum Tomo secundo, pag. 356, & 362 impressas.'*

In Edition B this sentence with the note is left out, and the following inserted in its place :

'Quæ de Questionibus Philosophicis disputata sunt D. Des Maizeaux collegit & in lucem edidit.'

The printers in reprinting this leaf were careful to use the same wood block at the end of the *Ad Lectorem*, so that a casual glance does not notice the change.

Messrs. Biot and Lefort, in their edition of the *Commercium Epistolicum*, quote the 1725 edition, and give the following note concerning it (p. ix) :

'Ce titre, porté par un assez grand nombre d'exemplaires de la 2^e édition du Commercium Epistolicum, est un carton, en style de typographie. Dans les exemplaires qui portent ce titre, il est facile de reconnaître que : 1^o le feuillet de tête est collé sur la page qui contient l'Ad lectorem ; 2^o la vergeure du papier n'est pas la même pour le titre et pour le corps de l'ouvrage.'

The editors might have also proved that the two editions they knew (Nos. 239 and 241) were the same, except for the title-page—the errors in the paging, the list of books 'Lately Publish'd' are identical in these editions. But the editors did not know that there was more than one issue of each of the 1722 and 1725 editions. They certainly did not know of the Edition B of the 1725 edition, or they would have noted the variation in the *Ad Lectorem* in their work. The existence of these various issues I believe to be now known for the first time.

Commercium Epistolicum J. Collins et aliorum de analysi promota, etc., ou correspondance de J. Collins et d'autres savants célèbres du XVII^e siècle, relative à l'analyse supérieure, réimprimée sur l'édition originale de 1712 avec l'indication des variantes de l'édition de 1722, complétée par une collection de pièces justificatives et de documents ; et publiée par J. B. Biot, et F. Lefort. Paris, Mallet-Bachelier, gendre et successeur de Bachelier, etc., 1856. 4to. [243

Collation : pp. xvi + (293) + 1 page of Errata.

Contents : Title, Advertisement (by the Editors) i—viii ; Table des matières, ix—xvi ; the *Commercium Epistolicum*, 1712, with the additions and alterations of the 1722 edition, and notes by the Editors, (1)—(190) ;

Pièces justificatives et documents :

- I. Supplément au *Commercium Epistolicum*, (191)—(251).
- II. Sommaire des principaux travaux mathématiques qui, au XVII^e siècle, ont préparé l'invention de l'analyse infinitésimale, (253)—281) :
 - Cavalieri. Géométrie des indivisibles.
 - Descartes. Méthode des Tangentes, déduite de la théorie des racines égales et de la méthode des coefficients indéterminés.
 - Fermat. Méthode des *maxima* et *minima*, et application à la recherche des Tangentes.
 - Hudde. Théorie des racines égales, méthode des *maxima* et *minima*, et application à la détermination des Tangentes.

Ricci. Méthode des *maxima* et *minima*, et application à la détermination des Tangentes.

Barrow. Méthode des Tangentes, déduite de la considération du triangle formé par un arc infiniment petit de la courbe et par les ordonnées de ses extrémités.

Sluze. Détermination des Tangentes et des points d'inflexion.

Règle générale pour la détermination des Tangentes.

Conclusion: Caractère des publications du *Commercium Epistolicum* faites en 1712 et in 1722. Discussion de l'avis des Commissaires nommés par la Société Royale, (283)—(293). Errata.

Contains printer's facsimiles of the title-pages of the editions of 1712, 1722, and 1725.

Account of the *Commercium Epistolicum*, &c., published by order of the Royal Society, concerning the dispute between Leibnitz and Keill, about the right to the invention of the method of fluxions, by some called the differential method. [Transactions of the Royal Society of London.] 1714. [244

Allegret. Mélanges scientifiques et littéraires. Pascal, Viète, Newton & Leibnitz, Liberté du Calcul. Clermont-Ferrand, 1868. 8vo. [245

iii. Newton et Leibnitz (leurs droits respectifs à l'invention du Calcul infinitésimal).

Cotes, Roger. De Methodo differentiali Newtoniana. In Cotes's Opera miscellanea, printed with his Harmonia Mensurarum, 1722. [246

De Morgan, A. On a point connected with the dispute between Keill and Leibnitz about the Invention of Fluxions. 1846. 4to. [247

— Some Account of Recent Discoveries in England and Germany relating to the controversy on the Invention of Fluxions. [Companion to the British Almanack.] 1852. [248

— On the Authorship of the 'Account of the *Commercium Epistolicum*' [Philosophical Magazine, June,] 1852. [249

— On the Early History of Infinitesimals in England. [Philosophical Magazine, November,] 1852. [250

- Ditton, Humphrey. *An Institution of Fluxions: containing the first principles, the operations, with some of the uses and applications of that method, according to Sir Is. Newton.* 1706. 8vo. Second Edition, revised by J. Clarke, 1726. 8vo. [251]
- Durdik, Jos. *Leibnitz und Newton. Ein Versuch über die Ursachen der Welt auf Grundlage der positiven Ergebnisse der Philosophie und Naturforschung.* Halle, 1869. 8vo. [252]
- Elementi delle Matematiche . . . aggiuntavi l'invenzione, e la spiegazione delle Permutazioni, e del Binomia e Infinitinomio di Newton, etc.* 1744. 8vo. [253]
- Gerhardt, G. J. *Die Entdeckung der Differenzialrechnung durch Leibnitz.* Halle, 1848. [254]
- *Die Entdeckung der höhern Analysis.* Halle, 1855. [255]
- Hodgson, James. *The Doctrine of Fluxions, founded on Sir Isaac Newton's method, published by himself in his tract upon the Quadrature of Curves, 1736.* 1758. 4to. [256]
- Keill, J. *Response . . . aux Auteurs des Remarques sur la différence entre M. de Leibnitz et M. Newton.* 1713. 8vo. [257]
- *Epistola ad Joannem Bernoullium in qua Isaacum Newtonum et seipsum contra criminationes in Actis Lipsiensibus a Crusio quodam publicatas defendit.* London, 1720. 4to. [258]
- Leibnitii, G. Guil., et Johan. Bernoullii *Commercium Philosophicum et Mathematicum, 1694—1716.* With Portrait of Leibnitz and plates. 2 vols. Lausannae et Genevae, 1745. 4to. [259]
- Leibnitzens mathematische Schriften, herausgegeben von G. J. Gerhardt.* 5 vols. 1849—59. [260]
Containing letters concerning the invention of Fluxions.
- Maseres, F. *Tracts on the Resolution of Affected Algebraic Equations by Dr. Halley's, Raphson's and Sir I. Newton's Methods of Approximation.* With a Preface. 1800. 8vo. [261]

