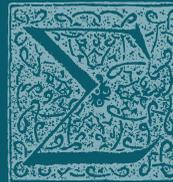

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A SUPBERB COLLECTION OF HITHERTO UNPUBLISHED MATHEMATICAL TRACTS

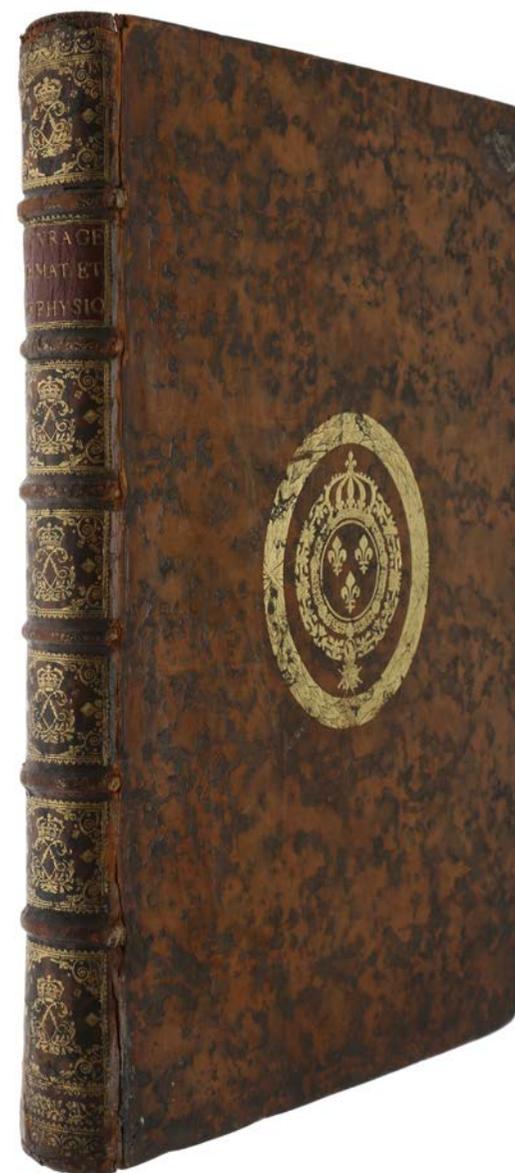
ACADÉMIE ROYALE DES SCIENCES [AUZOUT, FRENICLE, HUYGENS, MARIOTTE, PICARD, ROBERVAL, RØMER]. *Divers ouvrages de mathématique et de physique*. Paris: L'Imprimerie Royale, 1693.

\$15,000

Folio (365 x 240 mm), pp. [viii, last leaf blank], 518, [2, colophon], with numerous woodcut diagrams and illustrations in text. Contemporary mottled calf with the arms of Louis XIV in the centre of each cover (Olivier 2494, fer 10), and with his monogram in each spine compartment, hinges with some wear and top capital chipped, an entirely unrestored copy in its original state.

First edition of this magnificent collection of thirty-one treatises by the leading scientists of seventeenth-century France, almost all of which are published here for the first time. This is one of the earliest important publications of the Académie des Sciences, and the present copy was probably intended for presentation: it is bound in contemporary calf with the arms of Louis XIV on each cover. Of the eight works by Christiaan Huygens (1629-95) in the present volume, all appear here for the first time except for his treatise on gravity, *De la cause de la pesanteur*, which was first published three years earlier as an appendix to the *Traité de la lumière*.

<http://sophiararebooks.com/4565>



THE ONLY PRESENTATION COPY KNOWN, IN A SPECIAL GIFT BINDING

Grolier/Norman, *One Hundred Books Famous in Medicine* 60c

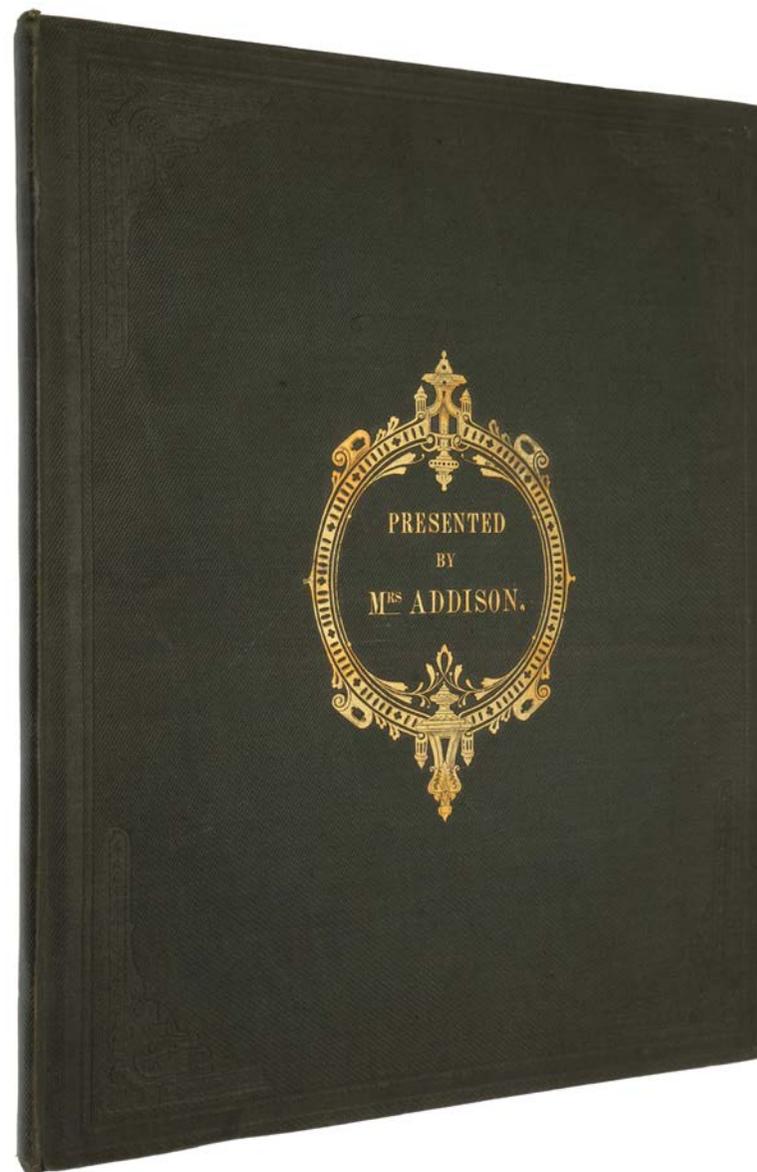
ADDISON, Thomas. *On the Constitutional and Local Effects of Disease of the Supra-Renal Capsules.* London: Samuel Highley, 1855.

\$28,000

4to (323 x 249 mm). viii, 43, [1]pp. 11 hand-colored lithograph plates by W. Hurst and M. and N. Hanhart after drawings by W. Hurst and John Tupper. Original green cloth stamped in gilt and blind, very slight wear at extremities. Fine, clean copy, presented by Addison's widow to Addison's friend Henry Lonsdale (1816-76), with a unique binding with the gilt-stamped ornament on the front cover reading "Presented by Mrs. Addison," instead of the usual title lettering, and inscription on the front free endpaper, presumably in the hand of Mrs. Addison, reading: "To Dr. Lonsdale one of the Author's best & kind friends." A very fine copy, preserved in a custom leather box.

First edition. Addison's monograph inaugurated the study of diseases of the ductless glands and the disturbances in chemical equilibrium known as pluriglandular syndromes; it also marks the beginning of modern endocrinology. This remarkably illustrated copy is the only nineteenth century medical or scientific work in a cloth presentation binding of this type we have seen.

<http://sophiararebooks.com/4524>



FIRST PRINTING OF AL-KHWĀRIZMĪ'S ALGEBRA IN ANY LANGUAGE

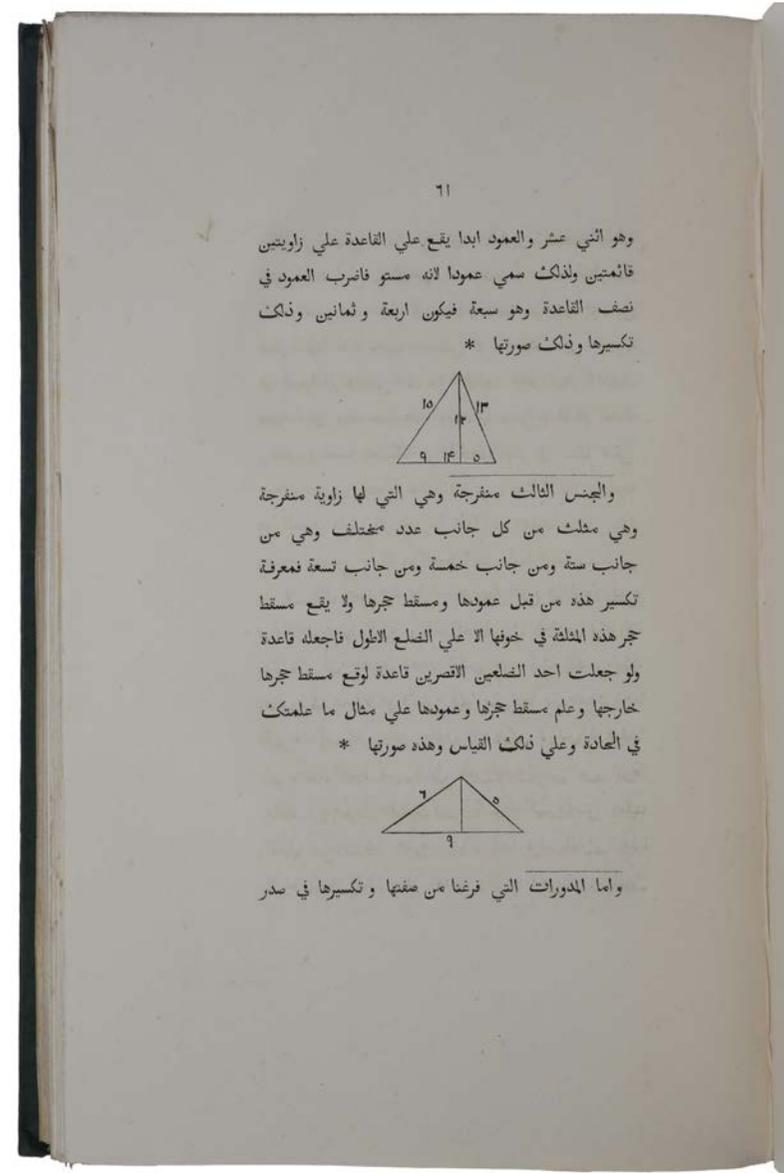
[AL-KHWĀRIZMĪ, Abū Ja'far Muhammad ibn Mūsā]. *The Algebra of Mohammed Ben Musa. Edited and translated by Frederic Rosen. [Title in Arabic] Al-kitab al-mukhtasar fi hisab al-jabr wa'l-muqabalah.* London: for the Oriental Translation Fund, 1831.

\$5,500

Large 8vo (260 x 170mm), pp. xvi, 208 (English); [4], 122, [2] (Arabic); 8 (Oriental Translation Fund list of patrons and officers, regulations, and list of publications); in English and Arabic, with some Sanskrit, algebraic notation and diagrams; a very good, clean, partly unopened copy, on large paper; in contemporary green cloth, paper spine label; a very few marks; subscriber's plate tipped in before title: 'This copy was printed for the most noble the Marquess of Londonderry'.

First edition, a handsome subscriber's copy on large paper, of the Arabic text of al-Khwārizmī's pioneering *Algebra*, with an English translation by the German orientalist Friedrich August Rosen. These are the first printings of al-Khwārizmī's *Algebra* in any language. Rosen (1805-37), who based this edition on a fourteenth-century Arabic manuscript at the Bodleian Library (*Hunt.* 214), was professor of oriental literature at the University of London and secretary of the Royal Asiatic Society, before his premature death.

<http://sophiararebooks.com/4611>



PMM 72 - 'GIVE ME A PLACE TO STAND, AND I WILL MOVE THE EARTH' - EXTENSIVELY ANNOTATED

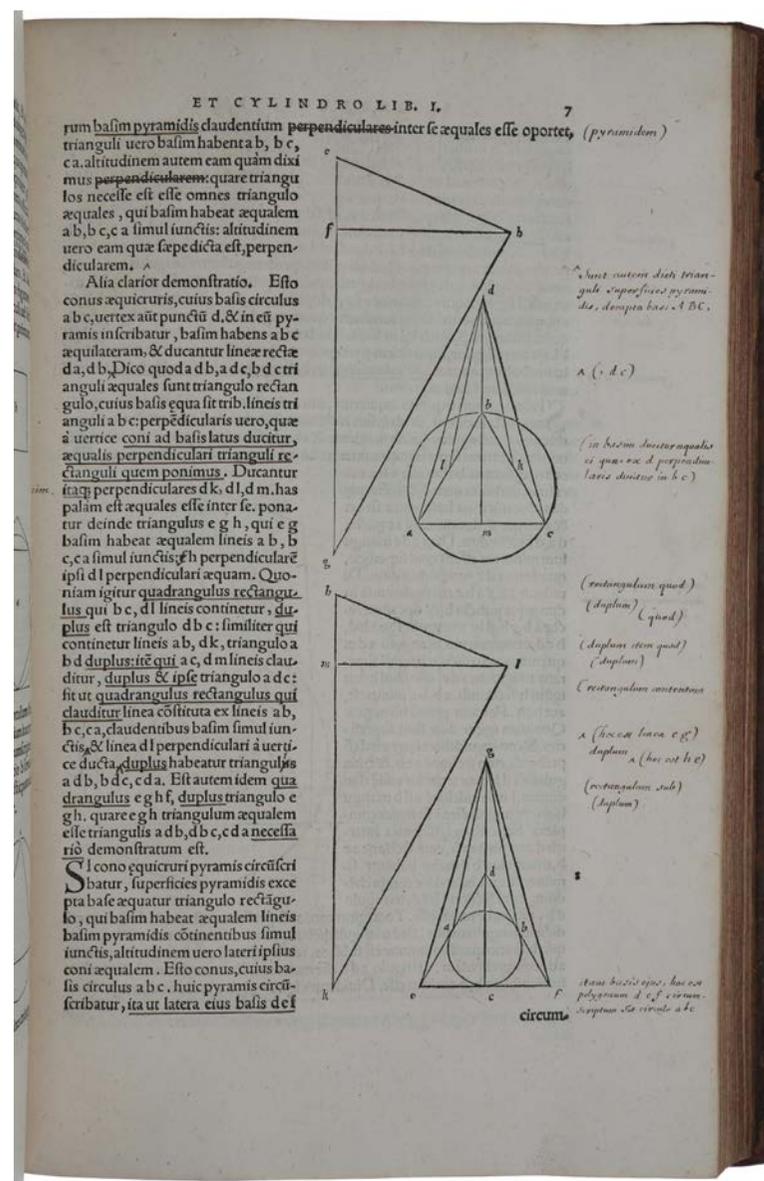
ARCHIMEDES. *Opera, quae quidem extant, omnia ... nuncque primum & Graece Latine in lucem edita ... adiecta quoque sunt Eutocii Ascalonitae in eosdem Archimedis libros commentaria item Graece & Latine, nunquam antea excusa.* Basle: Joannes Hervagius, 1544.

\$75,000

Folio (310 x 205 mm), pp. [8], 1-139, [1], [8], [1], 2-163, [1], [4], 1-65, [1], 1-68, [1, colophon]. Numerous woodcut diagrams and initials, text in Greek and Latin. Seventeenth-century (Dutch?) calf with gilt-stamped armorial on covers (rebacked retaining the original endpapers), red speckled edges.

First edition of one of the key scientific books of the Renaissance, representing a decisive step forward in the history of mathematics, containing the first printings of the majority of the surviving works of the greatest mathematician, physicist and engineer of antiquity. This is a fascinating copy with numerous contemporary annotations by a well-informed reader, both in the margins and in the text itself (in a minuscule neat hand that does not obscure the original text). In addition, there is a full-page manuscript entitled 'Cristiani Hugenii / Alia demonstratio propositionis 18 / Archimedis de spirabilibus / ad paginam 111,' and including a large geometrical diagram, which provides Huygens' alternative proof to a proposition about Archimedes' spiral demonstrated on the facing page of text. This suggests that the annotator was probably a member of Huygens' circle.

<http://sophiararebooks.com/4500>



INVENTION OF THE TRANSISTOR

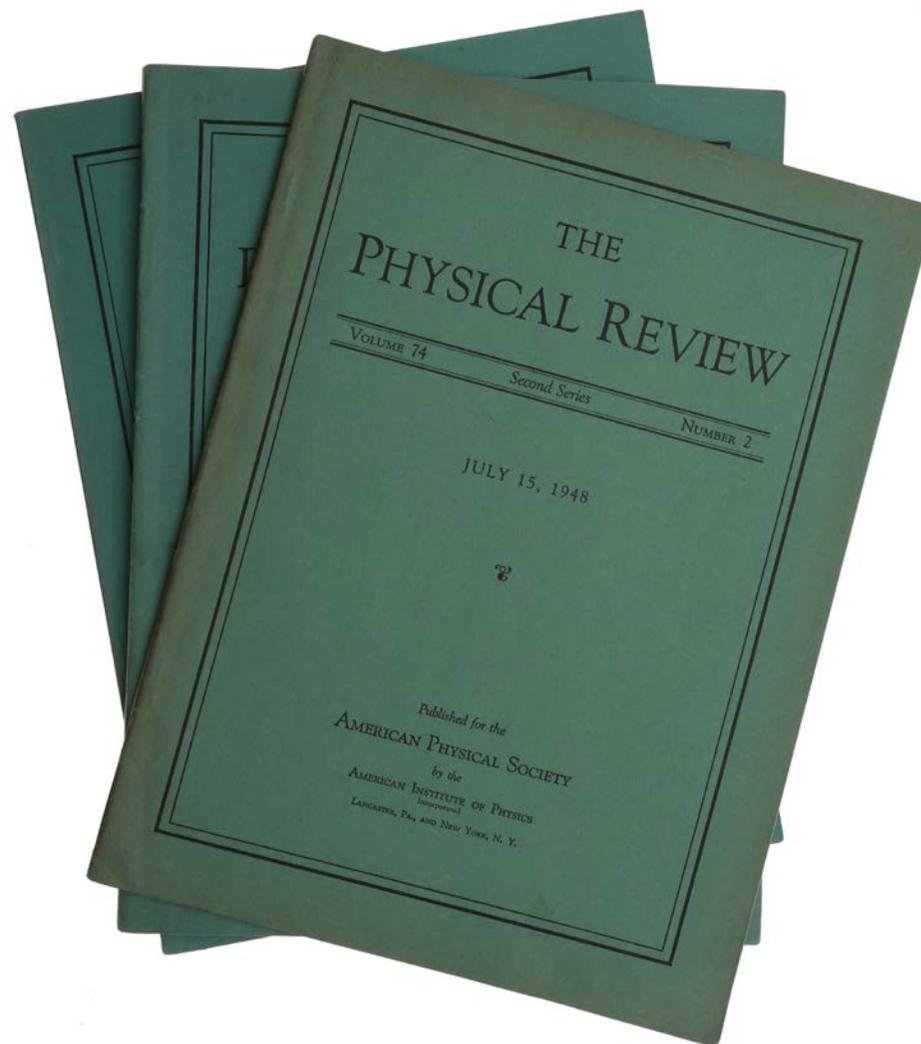
BARDEEN, J. & BRATTAIN, W. H. 'The transistor, a semi-conductor triode,' pp. 230-1 [AND] BRATTAIN, W. H. & BARDEEN, J. 'Nature of the forward current in Germanium point contacts,' pp. 231-2 [AND] SHOCKLEY, W. & PEARSON, W. L. 'Modulation of conductance of thin films of semi-conductors by surface charges,' pp. 232-3, in Physical Review Vol. 74, No. 2, July 15, 1948. [Offered with:] BARDEEN, J. & BRATTAIN, W. H. 'Physical principles involved in transistor action,' pp. 1208-25 in Physical Review Vol. 75, No. 8, April 15, 1949. [Offered with:] SHOCKLEY, William, SPARKS, Morgan & TEAL, Gordon K. 'p-n junction transistors,' pp. 151-162 in Physical Review Vol. 83, No. 1, July 1, 1951. Lancaster, PA., and New York: American Physical Society, 1948-51.

\$6,500

Three journal issues, 8vo (268 x 200 mm), pp. 131-233; 1115-1338; 1-248. Original printed wrappers, very light wear to spines, a fine set.

First edition, journal issues, with an interesting provenance, documenting the invention of the transistor, "which has been called 'the most important invention of the 20th Century.' Developed from semiconductor material, the transistor was the first device that could both amplify an electrical signal, as well as turn it on and off, allowing current to flow or to be blocked. It was small in size, generated very low heat, and was very dependable, making possible a breakthrough in the miniaturization of complex circuitry. The transistor heralded in the 'Information Age' and paved the way for the development of almost every electronic device, from radios to computers to space shuttles.

<http://sophiararebooks.com/4566>



PMM 197 - AN EXCEPTIONALLY FINE COPY, UNCUT IN ORIGINAL BOARDS

BERNOULLI, Jakob. *Ars conjectandi, Opus posthumum. Accedit tractatus de seriebus infinitis, et epistola Gallicè scripta de ludo pilae reticularis.* Basel: Thurneisen Brothers, 1713.

\$45,000

4to, pp. [iv], 306, [2, blank], 35, [1, errata], with woodcut title device, folding sheet with woodcut diagrams, two folding letterpress tables (a few leaves with unimportant browning). Uncut in the original boards, spine lettered in manuscript with small shelf-label at foot.

First edition, a truly exceptional copy, uncut in original boards. “Jakob 1 Bernoulli’s posthumous treatise, edited by his nephew [Nicholas I Bernoulli], (the title literally means “the art of [dice] throwing”) was the first significant book on probability theory: it set forth the fundamental principles of the calculus of probabilities and contained the first suggestion that the theory could extend beyond the boundaries of mathematics to apply to civic, moral and economic affairs. It is hard to imagine a finer copy.

<http://sophiararebooks.com/4634>



ONE OF THE GREAT MACHINE BOOKS OF THE SEVENTEENTH CENTURY

BÖCKLER, Georg Andreas. *Theatrum Machinarum Novum...* Nuremberg: Christoff Gerhard for Paul Fürst, 1661.

\$18,500

Folio (312 x 223 mm), pp. [xii], 68, including engraved title, and letterpress title printed in red and black, ornamental initials and head and tailpieces, with 154 engraved plates. Contemporary vellum with yapped edges.

First edition, an exceptionally fine copy in an untouched contemporary binding, of this superbly illustrated work with 154 plates. “Here is another of the great ‘machine’ books with many beautiful engravings of gunpowder mills, saw mills, water raising devices, fire engines, roasting spits and so on. Böckler was a German architect and engineer interested in masses of gearing, complex workings, and devices that even by modern standards invite awe and admiration” (Hoover). The magnificent plates are of various types of motion drives powered by intricate systems of wheels employing water, wind, weights, horse power, human muscle, or some striking combinations of these. Plates 73 and 74 depict paper-making equipment and processes, which are “the clearest delineation of the art to this date” (Hunter, *The Literature of Papermaking*, page 18).

<http://sophiararebooks.com/4491>



‘THE MOST EXTRAORDINARY TWO DOZEN PAGES IN THE HISTORY OF THOUGHT’

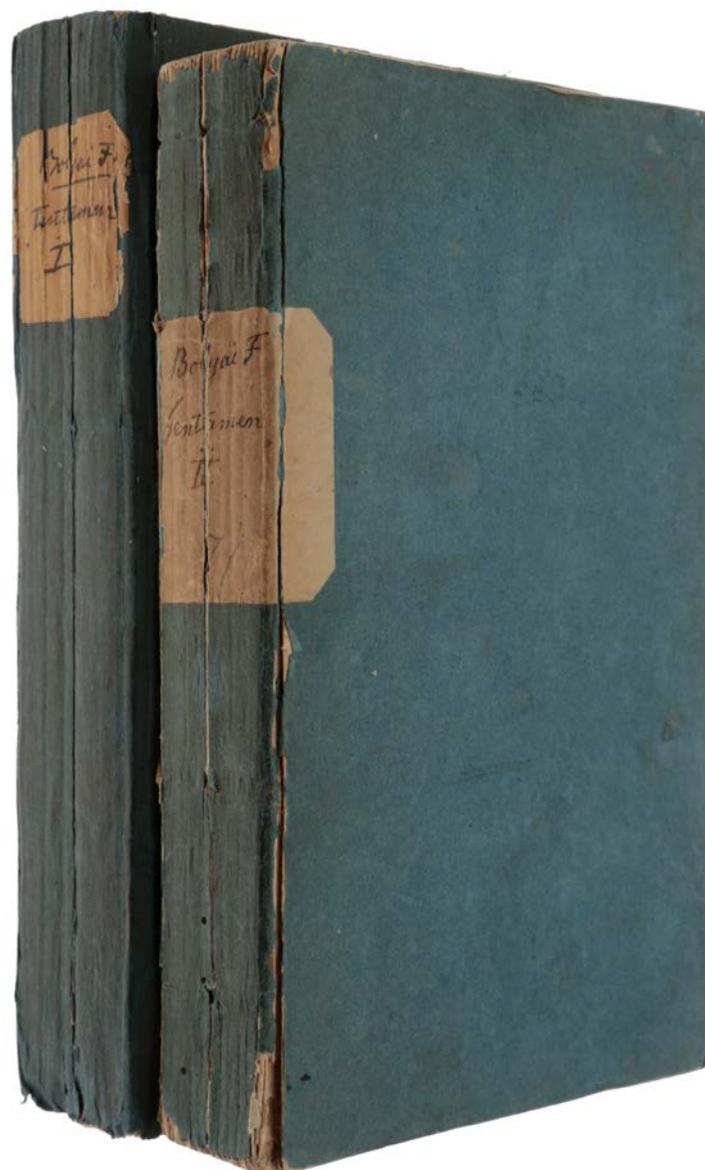
BOLYAI, János. *Appendix. Scientiam Spatii Absolute Veram exhibens: a veritate aut falsitate Axiomatis XI Euclidei (a priori haud unquam decidenda) independentem...* Maros Vásárhelyini: Joseph and Simon Kaili, at the press of the Reform College, 1832-1833.

\$240,000

2 vols, 8vo (I: 228 x 145 mm; II: 214 x 125 mm), I: pp [iv] XCVIII; 502; [ii] 26 [2, errata] XVI, with one large folding letterpress table, and 4 folded engraved plates (plate 3 with 7 small folding slips); II: pp [vi] xvi [Index Tom II] 402, with 10 folded engraved plates (plate 7 with 10 slips, plate 8 with 4 slips, plate 9 with 3 slips and plate 10 with 5 slips and 1 volvelle), manuscript corrections to line 6 of p 380 vol II; first volume uncut, second with some outer edges uncut, together in uniform contemporary blue boards, paper labels on spines, spines and joints cracked but sound, preserved in a morocco box.

First edition of ‘the most extraordinary two dozen pages in the history of thought’ (Halsted) and one of the few absolute rarities among the classics of science. This work contains the independent foundation (along with the work of Lobachevsky) of non-Euclidean geometry. ‘I have located some 23 other copies worldwide, all of them exhibiting variations in issue or completeness (the present copy represents the most complete state of the text for both volumes).’ (William Patrick Watson).

<http://sophiararebooks.com/4659>



THE FIRST BOOK ON THE LAWS OF PERCUSSION, BOUND WITH THE VERY RARE *RISPOSTA*

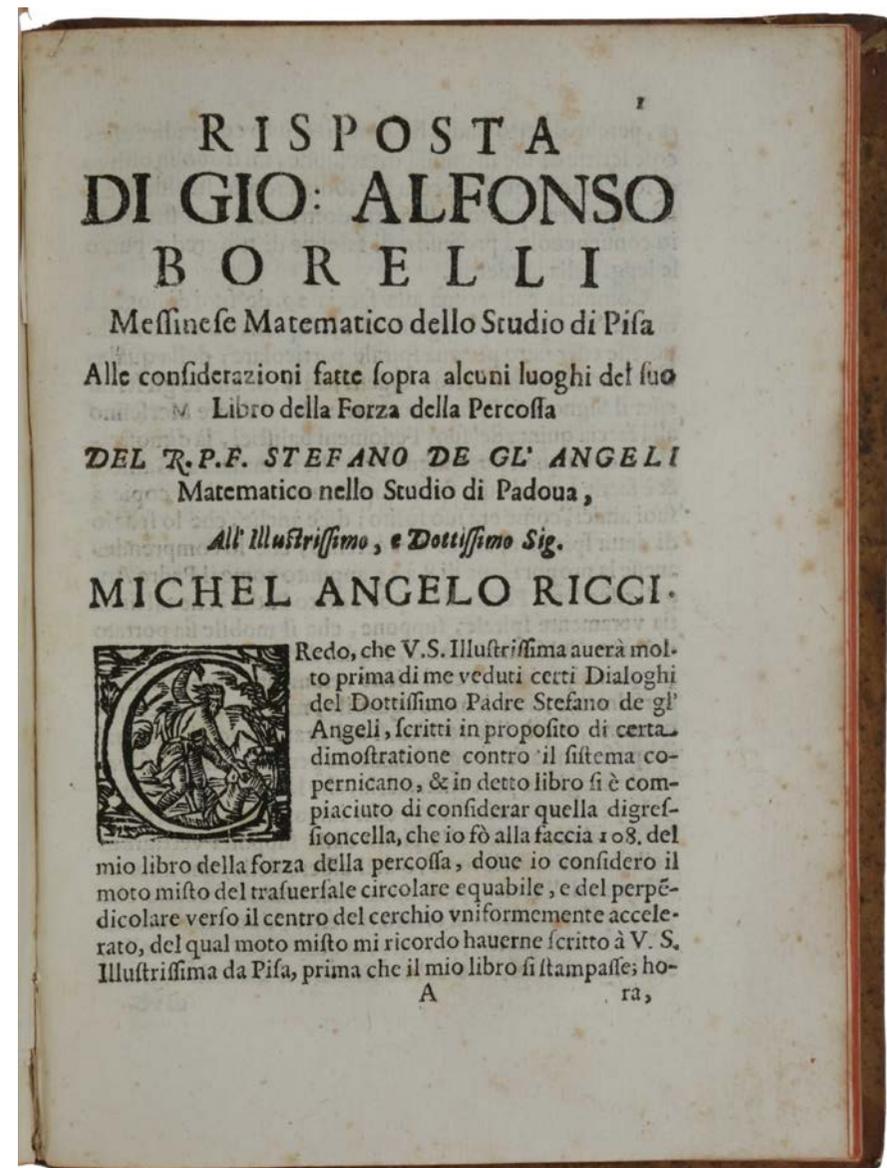
BORELLI, Giovanni Alfonso. *De vi percussionis liber.* Bologna: Giacompo Monti, 1667. [Bound with:] [Drop-title:] *Risposta ... alle considerazioni fatte sopra alcuni luoghi del suo libro della forza della percossa del R. P. F. Stefano de gl' Angeli ... all'illustrissim.* Messina [after 29 February, 1668].

\$5,500

Two works in one volume, 4to (200 x 150mm). I. Pp. [xii], 300, 30, [2, errata & imprimatur], with 5 folding engraved plates, printer's device on title, one ornamental initial. II. Pp. 37 [3, blank], with numerous woodcut illustrations in text. Eighteenth- or nineteenth-century half-calf and marbled boards, spine gilt with black lettering-piece.

First edition of the first published book on the laws of percussion, and containing important hitherto unpublished material from the lectures of Galileo and Torricelli. This copy is bound with Borelli's very rare *Risposta*, intended as a supplement to *De vi percussionis* (it was issued without a separate title-page), which contains his reply to criticisms by Stefano degli Angeli of Borelli's views on the motion of bodies in free fall under gravity. *Provenance:* Bookplate of G[iovanni]. B[attista]. Tomaselli (1650-1730) on front paste-down; faded contemporary ownership inscription on title.

<http://sophiararebooks.com/4645>



PMM 141 - THE FOUNDATION OF CHEMISTRY

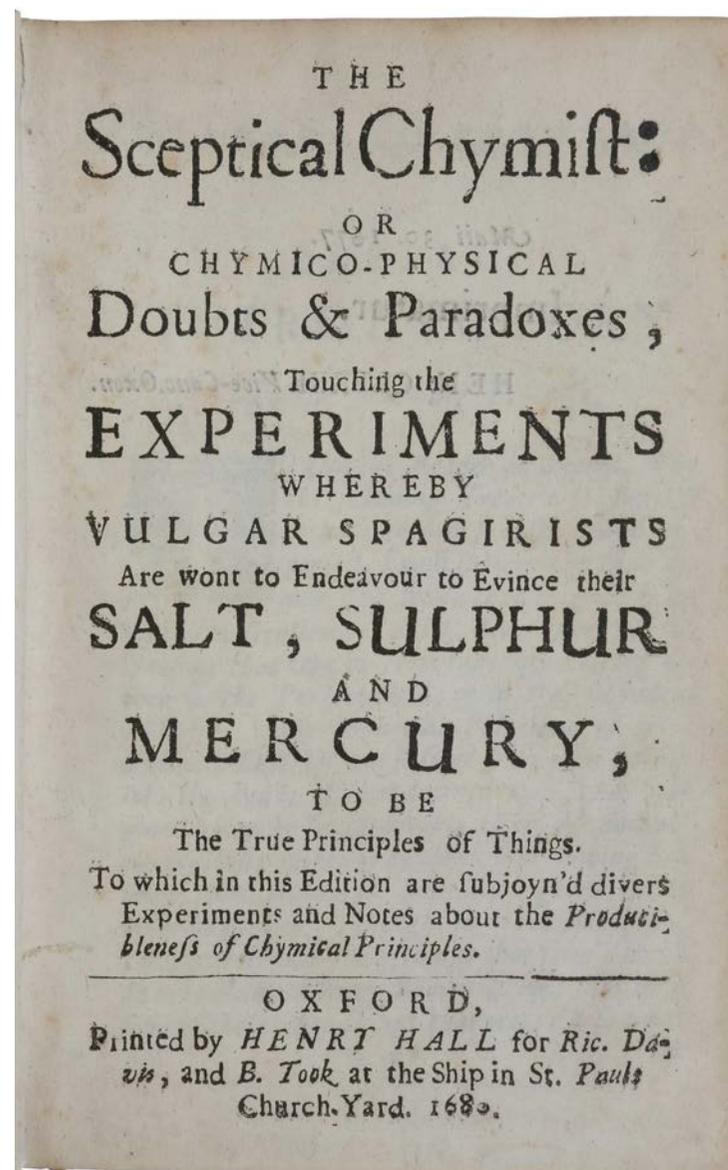
BOYLE, Robert. *The Sceptical Chymist: or Chymo-Physical Doubts and Paradoxes, touching the experiments whereby vulgar spagirists are wont to endeavour to evince their salt, sulphur and mercury, to be the true principles of things. To which in this edition are subjoyn'd divers Experiments and Notes about the Producibleness of Chymical Principles.* Oxford: Henry Hall for R. Davis and B. Took, 1680.

\$40,000

Two parts in one vol., 8vo (167 x 105 mm), pp. [22], 440; [28], 268. Contemporary vellum, spine lettered in manuscript (pale red marking to spine and rear board), a very fine copy. Custom blue cloth slipcase and chemise, blue morocco spine label.

Second edition in English (first, 1661), complete with the very rare advertisement leaf which is lacking from most copies, of this landmark in the history of science, “his most important work [where he] set down his corpuscular theory of the constitution of matter, which finally freed chemistry from the restrictions of the Greek concept of the four elements, and was the forerunner of Dalton’s atomic theory” (Sparrow). This second edition of the *Sceptical Chymist* contains the first printing of the second part, *Experiments and Notes about the Producibleness of Chymical Principles*. The first edition of the *Sceptical Chymist* hardly ever appears on the market and now commands a very high price – the last complete copy sold at auction realized £362,500 in 2015. Fulton located five copies of this second edition complete with the advertisement leaf.

<http://sophiararebooks.com/4552>



PMM 198 - AN EXCEPTIONALLY FINE SET BOUND WITH THE ARMS OF LOUIS XVI

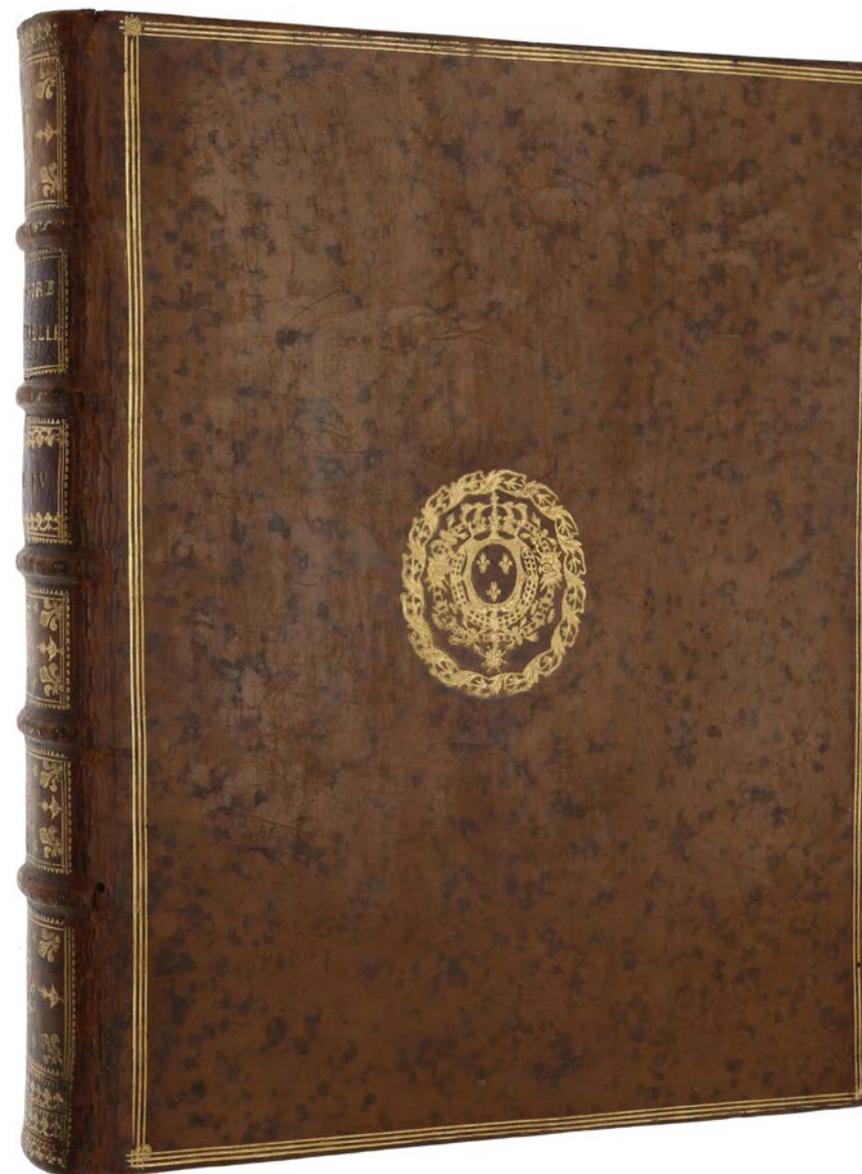
BUFFON, Georges-Louis Leclerc, Comte de. *Histoire Naturelle, Générale et Particulière, avec la Description du Cabinet du Roi.* Paris: Imprimerie Royale, 1749–1804.

\$95,000

44 vols., 4to (252 x 193 mm), with engraved vignettes on the titles of the first 15 vols., numerous engraved headpieces, and 1262 engraved plates (including two allegorical plates in vol. I and engraved portrait frontispiece in first vol. of Supplément), 12 maps, and 4 folding tables, complete with the polar bear plate which is often missing (half-title of Vol. V misbound at beginning of vol. IV). Contemporary, and uniform, marbled calf, covers with gilt fillet and gilt arms of Louis XVI in the centre, his monogram in each spine panel, spines richly gilt with two red-morocco lettering-pieces.

First edition, a fine and absolutely complete copy in unrestored contemporary French calf of this visually exquisite monumental work, “the most celebrated treatise on animals ever produced” (Dibner), but also including treatises on cosmology, geology and palaeontology. This copy was almost certainly bound for a member of the Royal family. All volumes have the arms of Louis XVI on the covers and in the spine panels – we have found only one other copy with these arms on the covers and spines, namely that in the Bibliothèque nationale, which was bound in red morocco, presumably for the King himself.