Maseres, F. The Doctrine of Permutations and Combinations. Being an essential part of the Doctrine of Chances, by Jas. Bernoulli and John Wallis, with other Mathematical Tracts. Published by F. Maseres. 1795. Royal 8vo. [262]

Neumann, C. Untersuchungen über das logarithmische und Newton'sche Potential. 1877. 8vo. [263]

Newton et Leibnitz. An anonymous statement (in English, French and German) that 250 fr. had been deposited with the 'Notary public de Fanget' of Pau for the publication of a MS. said by Gerhardt to be in the Hanover Royal Library, called 'Excerpta ex tractatu Newtoni Msc. de Analysi per aequationes numero terminorum infinitas.' 4 pages, Imprimerie É. Vignancour, Pau, Janvier, 1863. Folio. [264]

— — Republished, with the addition of a Letter dated Pau, 1 August, saying that although 1500 copies were circulated in January and February, the challenge had not been taken up. 2 pages. Printed at Paris [1863]. Folio. [265]

Raphson, Joseph. Historia Fluxionum, sive Tractatus Originem & Progressum Peregregiae Istius Methodi brevissimo compendio (et quasi Synoptice) Exhibens. 1715. 4to. [266]

Pages 97—123 contain the correspondence between Newton and Leibnitz concerning the invention of Fluxions.

— The History of Fluxions, shewing in a compendious manner the first Rise of, and various Improvements made in that Incomparable Method. 1715. 4to. [267]

Pages 97—123 are exactly the same as those in the Latin edition (both printed by the same printer), the one printing of these pages evidently serving for both editions.

Robins, Benjamin. Discourse concerning the nature and certainty of Sir I. Newton's Methods of Fluxions and of Prime and Ultimate Ratios. 1735. 8vo. [268]

Also in Robins's Mathematical Tracts, 1761. Vol. II.

Schübler, C. L. Ueber Newton's Scharfsinn, insbesondere über dessen Sagacität in Analysis. 1794. [269]

Sloman, H. Leibnitzen Anspruch auf die Erfindung der Differentialrechnung. 1857. 4to. [270]

— The claims of Leibnitz to the invention of the Differential Calculus. Translated from the German, with considerable additions and new addenda by the author. Cambridge, 1860. 4to. [271]

I. Barrow and the Method of Tangents. II. Wallis and the Problem of Quadratures. III. The Invention of the Differential Calculus. IV. Biot's judgement on the discovery of the Differential Calculus. V. A new feature of the Question. Additions and Remarks.

Wagner, C. L. G. De approximatione vera methodi Newtonianae applicatae ad duas aequationes simultaneas, etc. [1835]. 8vo. [272]

Wagner, W. Bestimmung der Genauigkeit, welche die Newton'sche Methode zur Berechnung der Wurzeln darbietet, etc. 1860. 8vo. [273]

Wallis, John. Opera Mathematica. 4 vols. Oxon., 1693—9. Folio. [274]

The Preface to Volume I. contains a brief notice of Newton's claim to the discovery of Fluxions, and printed in the work are extracts from the *Quadratura Curvarum*, with which Newton had furnished him.

Walton, J. Vindication of Sir Is. Newton's principle of Fluxions against the objections contained in the 'Analyst.' Dublin, 1735. 8vo. [275]

Weissenborn, H. Die Principien der höheren Analysis, als historisch-kritischer Beitrag zur Geschichte der Mathematik. Halle, 1856. [276]

V. ARITHMETICA UNIVERSALIS.

Arithmetica Universalis; | sive | De Compositione | et | Resolutione
Arithmetica | Liber. | Cui accessit | Halleiana | *Aequationum Ra-*
dices Arithmetice | *inveniendi methodus.* | *In Usus juventutis Aca-*
demiae. | Cantabrigiae, Typis Academicis, MDCCVII. 8vo. [277

Collation: Half-title, Title, Ad Lectorem [Datam Cantabrigiae III. Kal.
Mai. A.D. MDCCVII. G. W.], Lectori S. & Errata, 8 pp. + 1—343.

Published and edited by Wm. Whiston.

— Editio Secunda, In qua multa immutantur et emendantur, non-
nulla adduntur. Londini, Impensis Benj. & Sam. Tooke, Bib-
liopolarum, juxta Medii Templi Portam, in vulgo vocato Fleet-
street. MDCCXXII. 8vo. [278

Arithmetica Universalis, etc. (E. Hallei methodus inveniendi radices
aequationum sine praevia reductione. Constructio aequationum
tertia et quarta potestatis ope circuli et datae parabolae.
Tractatulus de numero et limitibus radicum in aequationibus
solidis et biquadraticis. J. Colson aequationum cubicarum et
biquadraticarum resolutio universalis. A. de Moivre aequa-
tionum quarundam resolutio analytica. C. MacLaurin epistola
de aequationibus in quibus dantur radices impossibiles. Ejus-
dem secunda epistola. G. Campbell Methodus determinandi
numerum radicum impossibilium in aequationibus affectis.) Lug-
duni Batavorum, 1732. 4to. [279

Edited by W. J. 's Gravesande.