<http://sophiararebooks.com/4510>



THE ATOMIC SYMBOLS EXPLAINED

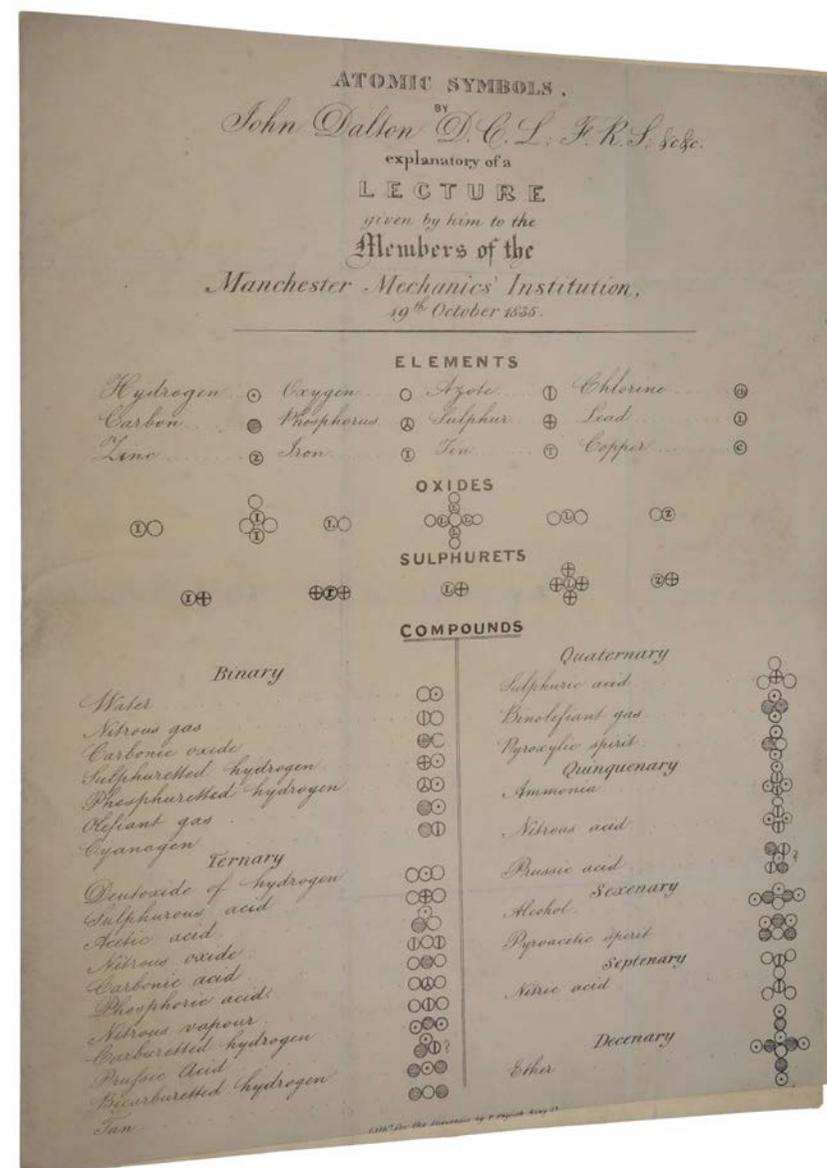
DALTON, John. *Atomic Symbols by John Dalton, explanatory of a Lecture given by him to the Members of the Manchester Mechanics' Institution, October 19th, 1835.* [Manchester]: Lith[ographed] for the Directors by F. Physick, King St., [1835].

\$5,000

Folio (291 x 223mm), two leaves, first leaf printed on recto only, second leaf blank, three horizontal and two vertical creases where folded.

First edition, extremely rare, of this "lithographed table of atomic symbols and the structure of various chemical compounds, which was distributed by Dalton during his last public lecture to the Manchester Mechanics' Institution in 1835. A year and a half later he suffered two paralytic strokes that left him a semi-invalid for the rest of his life. 'Following the invitation of the Directors ... Dalton gave a course of five lectures on meteorology beginning in March 1835. Later in the year, Dalton gave a lecture at the Institution on Atomic Theory: To the audience was distributed a lithographed sheet of atomic symbols ... the lecture-room was crowded in every part and the greatest anxiety was manifested by the audience not to lose a single word which fell from the lips of the speaker ... It was his last public lecture' (Smyth). Later versions of the table, set in different type, are included in the biographies of Dalton by Henry (1854), Lonsdale (1874), and Roscoe (1895). Each of the three reprints is separately redrawn, but none includes the information about the lithographer, T. Physick, who is listed in the Manchester Directory for 1832 as a lithographic printer. The present (possibly unique) copy is described in the second edition of Smyth's bibliography of Dalton" (Neville, I, p. 321).

<http://sophiararebooks.com/4601>



PRESENTATION COPY INSCRIBED IN DARWIN'S HAND WITH CORRECTIONS

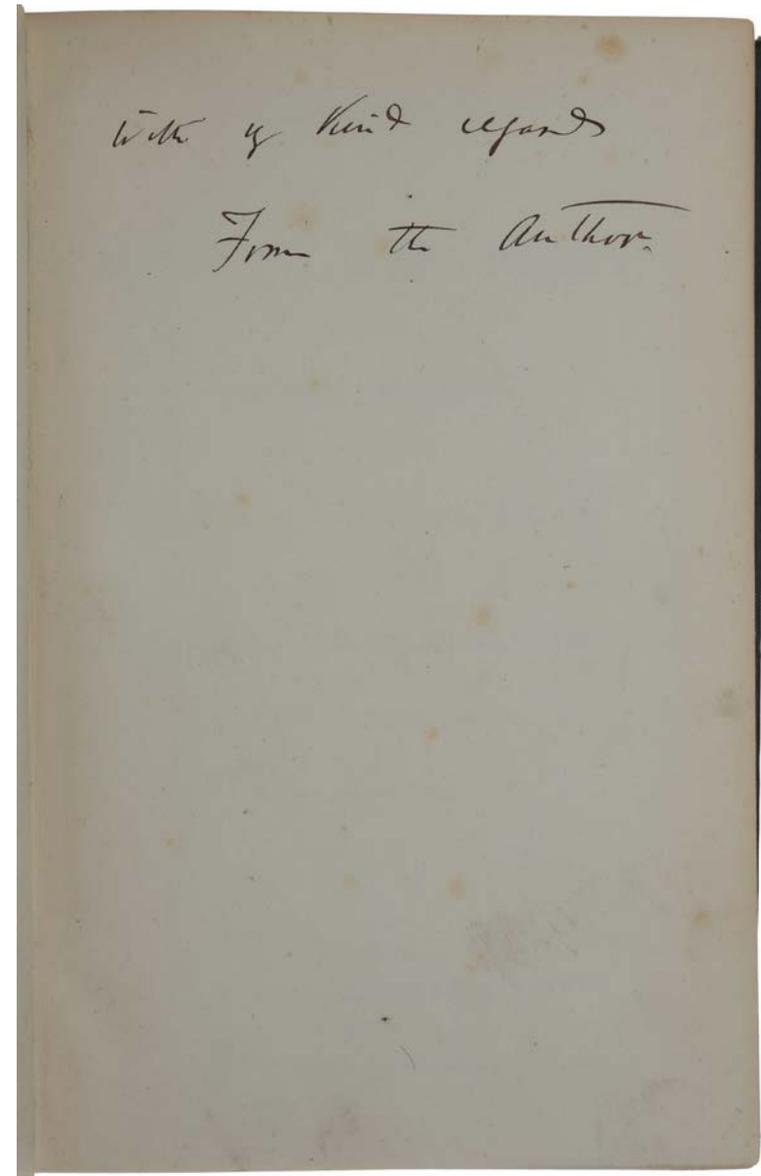
DARWIN, Charles. *The Variation of Animals and Plants under Domestication ...*
Second edition, revised, fourth thousand. London: John Murray, 1875.

\$85,000

Two volumes, crown octavo (185 x 120mm), pp. xiv, 473, [1]; x, 495, [1], 32, with 43 woodblocks in text (light spotting on titles). Original green cloth, arches style, with covers stamped with blind frame, gilt spines (extremities rubbed).

Presentation copy, **inscribed in Darwin's hand**, of the second and definitive edition of the only section of Darwin's 'big book' on the origin of species which was printed in his lifetime. This copy is further remarkable in having manuscript revisions, undoubtedly dictated by Darwin, in the hand of Darwin's then amanuensis, his son Francis. These corrections were very likely for the benefit of a translator, to whom the book was presented. There were 25 recipients of presentation copies of this second edition (*Darwin Correspondence*, vol. 24, p. 596f.), including the German Julius Victor Carus (1823-1903), and the Italian Giovanni Canestrini (1835-1900), the translators of the 3rd German (1878; Freeman 916) and first Italian (1876; Freeman 920) editions of *Variation*, respectively. It is possible that this copy is one of these: the fact that the inscription is in Charles' hand – rather than in the hand of the publisher's clerk as often found – suggests further evidence that this is an important association copy.

<http://sophiararebooks.com/4604>



THE FIRST BOOK ON ALGEBRA IN FRENCH

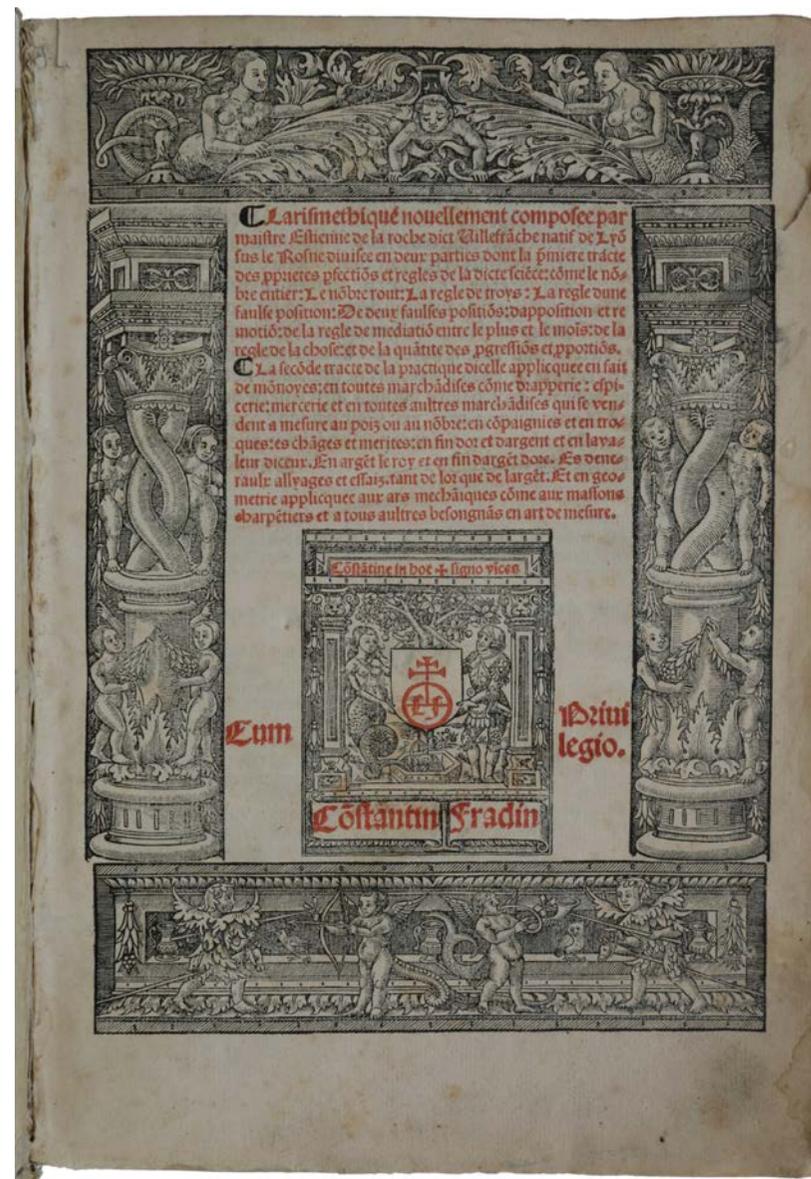
DE LA ROCHE, Estienne. *L'arithmétique nouvellement composée par maistre Estienne de La Roche dict Villefranche natif de Lyon sus le Rosne diuisee en deux parties dont la première tracte des propriétés perfectio[n]s et regles de la dicte science: come le nombre entier, le nombre rout, le regle de troys, la regle d'une faulse position, de deux faulses position[n]s, d'apposition et remotio[n], de la regle la chose, et de la quantité des progressio[n]s et portio[n]s.* [Lyon]: Guillaume Huyon for Constantin Fradin, June 2, 1520.

\$50,000

Folio, ff. [iv], 230, title printed in red and black within a beautiful woodcut border, woodcut printer's device on title-page, woodcut initials and diagrams (small tear to head of title-page, ink stains on n4v, lacking front free endpaper). Contemporary binding using a fifteenth-century vellum manuscript leaf (slightly soiled).

First edition, extremely rare, of the first published work on algebra in French. This is a fine copy in a beautiful contemporary binding. OCLC lists copies at Columbia and Harvard only in North America. ABPC/RBH list only the Macclesfield copy (rebound in the 19th century) since Honeyman (Sotheby's, April 14, 2005, lot 1204, £19,200 = \$36,409). The present copy was offered by Librairie Thomas-Scheler in 1996 (Catalogue Nouvelle Série No. 15, n. 296, 120,000F).

<http://sophiararebooks.com/4636>



A LANDMARK WORK ON THE FOUNDATIONS OF MATHEMATICS

Landmark Writings in Western Mathematics 43; Breakthroughs 415.

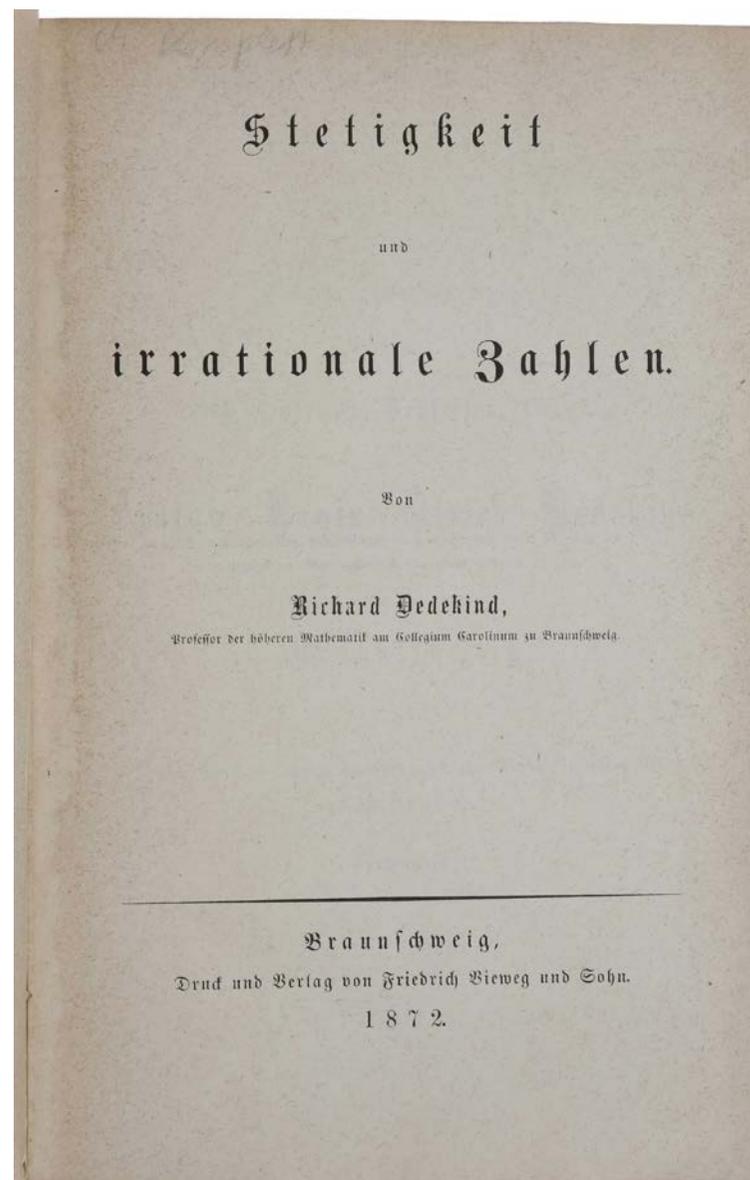
DEDEKIND, Richard. *Stetigkeit und irrationale Zahlen.* Braunschweig: Friedrich Vieweg, 1872.

\$12,500

8vo (202 x 130 mm), pp. 31, [1]. Contemporary cloth-backed marbled boards (light browning throughout). Preserved in a folding clamshell case. A fine copy.

First edition, very rare in commerce, of Dedekind's great work on the foundations of mathematics. "This short work marks a significant epoch in the movement known as the arithmetization of analysis, that is, the replacement of intuitive geometric notions by concepts described in precise words" (*Landmark Writings*, p. 553). "This article, whose central idea was worked out by Dedekind while he was teaching in Zürich in 1858, presents a rigorous arithmetical foundation for the theory of real numbers ... Despite Dedekind's assertion in the introductory paragraphs of *Continuity and irrational numbers* that he originally did not publish his theory because he did not regard it as being very fruitful, it laid the foundations for much of modern-day real analysis and point-set topology" (Ewald, pp. 765-6). No copies listed on ABPC/RBH.

<http://sophiararebooks.com/4558>



AUTOGRAPH FEYNMAN DIAGRAM

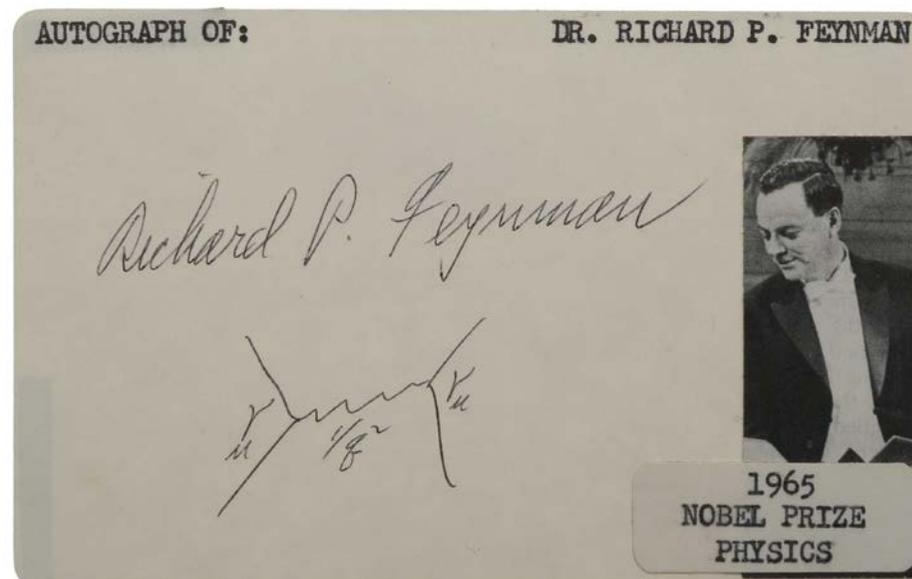
FEYNMAN, Richard Phillips. *Card bearing Feynman's signature 'Richard P. Feynman', with one of his famous 'Feynman diagrams' below in his hand, and an affixed newspaper photograph of Feynman receiving the Nobel Prize in Physics 1965.*

\$15,000

118 x 75 mm. In fine condition.

A rare example of Feynman's signature, with a much rarer example of one of his eponymous diagrams in his hand. In fact, this diagram is almost identical to the first ever Feynman diagram that he drew in public, on the blackboard at the famous Pocono conference in the spring of 1948, where he first explained his diagrammatic approach to the problems of quantum electrodynamics. The rarity of any form of manuscript material by Feynman is well-known. When his autobiographical work *Surely You're Joking Mr. Feynman!* was about to be published, Feynman told his editor "I'm not going to go on TV and I'm not going to sign any books!" Requests for Feynman's signature were referred routinely to his secretary, who returned instead a printed card stating firmly that 'Professor Feynman has found it necessary to refuse all requests for autographs.' Feynman's signature is here greatly enhanced by the presence of one of his iconic Feynman diagrams, which have since become ubiquitous in theoretical physics.

<http://sophiararebooks.com/4581>



THE FOUNDATION OF MODERN OBSERVATIONAL ASTRONOMY

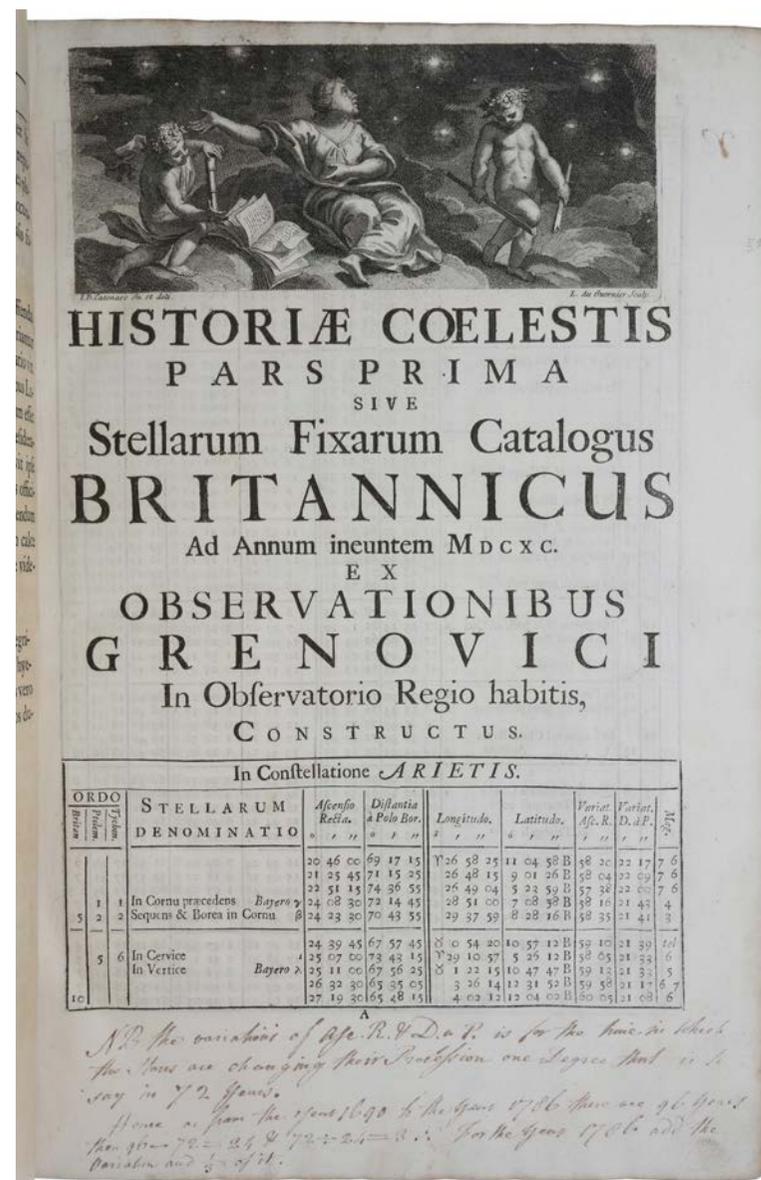
FLAMSTEED, John. *Historiae coelestis libri duo: quorum prior exhibet catalogum stellarum fixarum Britannicum novum & locupletissimum, una cum earundem planetarumque omnium observationibus sextante, micrometro, &c. habitis; ...* London: John Matthews, 1712.