Arithmetica Universalis. Perpetuis Commentariis illustrata et aucta
a J. A. Lecchi. 3 vols. Milan, 1732. 8vo. [280

Arithmetica Universalis. Cum commentario Joh. Castillionei. Plates.
2 vols. Amstelodami, apud Marcum Michaelum Rey. 1761.
4to. [281]

Volume II. has "Additamentum vel de Solutione et constructione Aequationum, &c. Scripta varia ex Transactionibus Philosophicis et aliunde excerpta" [Edm. Halley, J. Colson, A. de Moivre, Colin MacLaurin, etc.]

Arithmetica Universalis summi Newtoni, contracta, illustrata, et locupletata; praeunte logica analitica a Godef. Ant. Décoré. Lugd. Bat. 1761. 8vo. [282]

Translations:

Universal Arithmetick: or, a Treatise of Arithmetical Composition and Resolution, to which is added, Dr. Halley's method of finding the roots of the *Æ*quations arithmetically. Translated from the Latin by the late Mr. Raphson, and revised and corrected by Mr. Cunn. London: Printed for J. Senex at the Globe in Salisbury Court, W. Taylor at the Ship, T. Warner at the Black Boy in Paternoster Row, and J. Osborn at the Oxford Arms in Lombard Street, 1720. 8vo. [283]

Collation: Title, To the Reader i—iv + pp. 1—272. Sigs. 2 ll. + B—Mm⁴. 8 plates.

— The Second Edition, very much corrected. London: Printed [by T. Wood] for J. Senex in Fleet Street, W. and J. Innys near S. Paul's, J. Osborn and T. Longman in Pater-noster Row. 1728. 8vo. [284]

Collation: pp. iv + 271. 8 plates.

'This new edition in English has been very carefully compared with the correct edition of the original, published, 1722.'

Universal Arithmetic: To which is added a Treatise upon the Measures of Ratios by James Maguire, A.M. The whole illustrated in a series of Notes by the Rev. Theaker Wilder, D.D., Senior Fellow of Trinity College, Dublin. London: Printed for W. Johnston in Ludgate Street, 1769. 8vo. [285]

Collation: Title, Dedication by Wilder to John Duke of Bedford, &c., Preface (dated Sept. 1, 1768) v—viii + pp. 1—536 + Title [of the Measures of Ratios] + 1—63 + Errata, 3 pp. 8 plates.

Arithmétique universelle de Newton, traduite avec des notes par N. Beaudoux. 2 vols. 1802. 4to. [286]

Illustrations:

Décoré, Godef. Ant. Arithmetica universalis summi Newtoni, contracta, illustrata et locupletata; praeunte logica analitica. Lugd. Bat., 1761. 8vo. [287]

's Gravesande, Guliel. Ja. Matheseos universalis elementa, quibus accedunt specimen commentarii in arithmetica universalem Newtoni, ut et de determinanda forma seriei infinitae adsumtae regula nova. Lugd. Bat., 1727. 8vo. [288]

— Elements of Universal Mathematics, or Algebra. To which is added A Specimen of a Commentary on Sir Isaac Newton's Universal Arithmetic. Translated from the Latin. 1728. 8vo. 2nd Edition, 1752. 8vo. [289]

[Maseres, F.] An Investigation of Sir I. Newton's Binomial Theorem [in the Arithmetica Universalis] in the case of the reciprocals of the roots of a binomial quantity. [Scriptores Logarithmici, Volume V.] 1791. [290]

Willich, Michael Laurentius. Dissertationem mathematicam qua Methodum Newtonianam reperiundi divisores aequationum illustrat atque demonstrat ad diem XXV. Januar. A. M.DCC.XXXVIII. publice defendet. Gottingae, apud Abram Vandenhoeck Acad. Typographum. 4to. [291
pp. [iv +] 28.

VI. MINOR WORKS.

Opuscula Mathematica Philosophica et Philologica, recensuit J. Castillioneus. 3 vols. Lausannae et Genevae, 1744. 4to. [292

For List of Contents see No. 2.

Analysis per Quantitatum Series, Fluxiones, ac Differentias: Cum *Enumerationem Linearum Tertii Ordinis*. Londini: Ex officina Pearsoniani, MDCCXII. 4to. [293

Edited with a Preface by Wm. Jones. pp. [xiv +] 101.

Contains the De Analysi per Aequationes Infinitas, De Quadratura Curvarum, Enumeratio Linearum Tertii Ordinis, & Methodus Differentialis. Also Fragmenta Epistolarum ad D. Oldenburgium, 13 Jun. & 24 Oct. 1676, ad D. Wallisium, 1692, ad D. Collinsium, 8 Nov. 1676.

— — Large Paper edition printed on thick paper. 4to. [294

— — Amstelod. 1723. 4to. [295
6 ll. + pp. 107.

Also included in the Amsterdam edition of the *Principia*, 1723.

Tractatus de Quadratura Curvarum. Edited by P. R. de Montmort. 1700. [296

Tractatus de Quadratura Curvarum. In usum studiosae juventutis mathematicae explicationibus illustratus a Daniele Melander. Upsaliae, 1762. 4to. [297

Extracts from the *Quadratura Curvarum* were printed in J. Wallis, Opera Mathematica, 1693—9, from material furnished by Newton to the Author.

Analysis per Equationes numero terminorum infinitas. London, 1711. 4to. [298

Newtoni Genesis Curvarum per Umbras, seu Perspectivae universalis Elementa ; exemplis Coni Sectionum et Linearum Tertii Ordinis illustrata. Leyden, 1740. [299]

Neutoni Genesis Curvarum per Umbras, sive perspectivae universalis elementa, exemplis coni sectionum et linearum tertii ordinis illustrata. Londini, apud A. Millar, 1746. 8vo. [300]

Title, Dedication to Martin Folkes by "Patricius Murdoch." Lectoris v—x, Errata 1 l. + pp. 1—126. Sigs. A in 4, a in 2, B—I in 8's.