\$185,000

Large folio (390 x 267 mm), pp. [vi], vi, 60; [1], 2-360, [2], 362, [1], 363-388, [1]; [2], 120, [2, errata], with four folding plates engraved by John Senex. Engraved and illustrated half title with author's portrait, signed by Juan Bautista Catenaro and George Vertue, following full-page dedication letter illustrated and engraved by Jacobus Gibs and Louis du Guernier. Contemporary calf with gilt arms of Queen Anne in centre of each cover.

The true first edition, extremely rare, of Flamsteed's catalogue of fixed stars and sextant observations, the foundation of modern observational astronomy. Flamsteed's catalogue was far more extensive and accurate than anything that had gone before. It was the first constructed with instruments using telescopic sights and micrometer eyepieces; Flamsteed was the first to study systematic errors in his instruments; he was the first to urge the fundamental importance of using clocks and taking meridian altitudes; and he insisted on having assistants to repeat the observations and the calculations. "The first copies of the *Historia coelestis* were not published in a commercial sense. Instead they had been envisaged as royal 'presents', to be given to a selective list of recipients." (Johns pp. 607-09).

<http://sophiararebooks.com/4352>



PMM 257 - 'THE PRINCE OF MATHEMATICS'

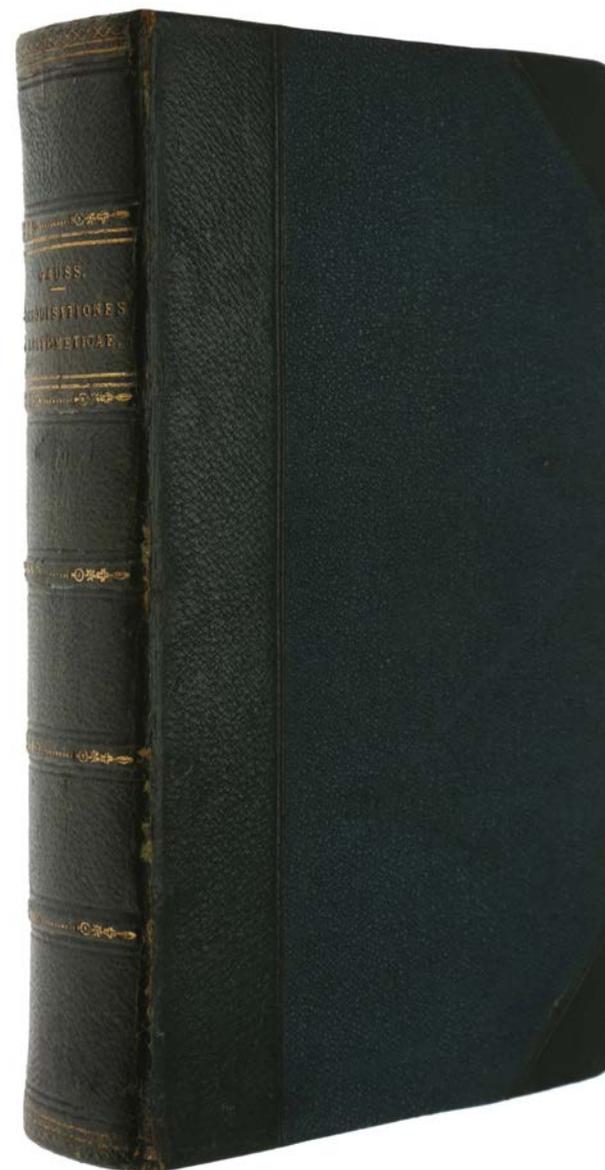
GAUSS, Carl Friedrich. *Disquisitiones arithmeticae*. Leipzig: Gerh. Fleischer, 1801.

\$38,000

8vo (203 x 118 mm), contemporary green half morocco, pp [i-vi] vii-xviii [1] 2-668 [3:tables as the Horblit copy] [4:errata] with B7, G4, K3, 2F7, and 2T6 cancels (as usual), first and final leaves with some spotting as is usually seen with this work. An entirely unrestored copy.

First edition, rare, of Gauss' masterpiece, "a book that begins a new epoch in mathematics ... Gauss ranks, together with Archimedes and Newton, as one of the greatest geniuses in the history of mathematics" (PMM). "Published when Gauss was just twenty-four, *Disquisitiones arithmeticae* revolutionized number theory. In this book Gauss standardized the notation; he systemized the existing theory and extended it; and he classified the problems to be studied and the known methods of attack and introduced new methods ... The *Disquisitiones* not only began the modern theory of numbers but determined the direction of work in the subject up to the present time.

<http://sophiararebooks.com/4572>



PMM 107 - THE FOUNDER OF ELECTRICAL SCIENCE

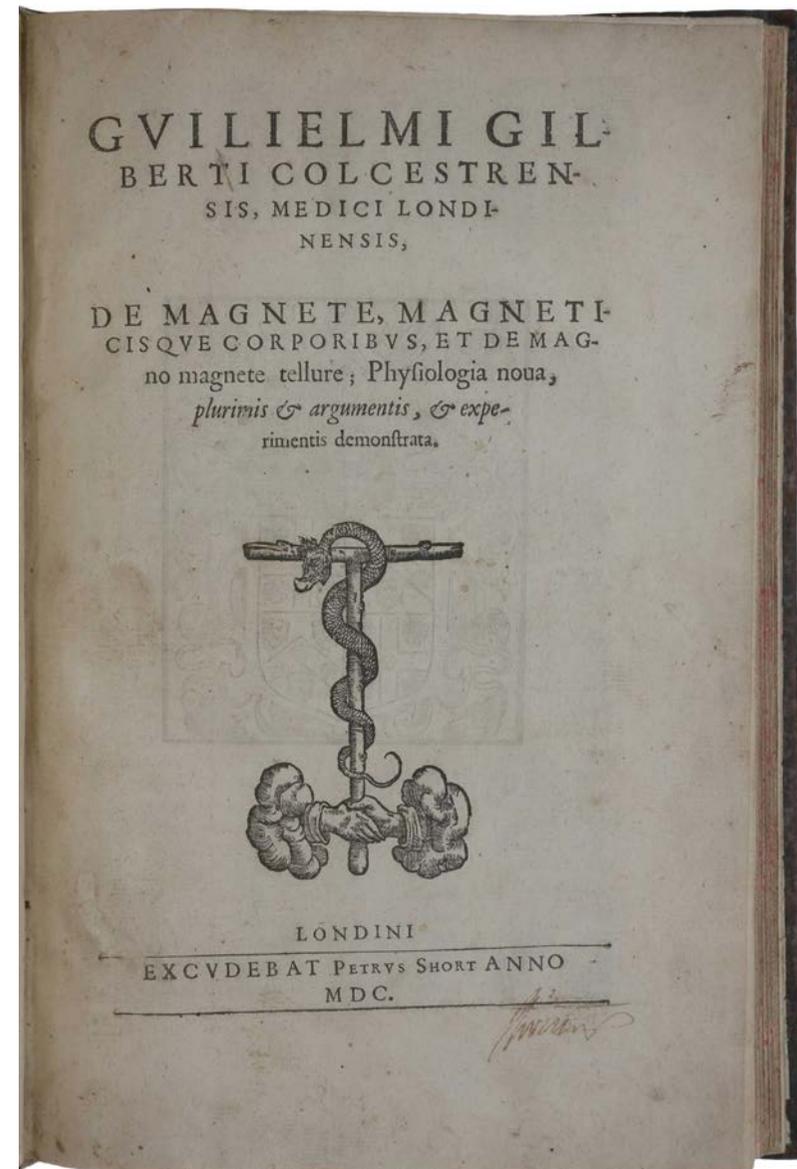
GILBERT, William. *De magnete, magneticisque corporibus, et de magno magnete tellure; Physiologia nova, plurimis & argumentis, & experimentis demonstrata.* London: Peter Short, 1600.

\$78,000

Folio (282 x 182 mm), pp. [xvi], 240, woodcut printer's device (McKerrow 119) on title, large woodcut arms of Gilbert on title verso, one woodcut folding plate, 88 woodcut illustrations and diagrams in text (4 full-page), ornamental woodcut headpieces and initials. Contemporary calf, an exceptionally fine and crisp copy.

First edition of "the first major English scientific treatise based on experimental methods of research. Gilbert was chiefly concerned with magnetism; but as a digression he discusses in his second book the attractive effect of amber (electrum), and thus may be regarded as the founder of electrical science. **He coined the terms 'electricity,' 'electric force' and 'electric attraction.'** His 'versorium', a short needle balanced on a sharp point to enable it to move freely, is the first instrument designed for the study of electrical phenomena, serving both as an electroscope and electrometer. He contended that the earth was one great magnet; he distinguished magnetic mass from weight; and he worked on the application of terrestrial magnetism to navigation. Although this book does appear with some regularity on the market, the fine condition and untouched contemporary bindings like this copy are rare.

<http://sophiararebooks.com/4577>



THE INCOMPLETENESS THEOREM

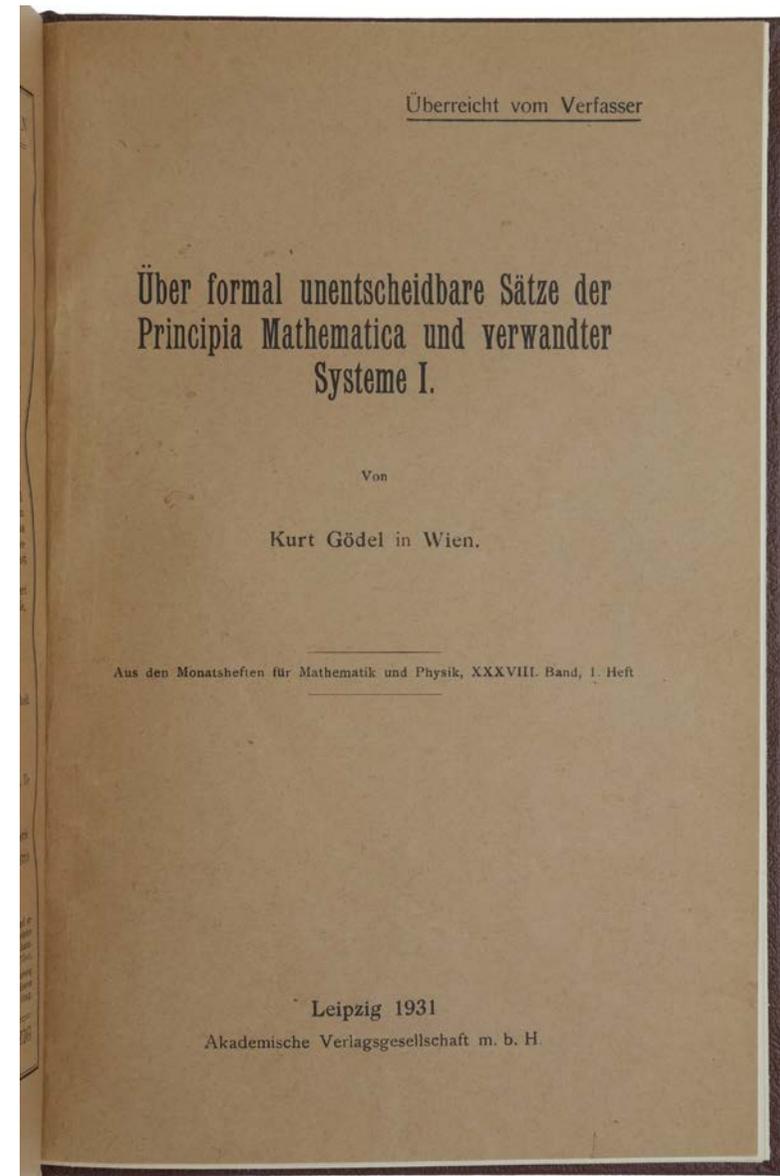
GÖDEL, Kurt. *Über formal unentscheidbare Sätze der Principia Mathematica undver wandter Systeme I.* Offprint from: *Monatshefte für Mathematik und Physik* 38, 1931. [Bound with:] *Über die Vollständigkeit der Axiome des logischen Funktionenkalküls.* Offprint from: *Monatshefte für Mathematik und Physik* 37, 1930. Leipzig: Akademische Verlagsgesellschaft, 1931, 1930. [Bound with:] VON WRIGHT, Georg Henrik. Typed letter signed 'Georg Henrik von Wright' in Swedish on Academy of Finland letterhead. Leipzig: Akademische Verlagsgesellschaft, 1931; 1930.

\$140,000

8vo (227 x 153 mm). [1931:] pp. 173-198. [1930:] pp. 349-360. Original tan printed wrappers, front wrappers each with printed presentation statement in German 'Überreicht vom Verfasser.' A few light pencil notations in the 1931 offprint, presumably in the hand of Eino Kaila. Bound together in brown cloth.

First edition, extremely rare author's presentation offprint, of Gödel's famous incompleteness theorem, "one of the major contributions to modern scientific thought" (Nagel & Newman). The offprint of Gödel's incompleteness theorem is here accompanied by an author's presentation offprint of his earlier completeness theorem for first-order logic. OCLC lists two copies of the 1931 offprint (both in Canada), and none of the 1930 offprint.

<http://sophiararebooks.com/4559>



ANATOMY OF THE EYE, PHYSICS OF VISION, THEORY OF COLOR, AND OPTICAL LENSES

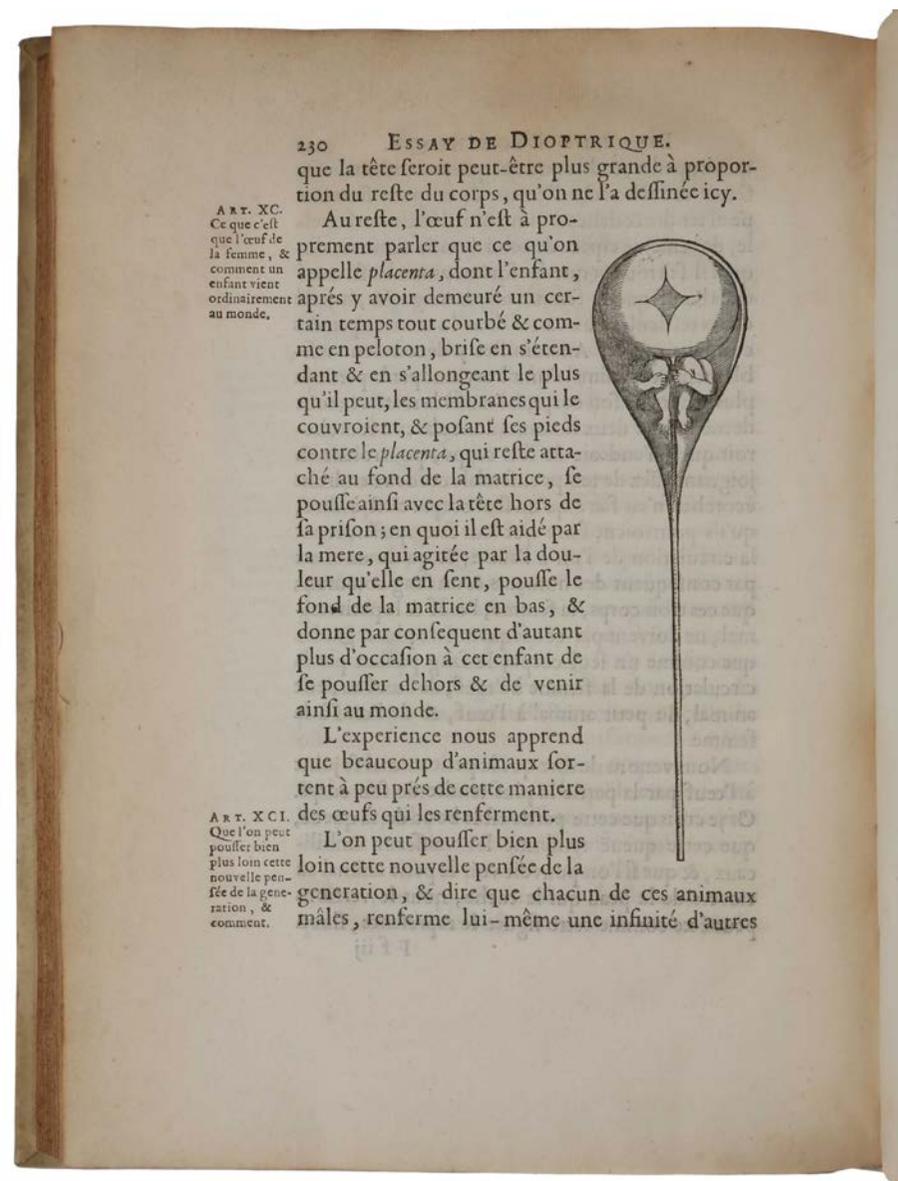
HARTSOEKER, Nicolas. *Essay de dioptrique*. Paris: J. Anisson, 1694.

\$9,500

4to (254 x 192 mm), pp. [xxiv], 178, [2], 179-233, [1], with one folding engraved plate of the Moon and numerous woodcut diagrams in the text. Contemporary vellum, a very fine copy.

First edition, rare, of Hartsoeker's first and most important work, in which he reviewed the principles of optics as far as they were known by the end of the 17th century. In addition to the physics of light and the physiology of vision, the book also treats in great detail techniques for the production of lenses for microscopes and telescopes. Towards the end of the book, on p. 230, he presented a picture of a little preformed human figure in the head of a spermatozoon. This picture has since become famous and more than a little notorious as an example of observations biased by theoretical prejudice. Hartsoeker's reputation has been forever linked to this picture and if his name appears today at all, he is usually held up as an example of a scientist who saw what he wanted to see.

<http://sophiararebooks.com/4518>



THE FIRST PUBLISHED WORK ON THE GEOMETRICAL COMPASS

HOOD, Thomas; MOHR, Georg; BEDWELL, William; STURM, Johannes.

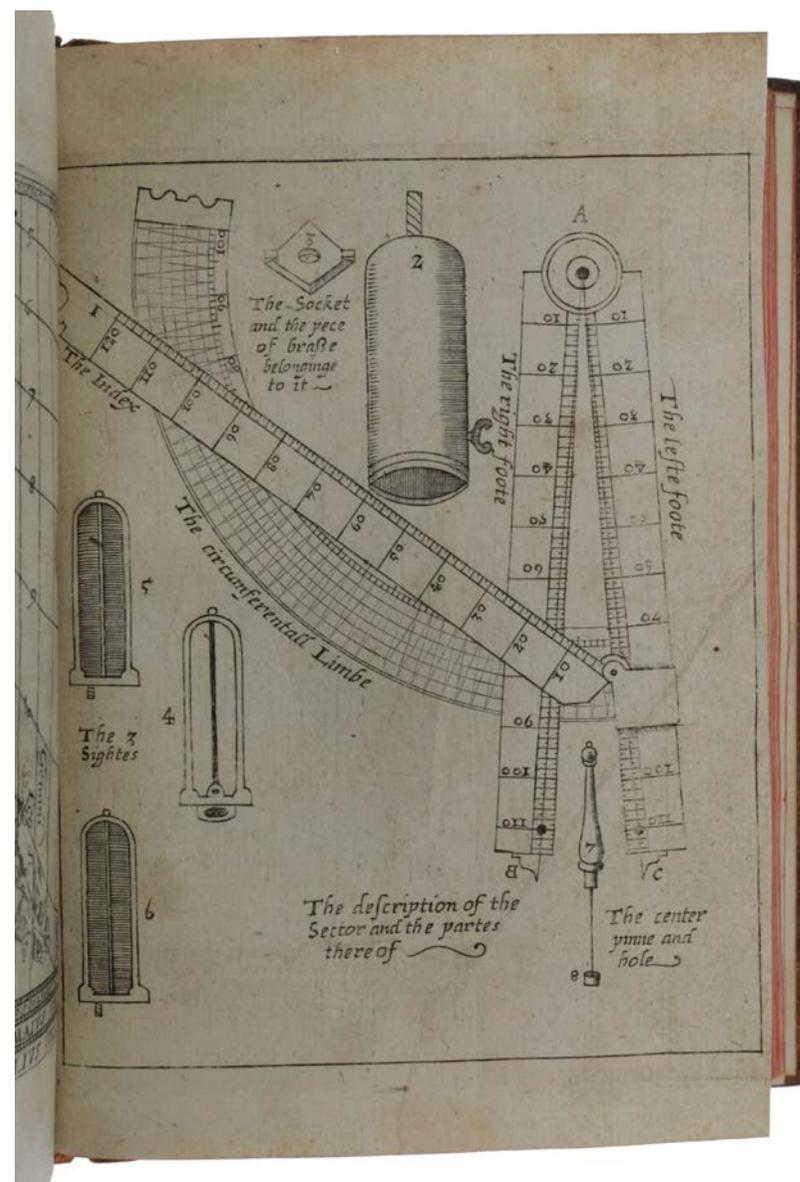
A precious sammelband containing eight extremely rare works, all in first edition, notably: HOOD, The making and use of the geometricall instrument, called a sector ... London: J. Windet and sold by S. Shorter, [1598] & MOHR, Euclides Danicus ... Amsterdam: Jacob van Velsen for the author, 1672.