Lineae Tertii Ordinis Neutonianae ; sive illustratio tractatus D. Neutoni de enumeratione linearum tertii ordinis, auc. Ja. Stirling. Oxon. 1717. 8vo. [301]

Isaaci Newtoni Enumeratio Linearum Tertii Ordinis ; sequitur illustratio ejusdem tractatus auctore Jacobo Stirling. Parisiis, Impensis J. B. M. Duprat, Bibliopolae. [Typis J. R. Lotlin]. MDCCXCVII. 8vo. [302]

Title ; Monitum Bibliopolae, v, vi ; Index vii, viii + pp. 1—198.

First published in Newton's *Optics*, 1704, but not reprinted in the other editions of that work.

Translations :

Two Treatises of the Quadrature of Curves and Analysis by Equations of an Infinite Number of Terms explained ; containing the Treatises themselves translated into English from the Original of Sir Isaac Newton, with a large Commentary, by John Stewart. London : Printed by James Bettenham, at the Expense of the Society for the Encouragement of Learning ; and sold by John Nourse at Temple-Bar, and John Whiston in Fleet Street, Booksellers to the said Society, 1745. 4to. [303]

Title, Dedication [to Thomas Duke of Leeds] by Stewart, Preface v—x, Contents xi—xxxii + pp. 1—479 + Errata, 2 ll.

- Sir Isaac Newton's Enumeration of Lines of the Third Order, Generation of Curves by Shadows, Organic Description of Curves, and Construction of Equations by Curves. Translated from the Latin. With notes and examples by C. R. M. Talbot, M.P., F.R.S. 1860. 8vo. [304
pp. xii + half-title + 7—140. 14 plates.

Illustrations:

- Ball, W. W. Rouse. On Newton's classification of Cubic Curves, 1890 (Proceedings of London Math. Soc. Vol. XXII.) [305
Hodgson, Jas. The Doctrine of Fluxions, founded on Sir I. Newton's method publish'd by himself in his tract on the Quadrature of Curves. 1758. 4to. [306
Robins, Benj. Demonstration of the 11th proposition of Newton's Theory of Quadratures. First printed 1727 in the Philosophical Transactions and afterwards altered in the Abridgement made by Messrs. Reid and Gray, 1733 [in Robins's Mathematical Tracts, 1761, Vol. II.] [307
Sylvester, J. J. Syllabus of Lecture at King's College, London, on an Elementary Proof and Generalisation of Sir Isaac Newton's hitherto undemonstrated rule for the discovery of Imaginary Roots. 28 June, 1865. (Proceedings of the London Mathematical Soc. Vol. I.) [308

VII. CHRONOLOGICAL AND THEOLOGICAL WORKS.

- The Chronology of Ancient Kingdoms amended. To which is Prefix'd, A Short Chronicle *from the First Memory of Things in Europe, to the Conquest of Persia by Alexander the Great.* London: Printed for J. Tonson in the *Strand*, and J. Osborn and T. Longman in *Pater-noster Row*, 1728. 4to. [309

Collation: Title, and Dedication to the Queen by John Conduitt, pp. [i]—[xiv] + Contents, and Advertisement, 1 l. + [1]—[376]. Sigs. A, a, B—Bbb⁴. 3 plates opposite p. 346.

An engraved head-piece precedes the Dedication, P. Fourdrinier *fecit*.

Contents: (a) A Short Chronicle from the first memory of Things in Europe, to the Conquest of Persia by Alexander the Great. (b) The Chronology of Ancient Kingdoms amended. 1. Of the Chronology of the First Ages of the Greeks. 2. Of the Empire of Egypt. 3. Of the Assyrian Empire. 4. Of the two Contemporary Empires of the Babylonians and Medes. 5. A Description of the Temple of Solomon. 6. Of the Empire of the Persians.

— — Printed at Dublin the same year.

Dublin: Printed by S. Powell, for George Risk, at *Shakespear's-head*, George Ewing, at the *Angel* and *Bible*, And William Smith, at the *Hercules*, Booksellers in *Dame's-street*, 1728. 8vo. [310

pp. xiv + 378, with 3 plates at p. 346.

The same Contents as the London Edition, with the addition of a 2-page list of Subscribers' names, consisting of 141 names of persons principally living in Ireland.

'Tho' the Chronology of Ancient Kingdoms amended was writ by the author many years since; yet he lately revis'd it, and was actually preparing it for Press at the time of his Death. The Short Chronicle was never intended to be made public, and therefore was not so lately corrected by him.'—*Advertisement*.

The History of the *Short Chronicle* is given in Brewster's *Newton*, 1855, II. pp. 301—312. At the request of the Princess of Wales, Newton supplied her with the work on condition that it should not be communicated to any other person. Afterwards his permission was obtained for the Abbé Conti to have a copy of it, but subject to the same condition. But when the Abbé returned to Paris he communicated it to various persons, and M. Freret translated it into French, with observations of his own. This translation came into the possession of G. Cavelier, a bookseller of Paris, who, wishing to publish it, wrote to Newton in May, 1724, and not receiving any answer, wrote again in March, 1725, saying he would consider his silence as consent to the publication of the work, with remarks. Cavelier then requested a friend in London to obtain an answer from Newton, which he did receive (dated May 27, 1725) refusing consent to publication, but the work was already printed when the letter arrived. A copy of the printed work (*see below*, No. 312) was sent to Newton, 11th Nov. 1725, who then drew up a paper entitled:

Remarks on the Observations made on a Chronological Index of
Sir Isaac Newton, translated into French by the Observer, and
published at Paris. [311

which was printed in the Philosophical Transactions of the Royal Society (Vol. XXXIII. 1725, p. 315), wherein he accused the Abbé Conti with a breach of promise, and blames the publisher for the publication of the work. On the appearance of Father Souciet's attack in 1726 (*see* No. 325), Newton was prevailed upon to prepare his larger work for the press, but it was not ready till nearly the time of his death.

[Translations.]

Abrégé de Chronologie de M. Le Chevalier Newton, fait par lui-même, et traduit sur le manuscrit Anglois. [With Observations by M. Freret.] Edited by the Abbé Conti. 1725. [312]

In the *Advertisement* the publisher defends himself for printing against the author's wishes, remarking that he had written three times to him and had received no answers, although he had said that he should take his silence as consent to publication. See note to No. 310.

La Chronologie des Anciens Royaumes corrigée. A laquelle on a joint une Chronique abrégée, qui contient ce qui s'est passé anciennement en Europe, jusqu' à la conquête de la Perse par Alexandre le Grand. Traduit de l'Anglois [by F. Granet, assisted by — Marthan]. 1728. 4to. [313]

La Cronologia degli antichi regni emendata . . . tradotta . . . dal Sig. P. Rolli. 1757. 8vo. [314]

[Illustrations.]

Bedford, Arthur. Animadversions upon Sir Isaac Newton's Chronology. 1728. 8vo. [315]

Emerson, Wm. Account of some of the numerous inconsistencies, contained in the Observations of the Rev. Dr. Rutherford, against Newton's account of the Argonautic Expedition [in his Short Comment on the *Principia*]. 1770. [316]

Essays on Chronology; being a vindication of the system of Sir Isaac Newton. By a Member of the University of Cambridge. Cambridge, 1827. 12mo. [317]

Freret, N. Défense de la chronologie, fondée sur les monumens de l'histoire ancienne, contre le système chronologique de M. Newton. Paris, 1858. 4to. [318]

- Halley, Edm. Remarks on some Dissertations lately published at Paris by E. Souciet against Sir I. Newton's Chronology. (Philosophical Transactions of the Royal Soc. 1727, pp. 205, 296. [319
- Musgrave, Samuel. Two Dissertations: I. On the Grecian Mythology. II. Examination of Sir Isaac Newton's Objections to the Chronology of the Olympiads. 1782. 8vo. [320
- Reid, Andrew. An Abstract of Sir Isaac Newton's Chronology of Ancient Kingdoms, by Mr. Reid. Second Edition. 1732. 8vo. [321
- Abrégé de Chronologie des Anciens Royaumes . . . Traduit de l'Anglois de M. Reid [by J. A. Bustini]. Genève, 1743. 8vo. [322
- Réponse aux Observations sur la Chronologie de M. Newton. London (?) 1728. 8vo. [323
- [Steuart, Sir James D.] Apologie au sentiment de Monsieur le Chevalier Newton, sur l'ancienne Chronologie des Grecs, contenant des Responses à present. Par Mons. le Chevalier S—t. Francfort sur le Main, 1757. 4to. [324
- Souciet, E. Cinq Dissertations contre la Chronologie de M. Newton. [Recueil de Dissertations, Vol. II.] 1726. 4to. [325
- See note to No. 310, and Halley, No. 319.*
- Sykes, A. A. An Examination of Mr. Warburton's account of the conduct of the ancient legislators . . . & of Sir Isaac Newton's Chronology. 1744. 8vo. [326
- Whiston, Wm. Collection of Authentick Records belonging to the Old and New Testament. Translated into English, 1727-8. [327
-
- Observations upon the Prophecies of Daniel and the Apocalypse of St. John. In Two Parts. 1733. 4to. [328
- pp. vi + 1-323. Dedicated to the Rt. Hon. Lord King, by Benj. Smith.

Observations upon the Prophecies of Daniel. A New Edition, with the citations translated, and notes by P. Borthwick, Esq., of Downing College, Cambridge. 1831. 8vo. [329]

Dedicated to Henry Drummond, of Albury Park, by the Editor.

A Latin Translation was published by M. Sudemann at Amsterdam, 1737. 4to. [330]

Des Ritters Isaak Newton's . . . Beobachtungen zu den Weissagungen des Propheten Daniels. Aus dem Lateinischen Herrn W. Südermanns verdeutschet und mit . . . Anmerkungen begleitet von M. C. F. Grohmannen. Welchem beygefüget ist . . . Newtons Auslegung der Offenbarung Johannis, aus dem Lateinischen verdeutschet und mit Anmerkungen erläutert (von. A. Rosenberg). 2 parts. Leipzig, 1765. 8vo. [331]

[*Illustrations.*]

Addison, Rt. Hon. J. The Evidence of the Christian Religion . . . with a preface, containing the sentiments of . . . Sir Isaac Newton, concerning the Gospel Revelation. 1763. 12mo. [332]

The Family Expositor; or, a Paraphrase of the New Testament. Vol. III. [containing A Dissertation on Sir Isaac Newton's scheme for settling the chronology of our Lord's Ministry (published in Bk. I., cap. XI. of his Prophecies of Daniel)]. 1739, etc. 4to. [333]

Grey, Zachary. Examination of the XIVth Chapter of Sir Isaac Newton's Observations upon the Prophecies of Daniel. 1736. 8vo. [334]

Remarks on the Religious Sentiments of learned and eminent laymen; viz. Sir Isaac Newton, Boyle, Locke, etc., with occasional reflections on Incredulity. 1790. 16mo. [335]

Saint Clair, J. Observations on certain passages in Daniel and the Apocalypse. Containing . . . a defence of Sir I. Newton's general interpretation, etc. 1755. 12mo. [336]

Whiston, Wm. Remarks on Sir Isaac Newton's Observations on Daniel and the Apocalypse. [No. 5 of *Dissertations*.] 1734. 8vo. [337]

Two Letters of Sir Isaac Newton to Mr. Le Clerc, late Divinity Professor of the Remonstrants in Holland. The Former containing a Dissertation upon the Reading of the Greek Text, 1 John v. 7; the Latter upon that of 1 Timothy iii. 16. Published from authentic MSS. in the Library of the Remonstrants in Holland.