\$65,000

Eight works in one volume, small 4to (185 x 130mm). Eighteenth-century mottled calf, spine gilt in compartments, red morocco lettering-piece, red edges (occasional cropping, upper joint weak). Preserved in a cloth folding box with black morocco lettering-piece.

One of the most remarkable sammelbands from the Macclesfield library, containing the extremely rare first edition of the first published work on the 'sector', also called the 'geometrical compass' by Galileo who developed it independently in the late 1590s as an instrument for military engineering (although he did not publish an account of it until 1606). OCLC lists no copies in North America, but we have located one (Folger), though it lacks the plates (present in this copy). Also included in this volume are three geometrical works by the Danish mathematician Georg Mohr that are so rare that they were thought to be lost until a copy of one of them, *Euclides Danicus*, was discovered in 1928. OCLC lists only one copy of *Euclides Danicus* in North America (Harry Ransom Center, University of Texas).

<http://sophiararebooks.com/4635>



VERY RARE DOCUMENT DETAILING THE GREAT FIRE OF LONDON BY HOOKE

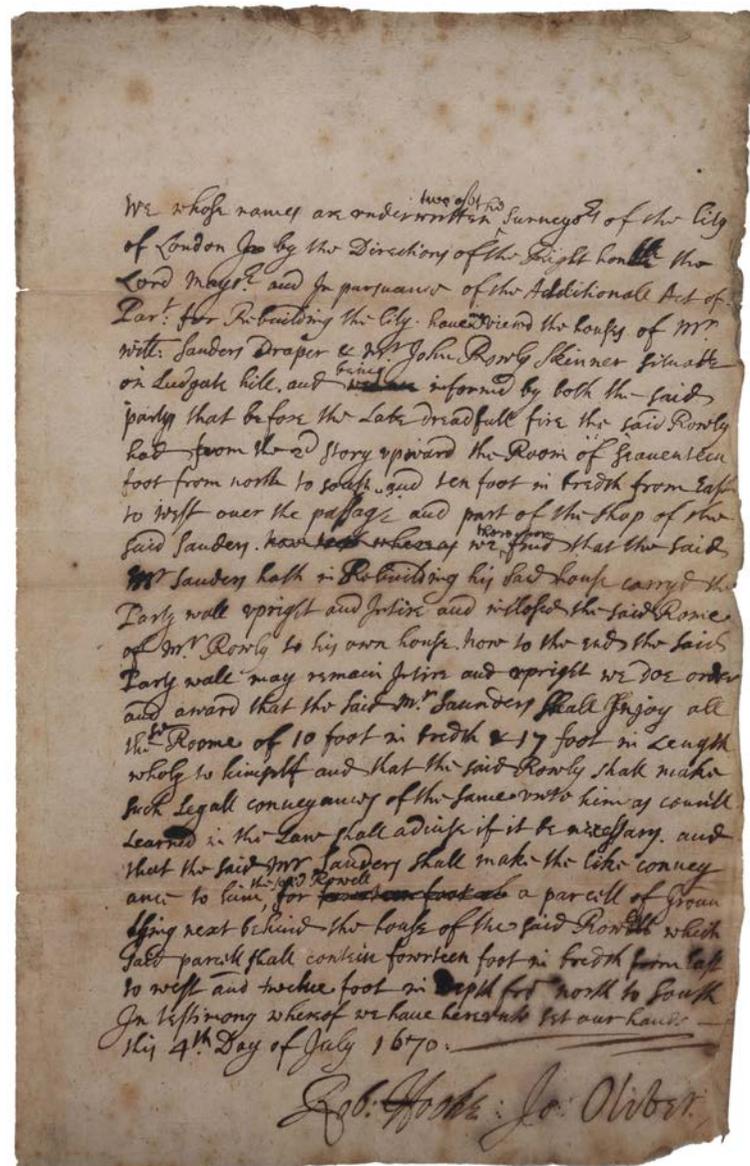
HOOKE, Robert. Autograph report in Hooke's hand, and signed by him, as surveyor of the City of London following the Great Fire, concerning a disagreement arising from the rebuilding of a structure on Ludgate Hill in the burnt district. Countersigned by Hooke's fellow City Surveyor John Oliver. Dated 4 July 1670; **HOLLAR, Wenceslaus.** *A Map or Groundplot of the City of London and the Suburbes thereof, that is to say all which is within the iurisdiction of the Lord Mayor or properlie call'd't London...* London: Sold by John Overton at the White House in little Brittain, next door to S. Bartholomew gate, 1666.

\$95,000

Autograph document: one page, single foolscap sheet of laid paper (290 x 190 mm), 28 lines in Hooke's hand with several contemporaneous corrections and additions. Map: Sheet size 302 x 368 mm.

A very rare document related to the Great Fire of London written and signed by the great polymath Robert Hooke (1635-1703), with an equally rare separately-issued map showing the destruction caused by the fire. We find no examples of this map appearing on the market, and only three institutional holdings (British Library, Harvard and the Bibliothèque Nationale). Autograph documents by Hooke are extremely rare, with only two examples on the market in the last quarter century.

<http://sophiararebooks.com/4570>



HUBBLE'S LAW - THE EXPANSION OF THE UNIVERSE - RARE AUTOGRAPH

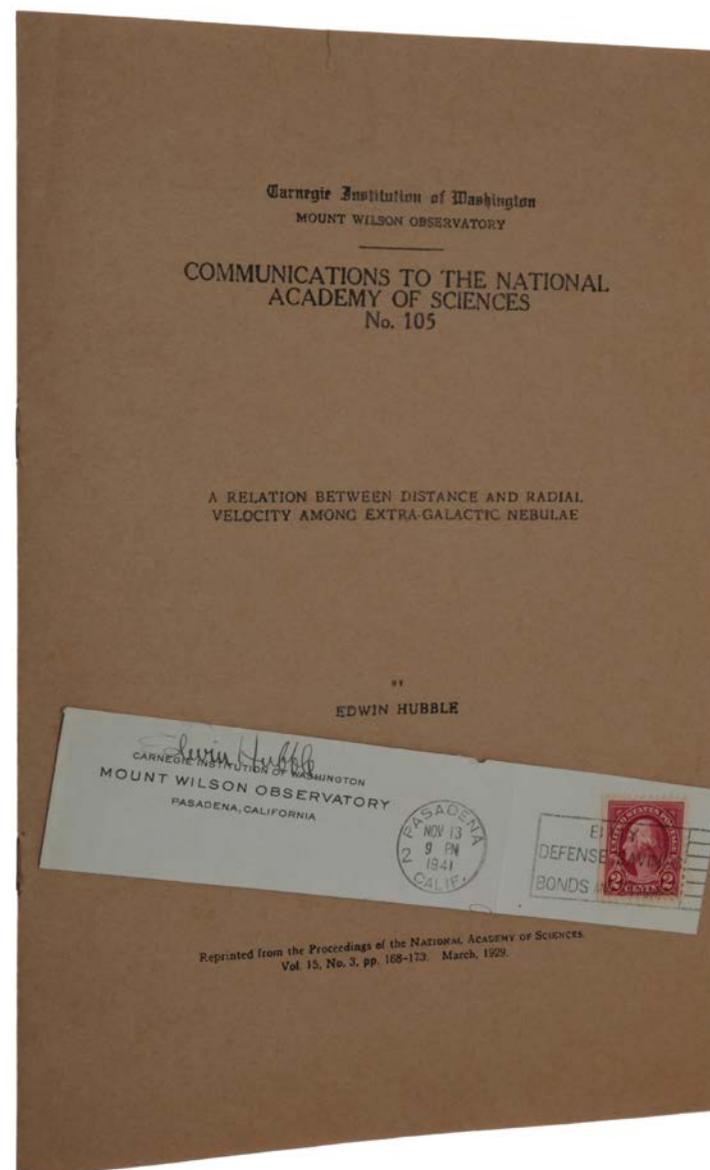
HUBBLE, Edwin. *'A Relation between Distance and Radial Velocity among Extra-Galactic Nebulae.'* Offprint from Proceedings of the National Academy of Sciences, Vol. 15, No. 3. N. p. [Washington, D.C.]: Carnegie Institution, 1929. [Offered with:] Signature of Edwin Hubble on section of an envelope sent on November 13, 1941 from Mount Wilson, where the observations leading to Hubble's discovery of the expansion of the universe were carried out, retaining printed address of the Mount Wilson Observatory and stamp. Washington: National Academy of Sciences, 1929.

\$55,000

8vo (258 x 175 mm), original printed wrappers, [1] 2-6 [7-8:blank]. First text leaf with some offsetting of the verso, otherwise a very fine and unmarked copy.

First edition, very rare offprint, of Hubble's landmark paper, which "made as great a change in man's conception of the universe as the Copernican revolution 400 years before" (DSB). This paper "is generally regarded as marking the discovery of the expansion of the universe" (*Biographical Encyclopedia of Astronomers*). It established what would later become known as Hubble's Law: that galaxies recede from us in all directions and more distant ones recede more rapidly in proportion to their distance. Autograph material by Hubble of any kind, even his signature, is hardly ever seen on the market.

<http://sophiararebooks.com/4658>



BOOLE'S LOGIC IMPROVED

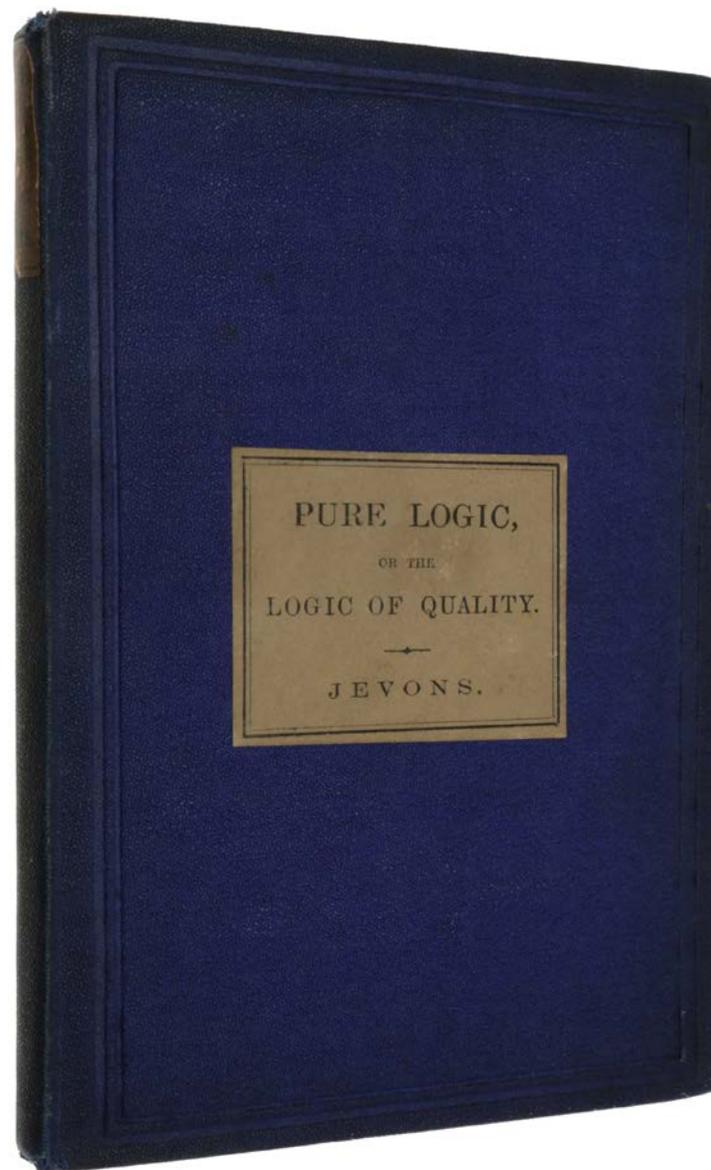
JEVONS, William Stanley. *Pure Logic or the Logic of Quality apart from Quantity: with remarks on Boole's System and on the Relation of Logic and Mathematics.* London: Edward Stanford, 1864.

\$2,850

Small 8vo, pp. [vi], 87, [1]. Original pebble-grained blue cloth, printed paper label to spine and front cover, boards panelled in blind, brown coated endpapers (very minor rubbing to extremities). A fine copy.

First edition of Jevons's first work on logic, and a fine copy in original condition. "Jevons' logical system was regarded by him as being to a large extent founded on the work of Boole. 'The forms of my system,' he says (*Pure Logic*, p. 3), may in fact be reached by divesting his (i.e., Boole's) system of a mathematical dress, which, to say the least, is not essential to it" (Mays & Henry, p. 485). "Jevons actually improved on Boole in some important details, as, for instance, in showing that the Boolean operations of subtraction and division were superfluous" (DSB 7:105). Jevons's principal advance was to reduce the operations of the Boolean calculus to a mechanical procedure. He here stood at the start of a road that led to the modern application of logic in **computer-programming**; he himself designed a 'logical abacus' and 'logical piano', which "solved problems with superhuman speed and accuracy, and some of its features can be traced in modern computer designs" (*ibid.*).

<http://sophiararebooks.com/4640>



KEPLER'S THIRD LAW OF PLANETARY MOTION

KEPLER, Johannes. *Epitome astronomiae Copernicanae: usitatâ formâ quæstionum & responsionum conscripta, inque VII. libros digesta, quorum tres hi priores sunt de doctrina sphaericâ. Habes, amice lector, hac prima parte, præter physicam accuratam explicationem motus terræ diurni, ortusq[ue] ex eo circulorum sphaeræ, totam doctrinam sphaericam nova & concinniori methodo, ...* Linz: Johann Planck, 1618 [Books I-III] & 1622 [Book IV]; Frankfurt: Georg Tampach, 1621 [Books V-VII].

\$125,000

8vo (161 x 94 mm), pp. [xxviii], 417 [recte 409], [3, blank]; [ii], 419-622, [2, errata and blank]; [xii], 641-932, [16, index], with numerous woodcut diagrams in text and one folding printed table (a few gatherings with some slight browning). Contemporary German vellum, blue edges. A large, fresh, unrestored, and attractive copy, with some lower edges uncut.

First edition, an immaculate copy, the finest we have seen, of the third of Kepler's great trilogy of astronomical treatises, following *Astronomia nova* (1609) and *Harmonice mundi* (1619), in which he introduced his three laws of planetary motion. The *Epitome* "ranks next to Ptolemy's *Almagest* and Copernicus' *De revolutionibus* ... [It] is the first systematic complete presentation of astronomy to introduce the ideas of modern celestial mechanics founded by Kepler.

<http://sophiararebooks.com/4496>



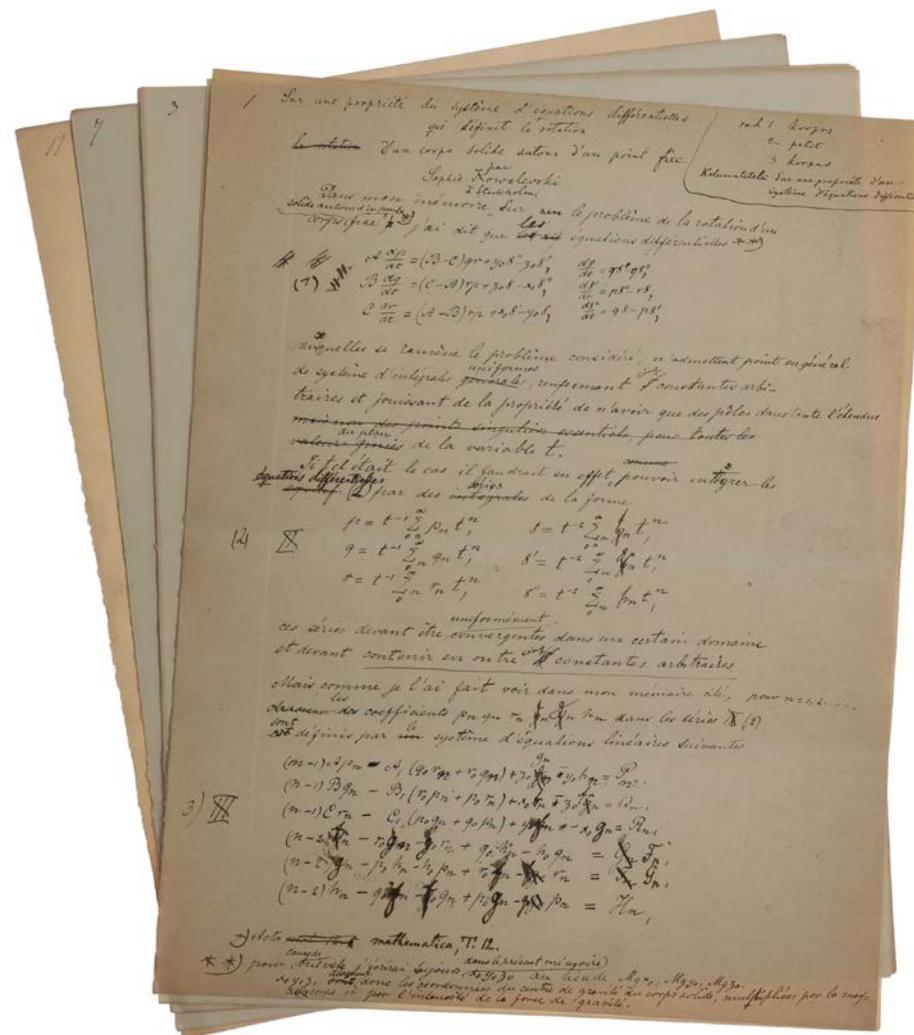
THE GREATEST KNOWN WOMAN SCIENTIST BEFORE THE 20TH CENTURY

KOWALEVSKY, Sonya (or KOVALEVSKAYA, Sofya Vasilyevna). *Sur une propriété du système d'équations différentielles qui définit la rotation d'un corps solide autour d'un point fixe.* Autograph manuscript signed, 11 leaves, written on recto only, with some corrections and additions. Undated, but first published in *Acta Mathematica* 14 (1890), pp. 81-93. [1890].

\$29,500

11 loose leaves, written on recto only, 290 x 232 mm, first leaf with extremely mild toning, some leaves with fingerprints in ink probably by the author. Three light horizontal creases from having been foled for postage. Very fine and clean.

Important autograph manuscript by “the greatest woman mathematician prior to the twentieth century” (DSB). Kowalevsky was a pioneer for women in mathematics around the world – the first woman to obtain a doctorate (in the modern sense) in mathematics, the first woman appointed to a full professorship in Northern Europe and one of the first women to work for a scientific journal as an editor. According to historian of science Ann Hibner Koblitz, Kowalevsky was “the greatest known woman scientist before the twentieth century”. This paper complements and completes her most famous work, ‘Sur le problème de la rotation d’un corps solide autour d’un point fixe’ (*Acta Mathematica* 12 (1889), pp. 177-232), for which she received the 1888 Bordin Prize from the French Academy of Sciences.