London: Printed for J. Payne, at Pope's Head in Paternoster-Row, 1754. 8vo. [338]

— Printed in G. Clarke, On the objects of Religious Worship, etc. 1812. 8vo. [339]

— Printed in J. Sparks, Collection of Essays and Tracts. Vol. II. 1823 [340]

[*Illustrations*.]

Acton, H. The Religious Opinions of Milton, Locke, and Newton. 1833. 8vo. [341]

Green, H. Sir Isaac Newton's views on points of Trinitarian doctrine; his Articles of Faith, and the general coincidence of his opinions with those of John Locke, etc. 1856. 8vo. [342]

Henderson, E. The Great Mystery of Godliness controvertible; or Sir Isaac Newton and the Socinians . . . foiled in the attempt to prove a corruption of the text, 1 Tim. iii. 16, etc. 1830. 8vo. [343]

[Mawer, John.] Letters in Answer to some queries sent to the Author, concerning the genuine reading of the Greek Text, 1 Tim. iii. 16, now first published on occasion of Sir Isaac Newton's Two Letters to Mr. Le Clerc lately published. York, 1758. 8vo. [344]

Four Letters from Sir Isaac Newton to Dr. Bentley, containing some Arguments in Proof of a Deity, pp. 35. 1756. 8vo. [345]

The Letters are answers to Letters of Dr. Bentley, and are published without any preface or introduction.

Dissertation upon the Sacred Cubit of the Jews and the Cubits of the several nations; in which, from the Dimensions of the greatest Egyptian Pyramid, as taken by Mr. Greaves, the antient Cubit of Memphis is determined. Translated from the Latin of Sir Isaac Newton by John Greaves. [John Greaves's Works, edited by Birch, 1737, Vol. II.] [346]

Letter to a person of distinction who had desired his opinion of the learned Bishop Lloyd's Hypothesis concerning the Form of the Most Ancient Year. [Sent by the Bishop of Worcester to Dr. Prideaux, and printed in the Gentleman's Magazine, 1755, Vol. XXXV. p. 3.] [347]

Not printed in Newton's Works.

Tables for renewing and purchasing of Leases of Cathedral Churches and Colleges. 2nd Edn. 1722, 3rd Ed. 1729, 4th Ed. 1731, 5th Ed. 1735, 6th Ed. 1742, 7th Ed. 1758, 8th Ed. 1808. [348]

The work is not included in Horsley's edition of Newton's Works, and was not described as 'Newton's Tables' until the 3rd edition of 1729. Newton's commendatory note of Sept. 10, 1685, clearly shews that the work was not compiled by him.

Thirteen Letters from Sir Isaac Newton, representative in Parliament of the University of Cambridge, to John Covel, D.D., Vice-chancellor. From Original MSS. in the Library of Dawson Turner, Esq., Yarmouth. Norwich: printed by Charles Musket, 1848. Roy. 8vo. [349]

Dedicated to Dr. Whewell, Master of Trinity College, and contains a facsimile of Newton's letter of March 2^d 1688.

VIII. COINAGE.

'Macaulay avers in his history that Newton—independently, I suppose, of his public action in reference to the Re-coinage—has left no exposition of his opinions touching the currency. The eloquent historian thus leaves out of view the well-known Report of 1717, upon which was based the reduction of the Guinea from 21 shillings and 6 pence to 21 shillings. It would seem, then, that the doctrinal importance of this Report had escaped recognition from the English historian, though, as I have had occasion to ascertain, it was the subject of appreciative comment in France and Prussia more than a century ago. Indeed, I read it first in a German translation, printed at Berlin in 1762.'—S. D. Horton's *Silver Pound*, 1887.

Three Reports by Sir Isaac Newton, as Master of the Mint, dated 3 March 1711—12; 23 June 1712; 21 Sept. 1717. Printed in A Short Essay on Coin, 1737. 8vo. [350]

An edition was also printed at Dublin in the same year.

Representations of Sir Isaac Newton on the Subject of Money, 1712—17 (in Overstone's Collection of Tracts on Money, 1856). [351]

Graumann, Joh Philipp. Gesammelte Briefe von dem Gelde, von dem Wechsel und dessen Coins, von der Proportion zwischen Gold und Silver, etc. 1762. [352]

Contains Newton's entire report in German.

Monetary Reports (1701—2) signed by Sir Isaac Newton. Printed from the MSS. in the Tower Mint and the Public Record Office (pp. 261—271 of S. D. Horton's *Silver Pound*, 1887). [353]

A Letter to a Friend, occasion'd from what was published in the Daily Courant, Dec. 30, 1717, by Sir Isaac Newton relating to Coin, by S. Ph. 1718. 12mo. [354]

Sir Isaac Newton and England's Prohibitive Tariff upon Silver Money. An open letter to Prof. W. Stanley Jevons, by S. Dana Horton, pp. 29. Cincinnati: R. Clarke & Co. 1881. 8vo. [355]

A Reply to W. Stanley Jevons's article, 'R. Cantillon and the Nationality of Political Economy' (Contemporary Review, Jan. 1881).

Sir Isaac Newton and Bimetallism, by W. Stanley Jevons. (Printed in his Investigations in Currency and Finance, 1884.) [356]

Table of Assays of Foreign Coin. [Printed in Dr. Arbuthnot's Tables of Ancient Coins, Weights and Measures, 1727, 4to, and edited by Dr. Benj. Langworth, 1754. 4to.] [357]

IX. WORKS EDITED.

Barrow, Isaac. Lectiones XVIII. *Cantabrigiae* in Scholis publicis habitae; in quibus Opticorum Phænomenon Genuinae Rationes investigantur, ac exponuntur. Annexae sunt Lectiones aliquot *Geometricae*. Londini M.DC.LXIX. [358]

The 'Lectiones Geometricae' has a separate title-page dated 1670, and is separately paged.