THE FIRST DOCTORIAL DISSERTATION IN MATHEMATICS BY A WOMAN

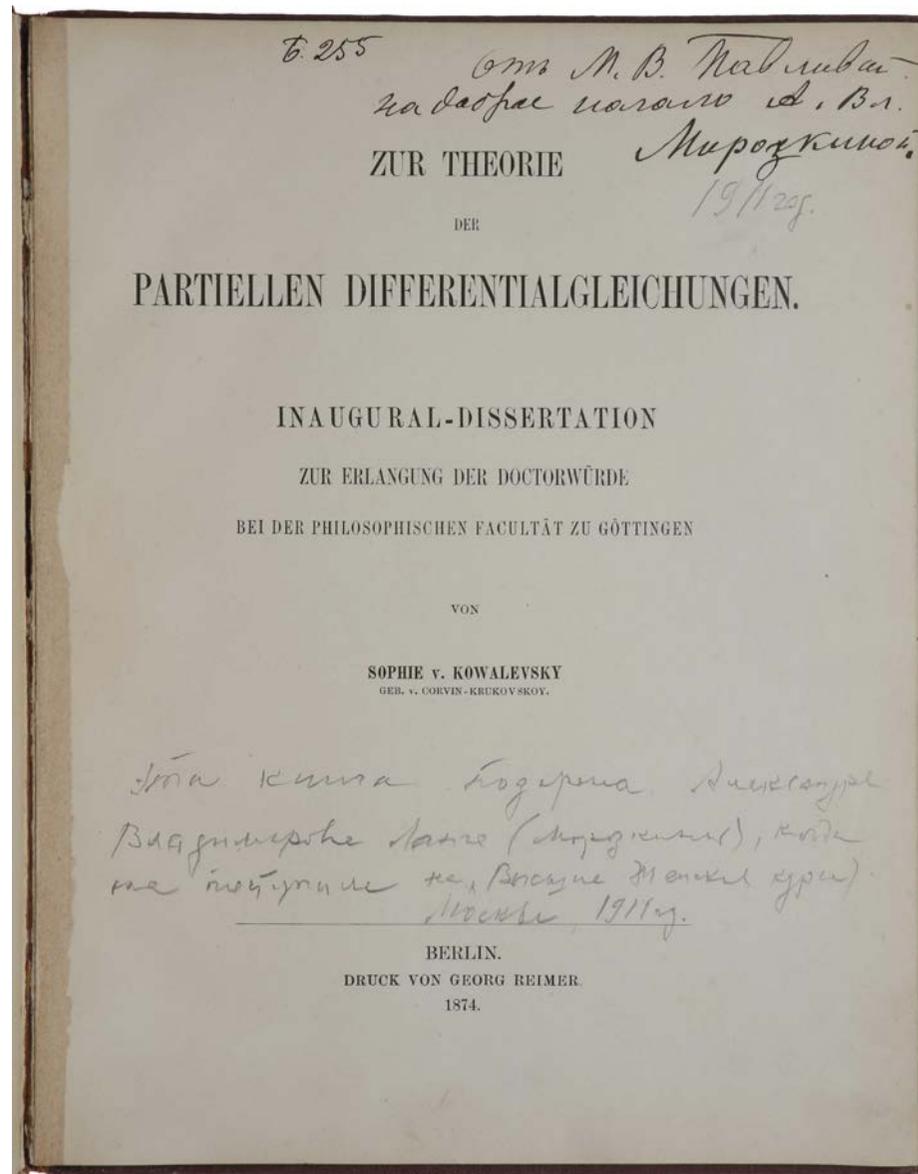
KOWALEVSKY, Sonya (or KOVALEVSKAYA, Sofya Vasilyevna). *Zur Theorie der partiellen Differentialgleichungen.* Berlin: Georg Reimer, 1874.

\$9,500

4to (254 x 198 mm), pp [4], 32, contemporary half calf over blind-tooled cloth boards, front inner hinge week. A fine and fresh copy. Very rare.

First edition, rare, of the doctoral thesis of “the greatest woman mathematician prior to the twentieth century” (DSB). Kowalevsky was a pioneer for women in mathematics around the world – the first woman to obtain a doctorate (in the modern sense) in mathematics, the first woman appointed to a full professorship in Northern Europe and one of the first women to work for a scientific journal as an editor. According to historian of science Ann Hibner Koblitz, Kowalevsky was “the greatest known woman scientist before the twentieth century”. The thesis contains what is now called the ‘Cauchy-Kowalevsky’ theorem on the existence of solutions of partial differential equations. *Provenance:* Signed and inscribed on title page by Mariia Vasil’evna Pavlova (1854-1938) to Alexandra Mirozkina in 1911.

<http://sophiararebooks.com/4203>



LAMBERT'S FIRST WORK ON LIGHT PUBLISHED TWO YEARS BEFORE THE PHOTOMETRIA

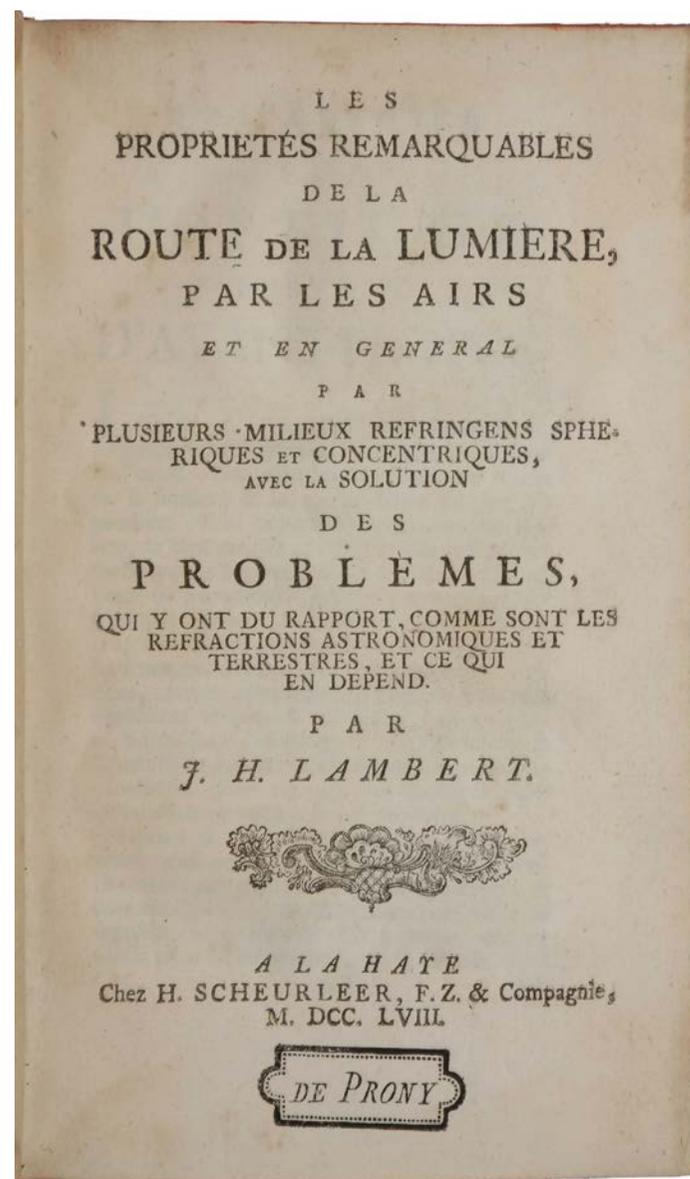
LAMBERT, Johann Heinrich. *Les propriétés remarquables de la route de la lumière par les airs et en général par plusieurs milieux réfringens sphériques et concentriques, avec la solution des problèmes qui y ont rapport...* The Hague: H. Scheurleer, 1758.

\$15,000

8vo (196 x 117 mm), pp. 116 with two folding engraved plates. Contemporary calf, spine gilt with red lettering-piece, spine with some wear.

First edition, extremely rare, of Lambert's first published book, dealing with the path of light rays in air and other media. Lambert began working on aspects of refraction through the atmosphere in 1752, and from 1754 this work was carried out in parallel with his work on photometry. Lambert began the manuscript for the *Propriétés remarquables* in January 1758, and by March 1758 he had finished it and submitted it for publication in The Hague. ABPC/RBH list no copies since the Andrade sale in 1965. COPAC lists only the Royal Society copy. *Provenance*: title page with ex-libris of the great mathematician and engineer Gaspard de Prony (1755 – 1839).

<http://sophiararebooks.com/4514>



AN EXCEPTIONAL COPY IN ORIGINAL WRAPPERS COMPLETE WITH ALL SUPPLEMENTS

PMM 252; Dibner 14; En Français dans le Texte 201; Grolier/Horblit 63; Sparrow125.

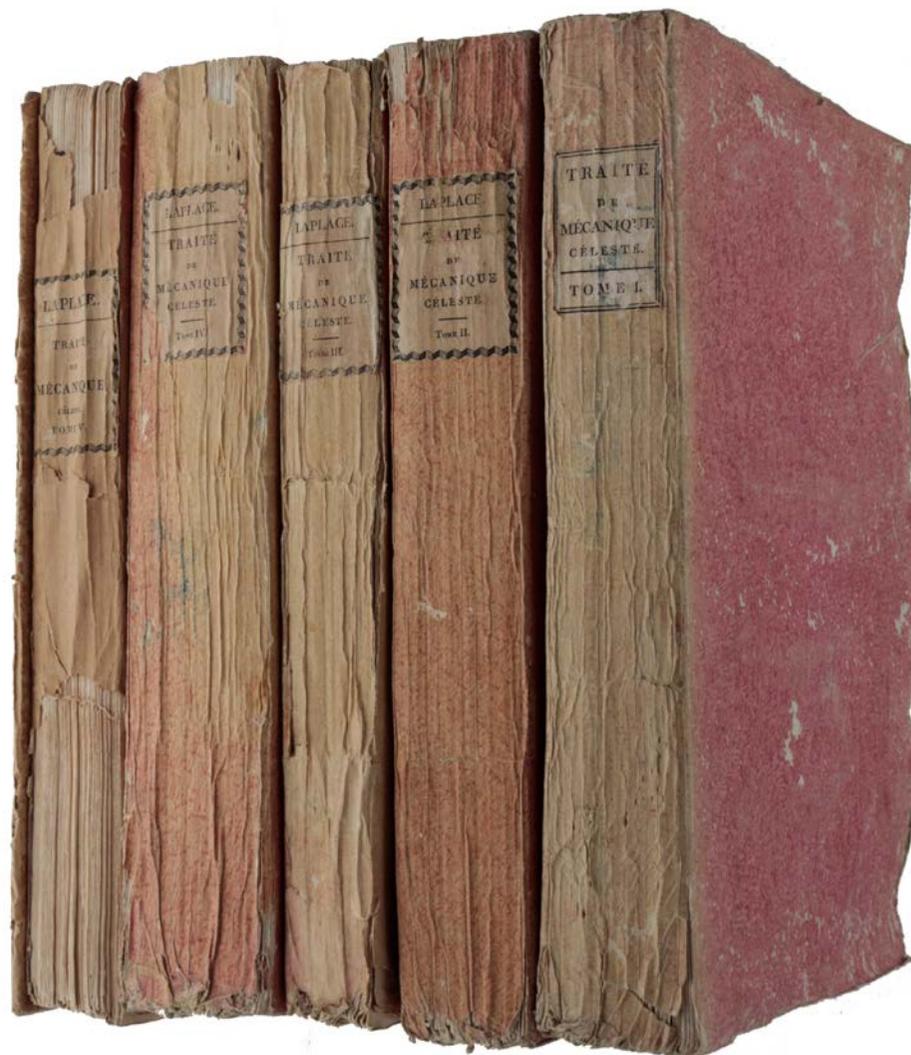
LAPLACE, Pierre-Simon, Marquis de. *Traité de mécanique céleste*. Paris: Crapelet for Duprat, An VII [1799] [Vols. I-II]; Crapelet for Duprat, An XI–1802 [Vol. III]; Courcier, An XIII–1805 [Vol. IV]; Bachelier, 1825 [i.e., 1823-1827] [Vol. V].

\$35,000

Five vols. & four supplements bound in six vols. (Supplement to Vol. V bound separately), large 4to (275 x 211mm), pp. [i-v], vi-xxxii (errata on xxxi-xxxii), [1], 2-368 [Vol. I]; [iv], [1], 2-382 [Vol. II]; [i-vii], viii-xxiv, [1], 2-303, [1, errata], [1], 2-24 [Vol. III and first Supplement]; [i-v], vi-xl, [1], 2-347, [1, errata], [2, half-title], [1], 2-65, [1, blank], [1], 2-78, [2, index and errata for both supplements], with one folding engraved plate [Vol. IV and second and third Supplements]; [i-v], vi-viii, [1], 2-419, [1, errata] [Vol. V]; [ii, half-title], [1], 2-35 [fourth Supplement]. Original publisher's magenta paste-paper wrappers with original printed spine labels, uncut and almost entirely unopened.

First edition, complete with all the supplements, of this monumental work. This is the only complete copy of the first edition we have seen, or seen described, that is uncut in the original publisher's wrappers (with the original printed paper spine labels) – with the possible exception of the Grolier/Horblit copy (described as 'uncut' but binding unspecified).

<http://sophiararebooks.com/4657>



PMM 160 - DISCOVERY OF CALCULUS

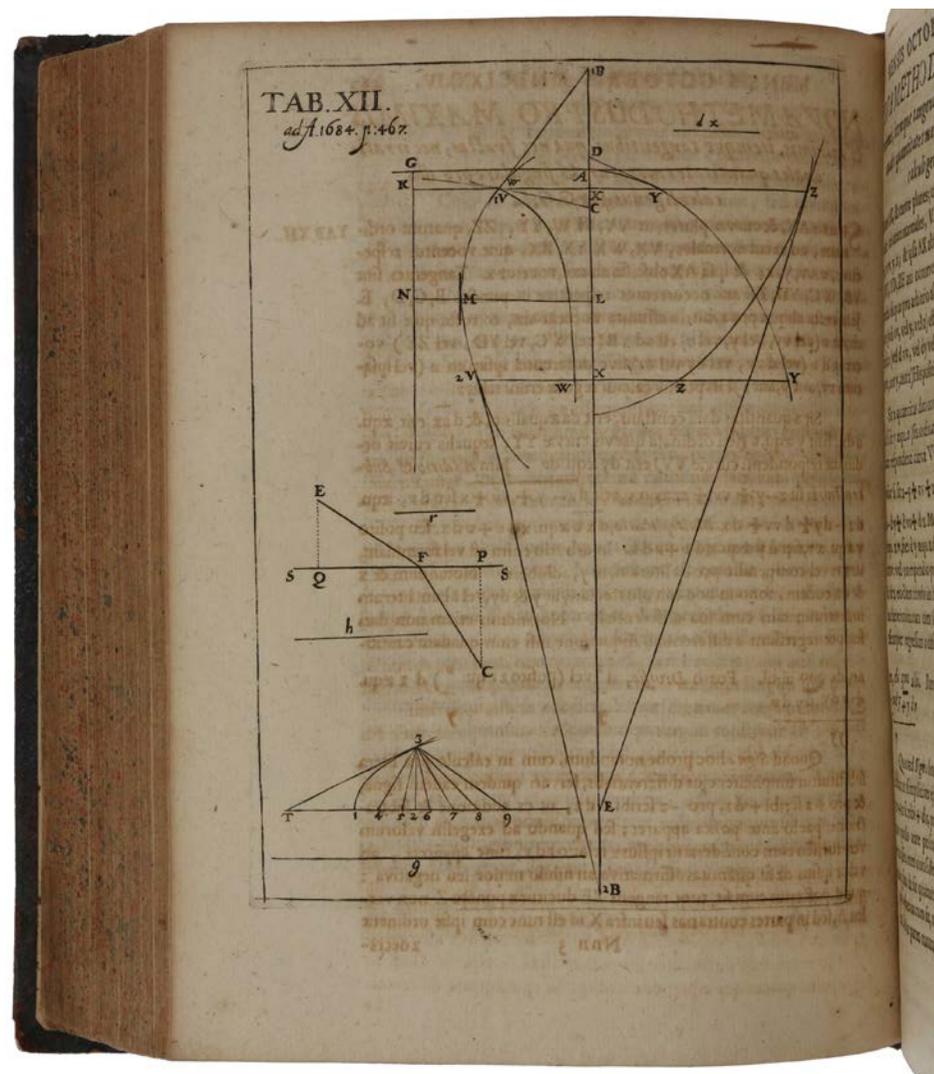
LEIBNIZ, Gottfried Wilhelm. *Nova methodus pro maximis et minimis, itemque tangentibus, quae nec fractas nec irrationales quantitates moratur, et singulare pro illis calculi genus.* In: *Acta Eruditorum*, Vol. III (1684), pp. 467-73 and Tab. XII. Leipzig: Christopher Günther for J. Gross & J. F. Gleditsch, 1684.

\$25,000

In: *Acta Eruditorum*, Vol. III (1684), bound with Vol. IV (1685) of the same journal. 4to: 195 x 154 mm. Vol. III: pp. [10], 591, [16] with 14 plates (*Nova methodus*: pp. 467-73 and Tab. XII); Vol. IV: pp. [6], 595, [16] with 15 plates. A fine and unrestored copy bound in contemporary sheep, spine gilt, red and green sprinkled edges (a little rubbed), some browning though less than usual for this journal, a few contemporary annotations and a little underlining (not in the Leibniz papers). Bookplate of Prince Liechtenstein on front paste-down. The two volumes of *Acta Eruditorum* contain five other papers by Leibniz.

First edition of Leibniz's invention of the differential calculus. "His epoch-making papers give rules of calculation without proof for rates of variation of functions and for drawing tangents to curves ... With the calculus a new era began in mathematics, and the development of mathematical physics since the seventeenth century would not have been possible without the aid of this powerful technique" (PMM).

<http://sophiararebooks.com/4598>



THE DEDICATION COPY - MAURICEAU'S ESTABLISHMENT OF OBSTETRICS AS A SCIENCE

Grolier, *One Hundred Books Famous in Medicine* 33; *En français dans le texte* 107

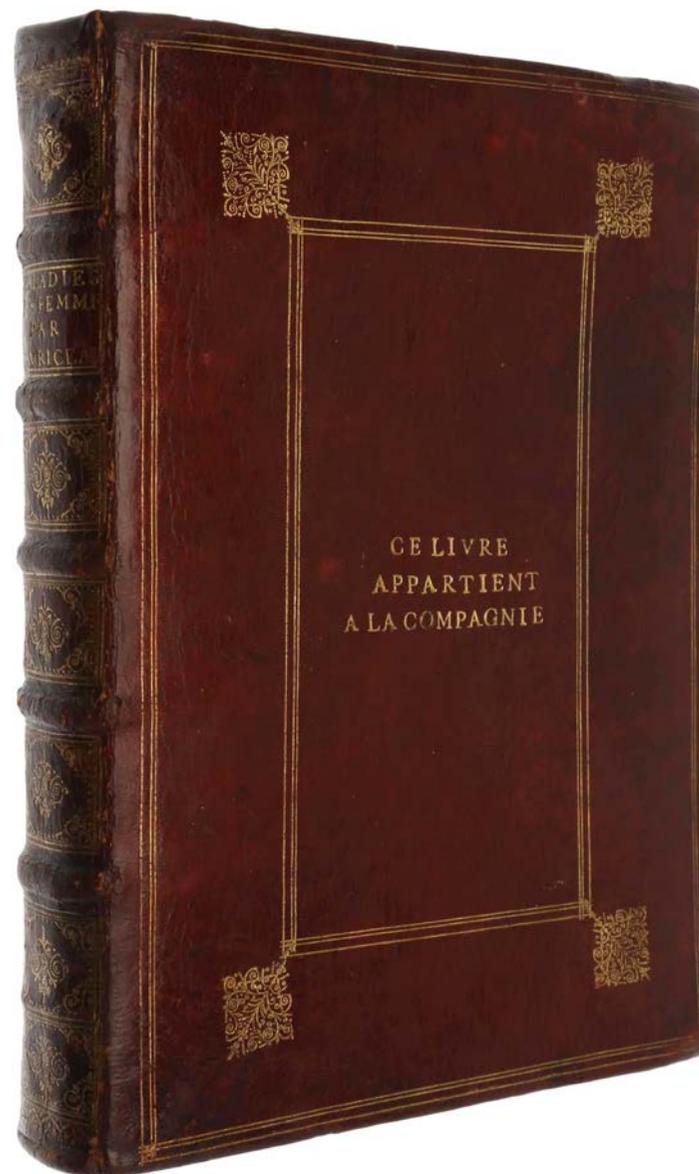
MAURICEAU, François. *Des maladies des femmes grosses et accouchées...* Paris: Chez Jean Henault, Jean d'Houry, Robert de Ninville, Jean Baptiste Coignard, 1668.

\$45,000

4to (245 x 185 mm). [24, including engraved frontispiece by Guillaume Vallet after Antoine Paillet and letter-press title] 536 pp., including 11 full or nearly full-page, 15 half-page and 3 quarter page engravings in text. In a contemporary presentation binding of red morocco gilt, ruled in red throughout. Mauriceau's autograph cipher at the end of the printed dedication followed by three inscriptions signed by Mauriceau's cipher at the end of the printed dedication, dated 1675, 1681 and 1694.

The dedication copy of the first edition of this groundbreaking medical work which “established obstetrics as a science” (G&M). This is a superb copy in a presentation binding of contemporary red morocco stamped with the name of the dedicatees—Les Maistres Chirurgiens Jurez de Paris—and with three signed inscriptions by the author at the end of the printed dedication, announcing the publication of his work's later 17th century revised editions. “This book was without question the most practical, explicit and accurate of the then known treatises on midwifery” (Cutter & Viets, *A Short History of Midwifery*, p. 51).

<http://sophiararebooks.com/4526>



THE FOUNDATION WORK OF ELECTROMAGNETISM - THE FINEST COPY WE HAVE SEEN

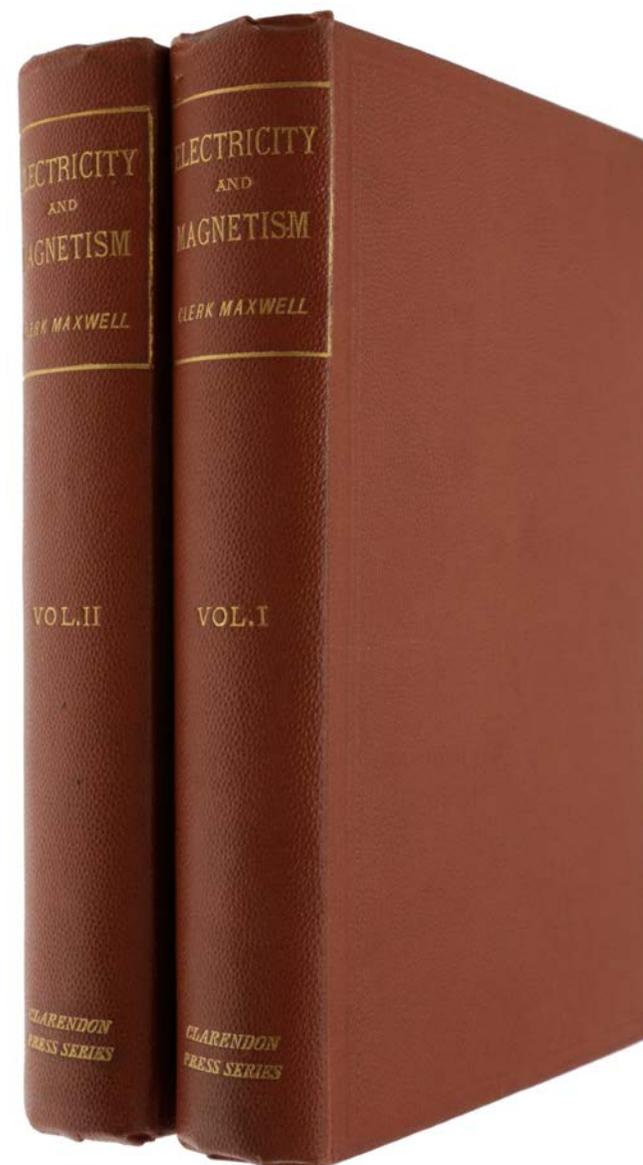
MAXWELL, James Clerk. *A treatise on electricity and magnetism*. Oxford: Clarendon Press, 1873.

\$16,000

Two volumes, 8vo (223 x 140 mm), pp. [i-v] vi-xxix [1:blank], [2:errata leaf] [2:part-title] [1] 2-425, [3], lithographed plate inserted after p. 148, and 13 plates bound in at the end; [i-v] vi-xxiii [1:blank], [2:errata leaf], [1] 2-444, [2] and 7 plates. Second volume entirely unopened. Original publisher's cloth. An immaculate and completely mint set. Highly scarce in such pristine condition.

First edition, second issue, of Maxwell's presentation of his theory of **electromagnetism**, advancing ideas that would become essential for modern physics, including the landmark "hypothesis that light and electricity are the same in their ultimate nature" (Grolier/Horblit). "This treatise did for electromagnetism what Newton's *Principia* had done from classical mechanics.

<http://sophiararebooks.com/4642>



BABBAGE'S ANALYTICAL ENGINE - THE FIRST EXAMPLES OF COMPUTER PROGRAMS EVER PUBLISHED

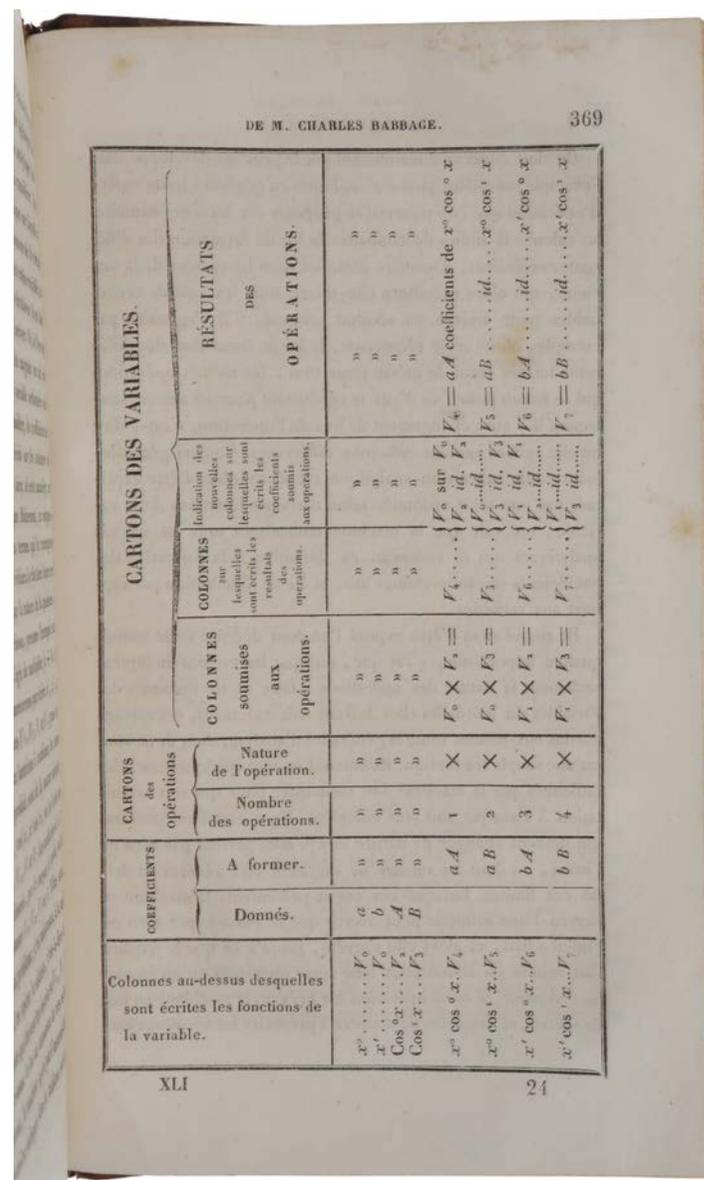
MENABREA, Luigi Federico. *Notions sur la machine analytique de M. Charles Babbage*. Paris: Anselin, 1842.

\$25,000

Pp. 352-376 in: *Bibliothèque Universelle de Genève. Nouvelle série, Tome 41. 8vo (213 x 128 mm), pp. [5], 6-420, with folding table and plate, several tables printed within text. Contemporary quarter-calf and marbled boards, spine richly gilt with two lettering-pieces (binding a little rubbed, two old institutional stamps on title, faint dampstain in lower margin at beginning, light browning and foxing).*

First edition, journal issue, of the only public presentation that Babbage ever made concerning the design and operation of the Analytical Engine. "This was the first published account of Charles Babbage's **Analytical Engine** and the first account of its logical design, including the first examples of computer programs ever published." (historyofinformation.com).

<http://sophiararebooks.com/4494>



THE FIRST AMERICAN-BORN NOBEL LAUREATE

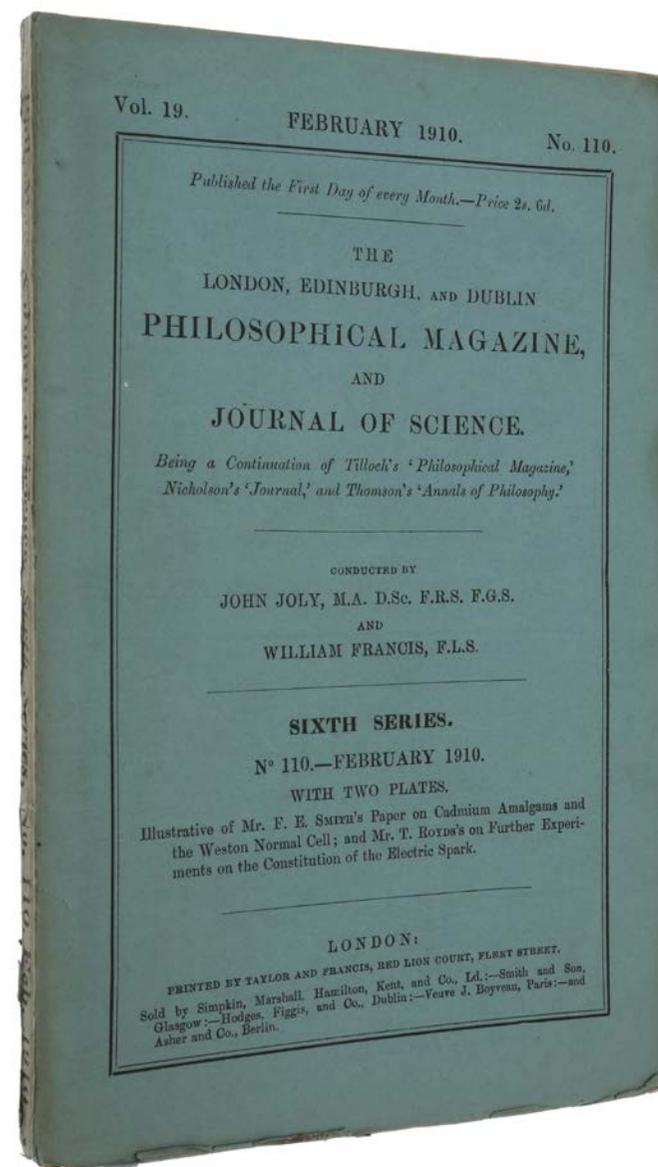
MILLIKAN, Robert Andrews. *A New Modification of the Cloud Method of Determining the Elementary Electrical Charge and the Most Probable Value of that Charge.* London: Taylor & Francis, 1910.

\$4,500

Contained in: The Philosophical Magazine for February 1910, vol 19, no. 110, pp. 209-228. The entire issue offered here, uncut and unopened in the original blue printed wrappers (spine strip with some very good restoration, hardly noticeable). 8vo (225 x 147 mm). Rare in such fine condition.

A fine copy of Millikan's famous experiment, in which he first provided the definitive proof that all electrical charges are exact multiples of a definite, fundamental value—the charge of the electron. Millikan's experiment is nowadays known as the '**oil-drop experiment**' due to a later improvement by Millikan and his student Harvey Fletcher in 1910 – using oil in the cloud chamber – but it was in this paper (although water and alcohol were the liquids used) that Millikan first made precise measurements of the charge on single isolated droplets instead of as earlier just statistical averages on the surface of clouds of droplets. In 1923 Millikan became the first American-born Nobel laureate for this work together with his 1916 determination of Planck's constant on the basis of Einstein's theory of the photoelectric effect.

<http://sophiararebooks.com/4548>



THE FOUNDING WORK OF THE FIELD OF PROBABILITY AND STATISTICS

MOIVRE, Abraham de. *The Doctrine of Chances: or, A Method of Calculating the Probability of Events in Play*. London: W[illiam]. Pearson for the Author, 1718.

\$18,500

Large 4to, pp. [iv], xiv, 175, [1, blank]. Engraved vignette on title and engraved head- & tailpieces. Contemporary panelled calf, spine richly gilt in compartments with red-lettering piece. Preserved in a black morocco-backed folding box, gilt lettering on spine.

First edition, and an unusually fine copy without any restoration, of this classic on the theory of probability, **the first original work on the subject in English**. “De Moivre’s book on chances is considered the foundation for the field of probability and statistics” (Tomash). *Provenance*: Nathaniel Cholmley (1721-91), British Member of Parliament from 1756 to 1774 (bookplate on front paste-down). Erwin Tomash (book label on front paste-down).

<http://sophiararebooks.com/4637>



The DOCTRINE OF CHANCES.

INTRODUCTION.

THE Probability of an Event is greater, or less, according to the number of Chances by which it may Happen, compar'd with the number of all the Chances, by which it may either Happen or Fail.

Thus, If an Event has 3 Chances to Happen, and 2 to Fail; the Probability of its Happening may be estimat'd to be $\frac{3}{5}$, and the Probability of its Failing $\frac{2}{5}$.

Therefore, if the Probability of Happening and Failing are added together, the Sum will always be equal to Unity.

B

IF

THE EARLIEST BOOK DEDICATED ENTIRELY TO PROBABILITY

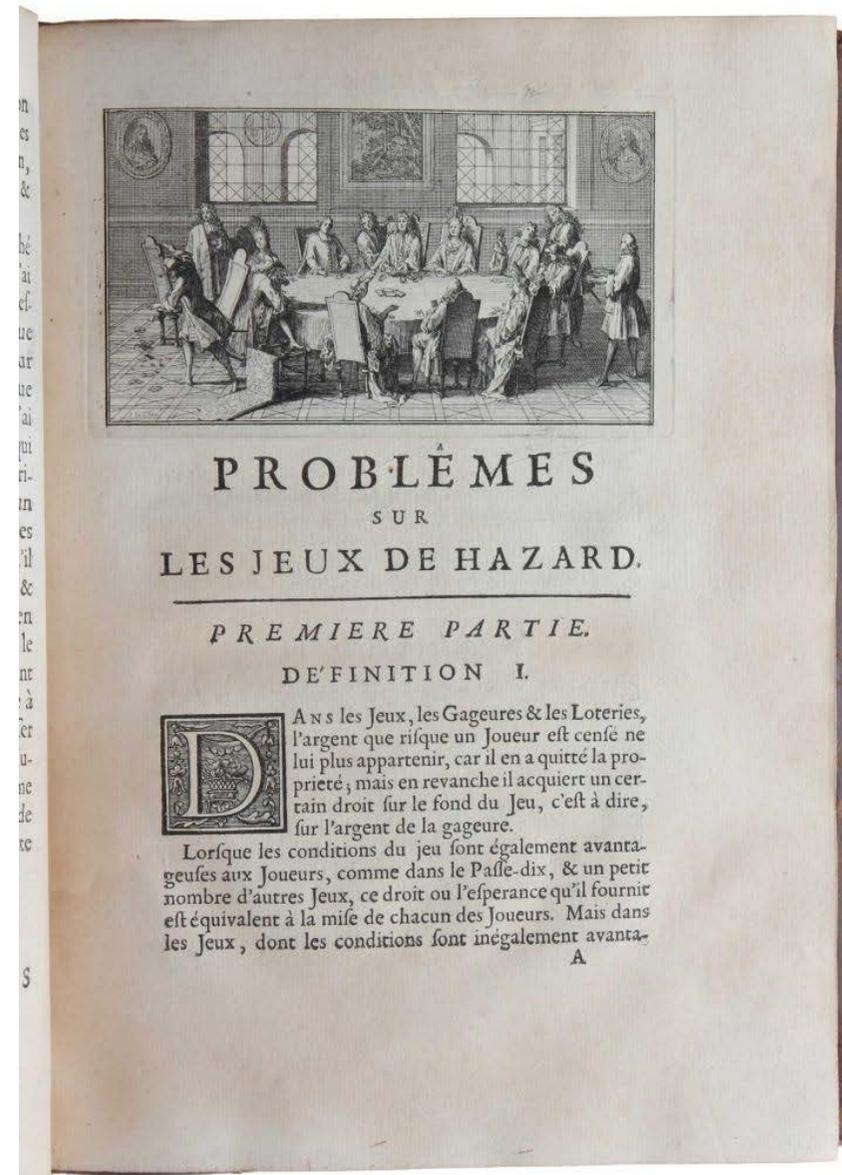
[MONTMORT, Pierre Rémond de]. *Essay d'Analyse sur les Jeux de Hazard*. Paris: Jacque Quillau, 1708.

\$14,000

4to (249 x 180 mm), pp. xxiv, 189, [3]. Contemporary calf, spine richly gilt, some light wear to joints and spine. Engraved vignette on title, author's name added in fine manuscript (the work was published anonymously), several headpieces showing gambling scenes, and two engraved figures in text of the backgammon board (light browning to some gatherings, old library stamp partially removed from title).

Very rare first issue of the first edition, of the first separately published textbook of probability. This issue has significant textual differences from what is usually referred to as the first edition. "In 1708 [Montmort] published his work on Chances, where with the courage of Columbus he revealed a new world to mathematicians" (Todhunter, p. 78). "The *Essay* (1708) is the first published comprehensive text on probability theory, and it represents a considerable advance compared with the treatises of Huygens (1657) and Pascal (1665).

<http://sophiararebooks.com/4632>



PMM 407 - THE ATOMIC TABLE

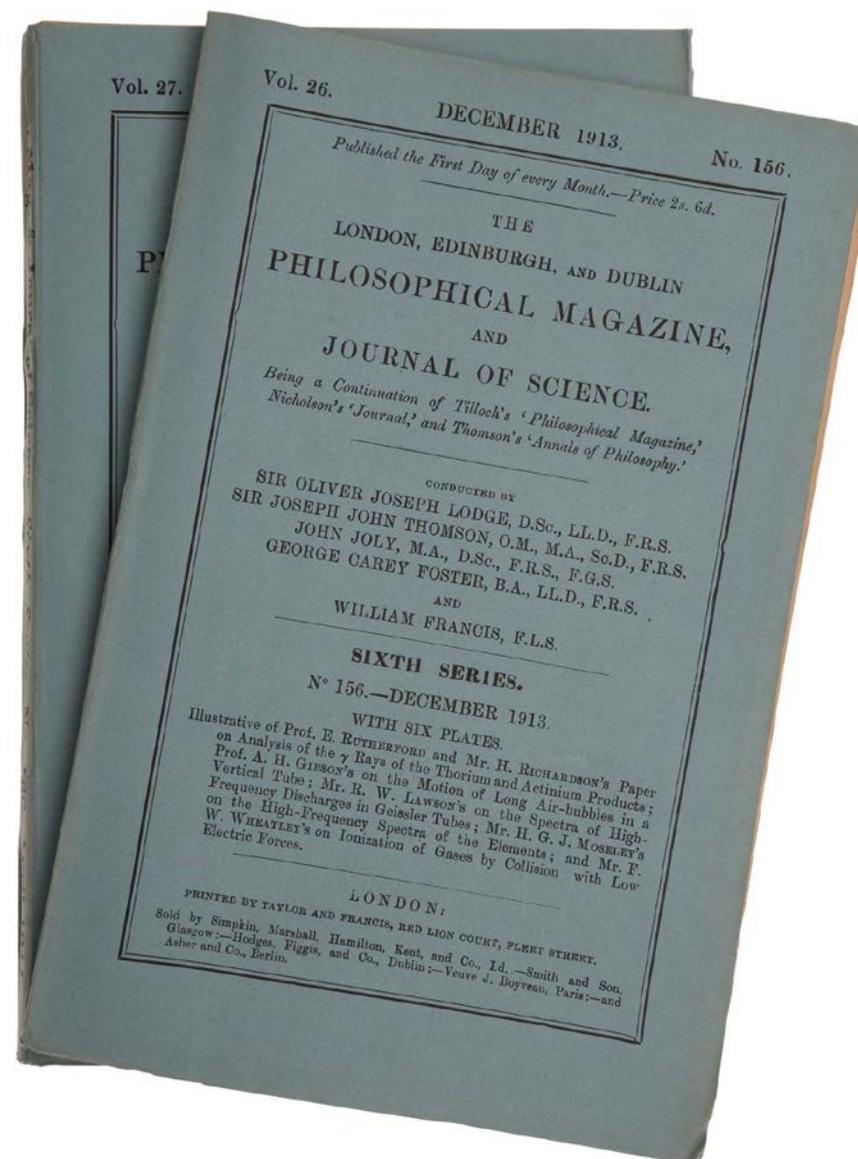
MOSELEY, Henry Gwyn Jeffreys. *The High-Frequency Spectra of the Elements, I-II.* London: Taylor and Francis, 1913-14.

\$9,500

Two issues, untouched in the original printed wrappers, of the Philosophical Magazine, pp. 1024-34, Sixth Series, Vol. 26, no. 156, December 1913 [- pp. 703-13 in Vol. 27, no. 160, April 1914]. Very rare in such fine condition.

First edition, an exceptionally fine set of both parts of this landmark work, journal issue, in the original printed wrappers. "In 1913 and 1914, respectively, Moseley (1887-1915) published two papers which, once and for all, established a firm connection of the Periodic Table, which was based on empirical chemistry, to the physical structure of atoms" (Brandt, p. 97). "Moseley, working under Rutherford at Manchester, used the method of X-ray spectroscopy devised by the Braggs to calculate variations in the wavelength of the rays emitted by each element. These he was able to arrange in a series according to the nuclear charge of each element ... These figures Moseley called atomic numbers. He pointed out that they also represented a corresponding increase in extra-nuclear electrons and that it is the number and arrangement of these electrons rather than the atomic weight that determines the properties of an element. It was now possible to base the periodic table on a firm foundation, and to state with confidence that the number of elements up to uranium is limited to 92" (PMM).

<http://sophiararebooks.com/4607>



NAPIER'S FIRST DESCRIPTION OF HIS METHOD OF CONSTRUCTING LOGARITHMS

NAPIER, John. *Mirifici logarithmorum canonis constructio; et eorum ad naturales ipsorum numeros habitudines...* Edinburgh: Andrew Hart, 1619. [Bound with:] GREGORY, James. *Vera circuli et hyperbolae quadratura, in propria sua proportionis specie, inventa, & demonstrata.* Padua: Giacomo Cadorino, [1667].

\$18,500

Three works bound in one vol., small 4to. *Constructio*: pp. [2, woodcut title], 67. *Quadratura*: pp. 63, with one folding engraved plate. *Devises*: pp. [2, engraved frontispiece], [viii], 87, with 10 unnumbered leaves with images of coins inserted between pp. 42 & 43 (light damp-stain to first few leaves of *Constructio*, some cropping of headlines and catchwords, slightly affecting text in *Quadratura*, engraved title of *Constructio* folded in at fore-edge and slightly cropped at head). Mid-eighteenth-century half-calf and marbled boards, spine with red-lettering piece and floral gilt ornament in each panel, red edges.