Bernhardi Vareni Med.D., Geographia Generalis, in qua Affectiones Generales Telluris Explicantur, summa cura quam plurimis in locis emendata & XXXIII schematibus novis, Aere incisus, una cum Tabb. aliquot quae desiderabantur Aucta et Illustrata. Ab Isaaco Newton, Math. Prof. Lucasiano apud Cantabrigienses. Editio Secunda, auctior et emendatior.

Cantabrigiae: Ex officina Joann. Hayes. Celeberrimae Academiae Typographi, sumptibus Henrici Dickinson Bibliopolae, 1681. [359]

— The first edition, also edited by Newton, appeared in 1672. [360]

An edition 'cum appendice J. Jurin, Cantab. 1712.' English translation by Mr. Douglas, 1733. 8vo.

X. BIOGRAPHIES, ETC.

Ball, W. W. Rouse. A History of the Study of Mathematics at Cambridge, 1889. Cr. 8vo. [361]

Chapter IV. The Life and Works of Newton. V. Rise of the Newtonian School. VI. Later Newtonian School.

Bentley, Richard. Life by J. H. Monk, 1830, 4to; 2nd Edition. 2 vols. 1833. 8vo. [362]

— Correspondence. [Edited by Christopher Wordsworth.] 2 vols. 1842. 8vo. [363]

Contains Letters of Bentley, Newton, and Cotes.

Biot, J. B. Notice sur l'ouvrage intitulé "The Life of Sir Isaac Newton" par David Brewster. (Extraite du Journal des Savans.) 40 pp. 8vo. [364]

Biot wrote the article 'Newton' in the *Biographie Universelle*. See under Lord Brougham.

— Correspondence of Sir Isaac Newton and Prof. Cotes, etc. Extraits du Journal des Savans (cahier de Mars, série Mai et Juin.) Sept. 1852. 4to. [365]

Birch, T. History of the Royal Society of London. 4 vols. 1756. 4to. [366]

Contains Letters of Newton to Halley and others.

Boole, George. Address on the genius and discoveries of Sir Isaac Newton, etc. 1835. 8vo. [367]

Brewster, Sir David. Life of Sir Isaac Newton. With portrait engraved by W. C. Edwards after Sir G. Kneller. 1831. 18mo. [368

— — Revised by W. T. Lynn. 1875. [369

— Memoirs of the Life, Writings, and Discoveries of Sir Isaac Newton. With portrait engraved by Robert C. Bell after Sir Godfrey Kneller, and an engraving of the Newton Statue. 1855. 2 vols. 8vo. 2nd Edition. 1860. 2 vols. Cr. 8vo. [370

A. De Morgan reviewed this work in the *North British Review*, 1855. See also under *Chasles*.

Brougham, Henry Lord. Deux discours, l'un sur la littérature populaire, l'autre sur le monument élevé à Sir Isaac Newton. Paris, 1859. [371

See also Nos. 53 and 397.

[Brougham, Lord.] Life of Sir Isaac Newton, pp. 40. Library of Useful Knowledge, 1829. 8vo. [372

The Life is substantially a translation of that in *Biographie Universelle*, by M. Biot.

Chasles, Michel. Articles contributed to *Comptes Rendus*, Vols. 65 to 69. 1867—9. [373

A full account of the forger of these documents—Vrain-Denis Lucas—is given in J. A. Farrer's *Literary Forgeries* (1907). In February, 1870, he was sentenced to two years' imprisonment and a fine of £25. He had forged as many as 27,320 letters which he palmed off, at a price to their dupe of nearly £6000. The following works were issued in connection with the subject, occasioned by M. Chasles's papers:

Brewster, Sir D. Lecture to the British Association (12 Sept. 1867) on the alleged correspondence between Pascal and Newton. (British Association Report), 1867. [374

Hirst, T. Archer. On the alleged correspondence between Newton and Pascal recently communicated to the French Academy. (British Association Report), 1867. [375

Grant, R. Two Letters (12 Sept. and 31 Oct. 1867) on the question of the authenticity of the documents respecting Newton, which have been communicated by M. Chasles to the Academy of Sciences of the French Institute, addressed to M. U. J. Le Verrier, pp. 20. Glasgow, 1869. 8vo. [376]

Communicated to Le Verrier at the dates given, and a French translation printed in the *Comptes Rendus*.

Prof. Grant wrote a letter (18 Sept.) to the *Times* of 20 Sept. 1867, also Prof. Hirst, and Sir David Brewster printed a letter which he had sent to M. Chevreul (16 Oct.), and which was translated and printed in the *Comptes Rendus* of 21 Oct.

Faugère, P. Défense de B. Pascal et accessoirement de Newton, Galilée, Montesquieu, etc., contre les faux documents présentés par M. Chasles à l'Académie des Sciences. Avec plusieurs fac-simile (19 facsimiles of Authentic Documents and of the forgeries), pp. 120. 1868. 4to. [377]

Contains his correspondence with Chasles and Chevreul (Président); Extrait du Journal La France, 18 Oct. 1867; Lettre au Directeur du Correspondant, printed 25 Dec. 1867.

Martin, T. Henri. Newton défendu contre un faussaire Anglais, pp. 32. 1868. 8vo. [378]

Crompton, Samuel. On the Portraits of Sir Isaac Newton, and particularly on one of him by Kneller, painted about the time of the publication of the *Principia*, and representing him as he was in the prime of life. [Proceedings of the Literary and Philosophical Society of Manchester, Vol. VI. 1866—7, pp. 1—7.] [379]

Dr. C. exhibited an admirable engraving by Mr. Oldham Barlow (of Victoria Road, Kensington) of the recently-discovered portrait of Newton, painted by Kneller in 1689, identified by Dr. C. at the Art Treasures Exhibition. From Lord Portsmouth he obtained permission for Mr. Barlow to engrave it. The painting came into Lord Portsmouth's possession by the marriage of his ancestor Lord Lymington to the grand-niece of Newton, Miss Conduit.

Des Maizeaux. Recueil de diverses pièces sur la philosophie, la religion naturelle, l'histoire, les mathématiques, etc., par Mess. Leibnitz, Clarke, Newton, Conti, et autres auteurs célèbres. Amsterdam, 1720. Second Edition, 1740. 2 vols. 12mo. [380]

De Morgan, Augustus. Life of Sir I. Newton, in Knight's Portrait Gallery, Vol. XI. 1846; and in the 'Penny Cyclopædia,' 1840.

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This was the first Life which embodied the material given in Flamsteed's Life, 1835.

— Newton: his friend and his niece. Edited by Mrs. De Morgan and A. C. Ranyard, 1885. 8vo.

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Edleston, J. Correspondence of Sir I. Newton and Prof. Cotes, including Letters of other eminent men, from the originals in Trinity College, Cambridge. Together with an Appendix containing other unpublished Letters and Papers by Newton; with notes, synoptical view of the philosopher's life, and a variety of details illustrative of his history. With Portrait engraved by J. Outrim from the drawing in the Pepysian Library. 1850. 8vo.

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After Cotes's death these letters came into the possession of his cousin Robert Smith, who bequeathed them to Edward Howkins, who bequeathed them to Trinity College in 1779. Contains letters of Bentley, Clarke, Keill, Halley, Jones, J. Smith, Whiston, Oldenburg, Wallis, and others.

Facii Duillerii, N., Newtonus: Ecloga. (Ghent?) 1728. 8vo.

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Faugère, P. See *Charles* (page 71).

Flamsteed, John, Account of, compiled from his own manuscripts and other authentic documents never before published. By Francis Baily, 1835. Supplement, 1837. 4to.

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Fontenelle, B. de. Éloge de Monsieur le Chevalier Newton. pp. 36. 1728. 4to.

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— Abrégé de l'Éloge de M. le Chevalier Newton, par M. de Fontenelle. Single Sheet. [Paris, 1728?] Folio.

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- Account of the Life and Writings of Sir I. Newton. Second Edition. pp. 35. 1728. 4to. [390
Fontenelle had the use of a sketch of Newton's Life drawn up by his nephew, Mr. Conduitt.
- Fragments de lettres de divers savans contemporains de Newton, précédés d'un remarque sur quelques hypothèses de Newton lui-même. 3 parts. pp. 14 + 8 + 9. No date. 8vo. [391
- Freeman, Philip (of Trinity Coll., Cambridge). Newtonus. Carmen Latinum. 1837. (Prolusiones Academiae Cantabrigiensis.) [392
- Frisi [or Frisius,] Paolo. Elogio del Cavaliere I. Newton. pp. 132. Milano, 1778. 8vo [and in Collezione de' Classici Italiani, Vol. 350, 1804]. [393
- [Jurin, J.] *Philalethes Cantabrigiensis*. Geometry no friend to infidelity; or, a defence of Sir Isaac Newton, etc. 1734. 8vo. [394
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- The Minute Philosopher . . . containing a defence of Sir Isaac Newton. 1738. 8vo. [396
- King, E. F. Biographical Sketch of Newton. To which are added authorised Reports of the Oration of Lord Brougham (with his lordship's notes) at the inauguration of the Statue at Grantham; and of several of the speeches delivered on that occasion [by W. Whewell, Sir B. C. Brodie, Rev. J. W. Turner, and T. Winter.] Second Edition, 1858. [397
- Leibnitz. Mathematische Schriften herausgegeben von C. I. Gebhardt. 2 volumes. 1849. 8vo. [398
Containing Letters of Newton, Huyghens, L'Hopital, Galloys, Collins, and others from the originals in the Royal Library, Hanover.

Locke, John. Life by H. R. Fox Bourne. 2 vols. 1876. 8vo. [399]

Martin, Benj. Biographia Philosophica. 1764. 8vo. [400]

Contains a Life of Sir Isaac Newton, with a portrait.

Martin, T. Henri. See *Chasles*.

Pahin-Champlain de la Blancherie, F. C. C. De par toutes les nations . . . Proclamation . . . En remontrance . . . à la Nation sur une chose . . . attentatoire à . . . la mémoire de Sir I. Newton . . . et pour la préparer à adopter . . . le plan maintenant sous presse, d'une commémoration solennelle de ce . . . personnage, etc. 1796. 4to. [401]

Paulian, A. H. A Treaty of Peace between Descartes and Newton : to which is prefixed an Account of the Lives of these eminent philosophers [*in French*]. 3 vols. Avignon. 4to. [402]

Peters, W. Newton rescued from the precipitancy of his followers, etc. 1846. 8vo. [403]

Reid, Thos. Account of the Family of Sir Isaac Newton, in a Letter from the late Professor Thomas Reid to the late Professor John Robinson [dated 12 April, 1792]. Printed in the Edinburgh Philosophical Journal, Vol. III. 1820, pp. 293—6. [404]

Rigaud, S. D. Correspondence of Scientific Men of the XVIIIth Century, including Letters of Barrow, Flamsteed, Wallis, and Newton, printed from the originals in the collection of the Earl of Macclesfield. 2 volumes. Oxford, 1841. 8vo. [405]

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Schuebler, C. L. Ueber Newtons Scharfsinn insbesondere über dessen Sagacität in Analysis. 1794. 8vo. [407]

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- — in versi Toscani, per And. Bonducci. 1741. 4to. [409]
- Tosi, J. L. & A. M. Vannucchi. *Raccolta d'opuscoli sopra l'opinioni filosofiche di Newton*. 1744. 8vo. [410]
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 Contains among other things Conduitt's sketch of Newton, drawn up for the use of Fontenelle.
- Van Swinden, J. H. *Oratio de Philosophia Newtoniana*. Franquerae, June 7, 1779. 4to. [412]

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