First edition, extremely rare, of this complement to Napier's epoch-making *Mirifici logarithmorum canonis descriptio* (1614) – while the *Descriptio* gave the first ever table of logarithms, it was in the *Constructio* that Napier explained the method of their construction. It is here bound with the first edition of James Gregory's first mathematical work, highly important in the pre-history of calculus, and even rarer than the Napier.

<http://sophiararebooks.com/4638>



NEWTON'S IDENTITIES

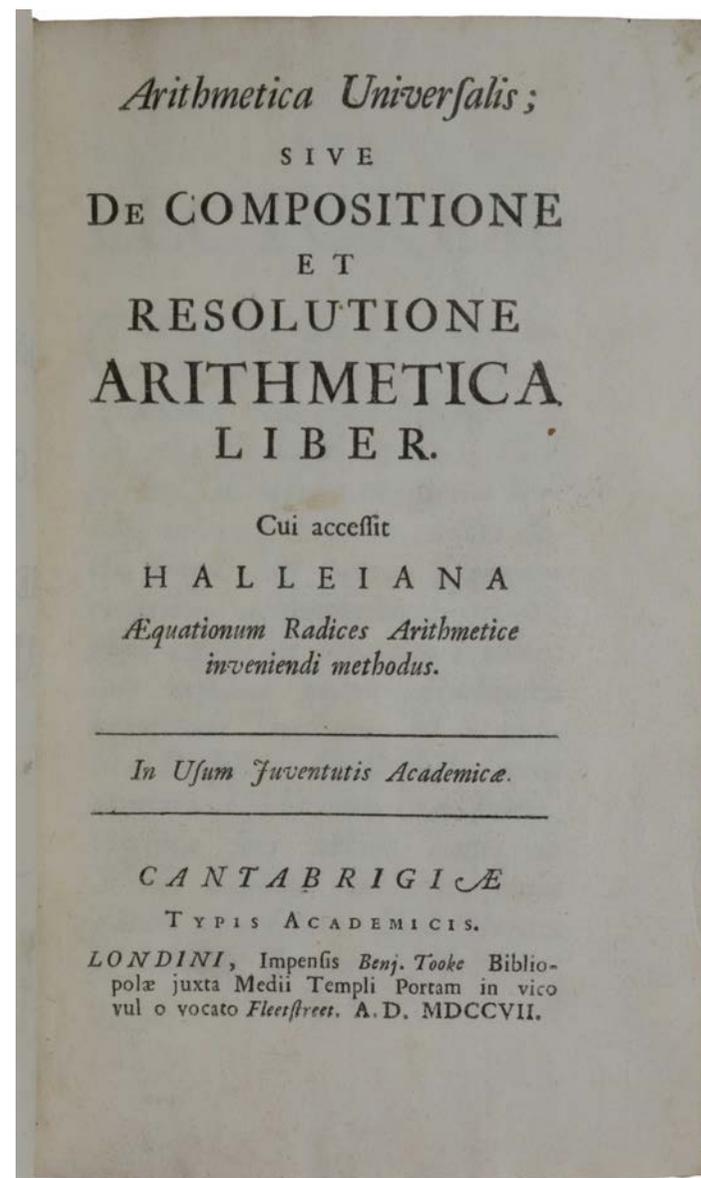
NEWTON, Sir Isaac. *Arithmetica Universalis; sive de Compositione et Resolutione Arithmetica Liber. Cui accessit Helleiana Aequationum Radices Arithmetice Inveniendi Methodus ...* Cambridge; London: Typis Academicus; Benjamin Tooke, 1707.

\$25,000

8vo, pp. [viii], 343. Woodcut diagrams throughout. Former owner's signature (F. Percy White, Feb. 1920?) on half-title partially erased. Contemporary mottled calf, covers with floral border and corner fleurons in blind.

First edition of Newton's treatise on algebra, or 'universal arithmetic,' his "most often read and republished mathematical work" (Whiteside). "Included are 'Newton's identities' providing expressions for the sums of the i^{th} powers of the roots of any polynomial equation, for any integer i [pp. 251-2], plus a rule providing an upper bound for the positive roots of a polynomial, and a generalization, to imaginary roots, of René Descartes' Rule of Signs [pp. 242-5]" (Parkinson, p. 138). About this last rule for determining the number of imaginary roots of a polynomial (which Newton offered without proof), Gjertsen (p. 35) notes: "Some idea of its originality ... can be gathered from the fact that it was not until 1865 that the rule was derived in a rigorous manner by James Sylvester." (*ibid.*). Provenance: Jesuit College at Ghent (ink inscription 'Bibliotheca Collegii Gandavensis Soc[ietatis] Jesu.' and shelfmark on title); extensive marginal annotations by a well-informed contemporary reader. This reader was possibly the English Jesuit Christopher Maier (1697-1767).

<http://sophiararebooks.com/4639>



FIRST PRINTING OF THE GENERAL SCHOLIUM

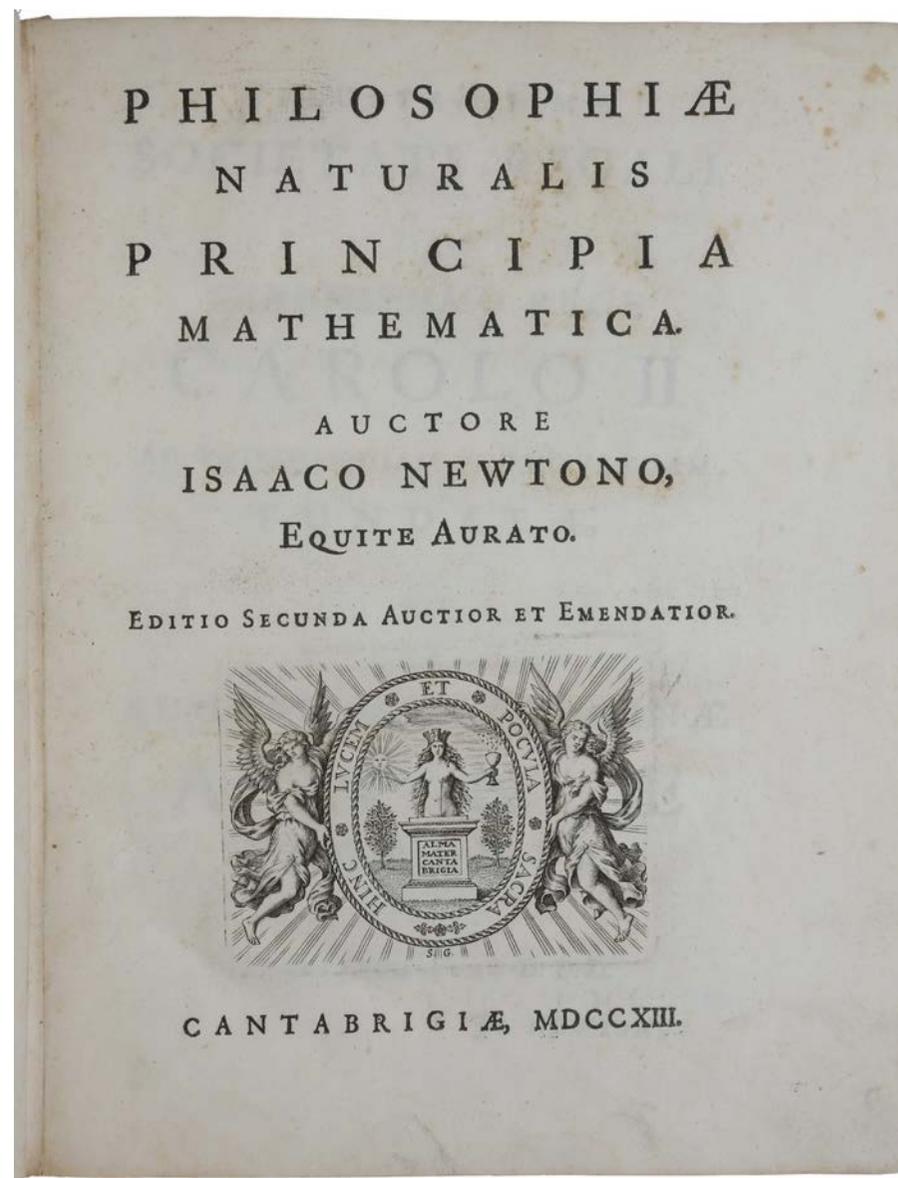
NEWTON, Sir Isaac. *Philosophiae naturalis principia mathematica. Editio secunda auctior et emendatior*. Cambridge: [Cornelius Crownfield at the University Press], 1713.

\$45,000

4to (239 x 190 mm), pp. [xxviii], 484, [8], with engraved device on title, folding engraved plate of the cometary orbit at page 465, woodcut diagrams throughout. Contemporary halfvellum, a 7cm split to the lower rear hinge, corners with slight wear.

The important second edition of “**the greatest work in the history of science**” (PMM). Published twenty-six years after the first, this second edition of Newton’s *Principia* was edited by Roger Cotes (1682-1716), it contains his notable preface in which he attacks the Cartesian philosophy “and refutes an assertion that Newton’s theory of attraction is a *causa occulta*” (Babson). With a second preface by Newton-, and substantial additions, its chapters on the lunar theory and the theory of comets are expanded. But the most important addition is the *Scholium generale*, which appears here in print for the first time. “The General Scholium, added to the *Principia* in 1713, is probably Newton’s most famous writing... In this text, Newton not only challenges the natural philosophy of Descartes, counters criticism levelled against him by Leibniz and appeals for universal gravitation and an inductive method, but he embeds a subversive attack on the doctrine of the Trinity, which he believed was a fourth-century corruption of Christianity” (The Newton Project).

<http://sophiararebooks.com/4606>



IN EXCEPTIONALLY RARE ORIGINAL PUBLISHER'S BINDING

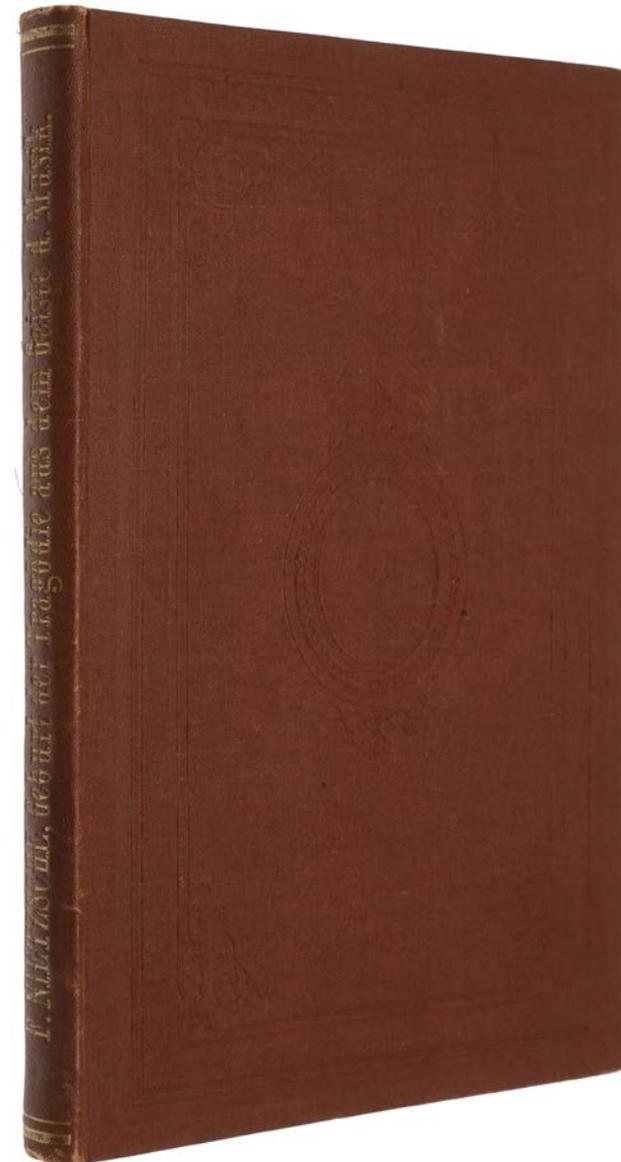
NIETZSCHE, Friedrich. *Die Geburt der Tragödie aus dem Geiste der Musik*. Leipzig: E.W. Fritzschn, 1872.

\$14,500

8vo (216 x 138 mm) pp. [i-iii] iv [1] 2-143 [144]. Original publisher's dark-rust binding with an ornate blind-stamped design on the front and rear covers and the spine lettered and filleted in gilt. There is some light browning to the edges of the page margins and light foxing throughout. Rear hinge with a 10 cm split. Entirely unrestored copy in its original state. An extremely well preserved copy of this unusual and all-but-unobtainable original publisher's cloth binding.

First edition in exceptionally rare original publisher's cloth binding. This copy previously handled by Bill Schaberg: "When I wrote *The Nietzsche Canon: A Publication History and Bibliography* (The University of Chicago Press, 1995), I had never even heard of these cloth copies of Nietzsche's first book, put out by his publisher, Fritzschn. So, it was quite a shock when someone offered this copy to me. It turns out that Fritzschn's contemporary advertisements for the book mention a cloth binding, so this is not just a figment of some bookseller's imagination."

<http://sophiararebooks.com/4535>



PMM 289 - MEASURING ELECTRICITY

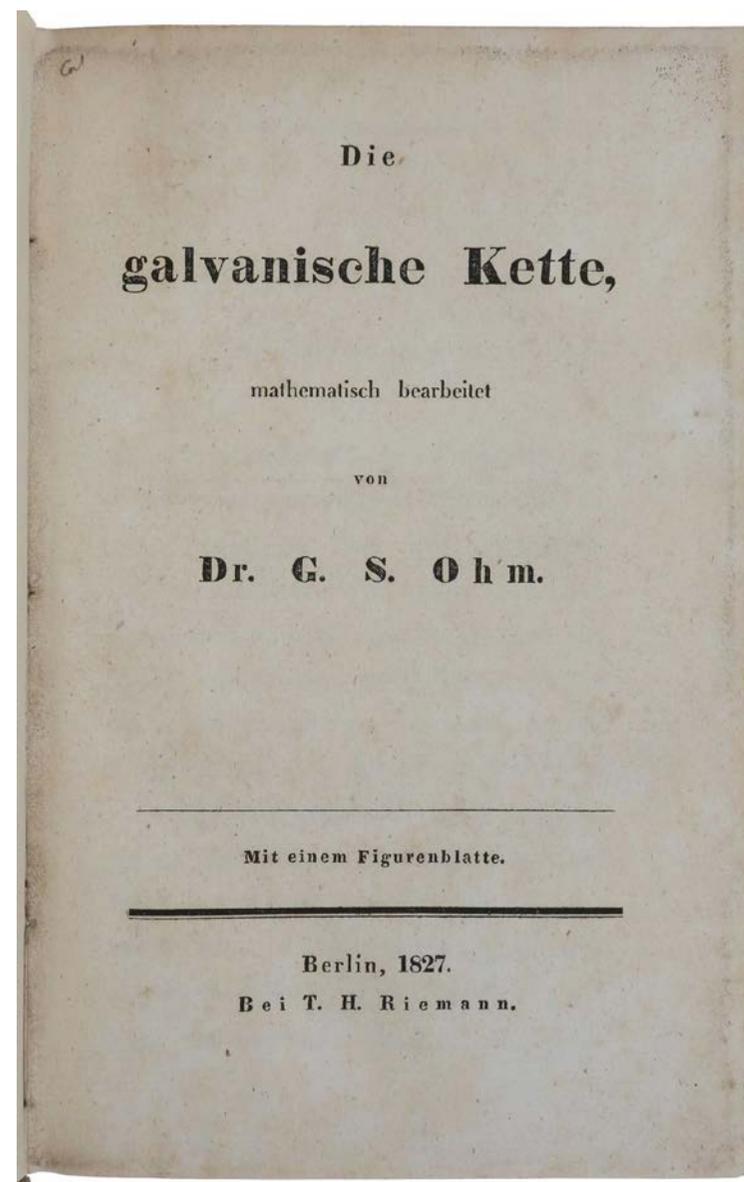
OHM, Georg Simon. *Die galvanische Kette, mathematisch bearbeitet.* Berlin: J.G.F. Kniestädt for T.H. Riemann, 1827.

\$29,500

8vo (197 x 127 mm), pp. iv, 245 (errata on p. 245), [1, blank], [2, publisher's advertisements]. Contemporary marbled boards, sprinkled edges.

First edition, very rare complete copy, of “Ohm’s great work” (DSB), containing the fully-developed presentation of his theory of electricity, including **Ohm’s Law**. The present copy not only retains the errata leaf R1, often lacking, but also the one-leaf publisher’s list R2, which is almost always missing (the Dibner, Horblit/Evans, Norman, Waller and Wellcome copies, and the copy described by Grolier Science, all lack the leaf). “Ohm’s great contribution – ‘The Galvanic Chain Mathematically Calculated’ – was to measure the rate of current flow and the effects of resistance on the current. ‘Ohm’s law’ – that the resistance of a given conductor is a constant independent of the voltage applied or the current flowing (that is, $C = E/R$, where C = current, E = electromotive force and R = resistance) – was arrived at theoretically by analogy with Fourier’s heat measurements (1800-14)” (PMM). Although copies of this book appear with some regularity on the market, we have found only three absolutely complete copies, as here, at auction since 1938. The Elihu Thomson copy, sold Christie’s New York, 1999 (\$11500), was subsequently offered by Jonathan Hill, who wrote (Cat. 131, No. 71), “I have had a good number of copies of this book and this is the first to have the leaf of ads”.

<http://sophiararebooks.com/4599>



THE PLAGUE, SMALLPOX, AND MEASLES

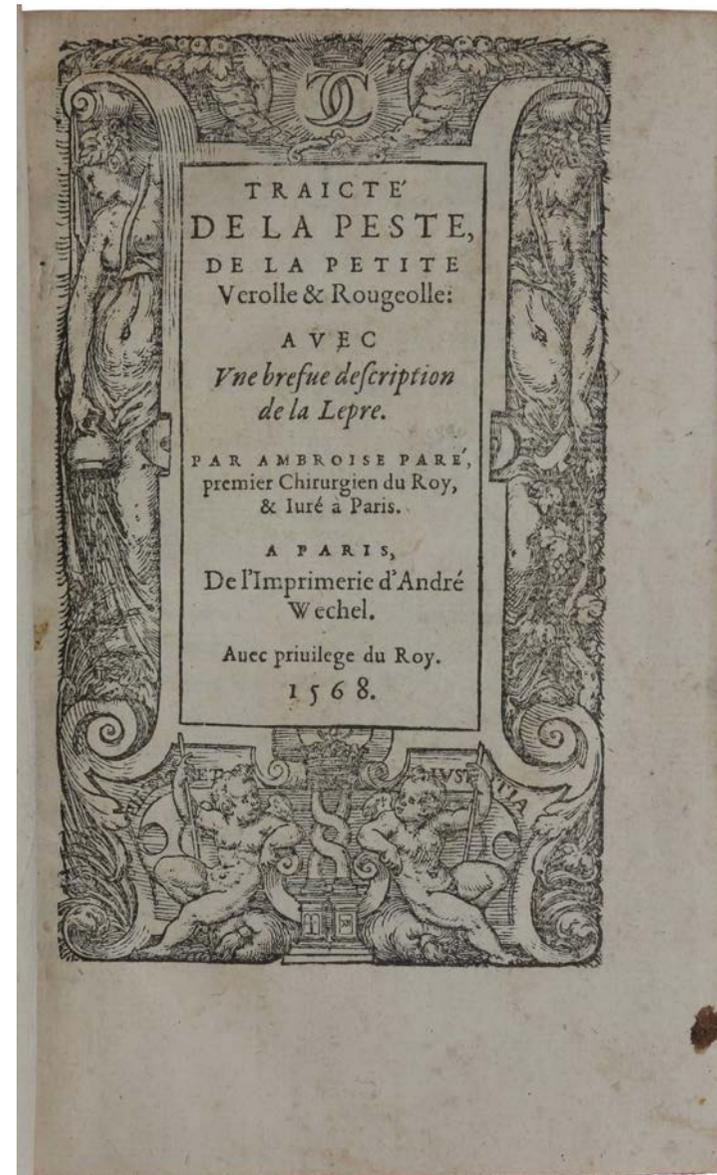
PARÉ, Ambroise. *Traicté de la peste, de la petite verolle & rougeolle: avec une brefve description de la lepre.* Paris: André Wechel, 1568.

\$65,000

8vo, pp. [xvi], 235 (recte 275), [4] (last leaf blank) (light browning and dampstaining, minor marginal worming). With woodcut title-border and woodcut printer's device at end. Seventeenth-century calf, spine with floral gilt decoration and lettering-piece (minor worming to upper part of spine, lightly rubbed). A very good and large copy, entirely unrestored.

First edition of Paré's extremely rare treatise on the plague, smallpox and measles, based upon his own direct observations of these diseases, "one of his best works" (Thornton, p. 63). "Paré's original books, all very rare today, were handy volumes, small enough for the field surgeon's knapsack" (Hagelin, p. 35). COPAC lists Wellcome only. ABPC/RBH list only one other copy, in a rebacked 19th century binding and with the final four leaves re-margined (Sotheby's, 15 June 2005, lot 49, €18,000). The present copy, in a 17th century binding, is entirely unrestored.

<http://sophiararebooks.com/4567>



PMM 385 - CONDITIONED REFLEXES

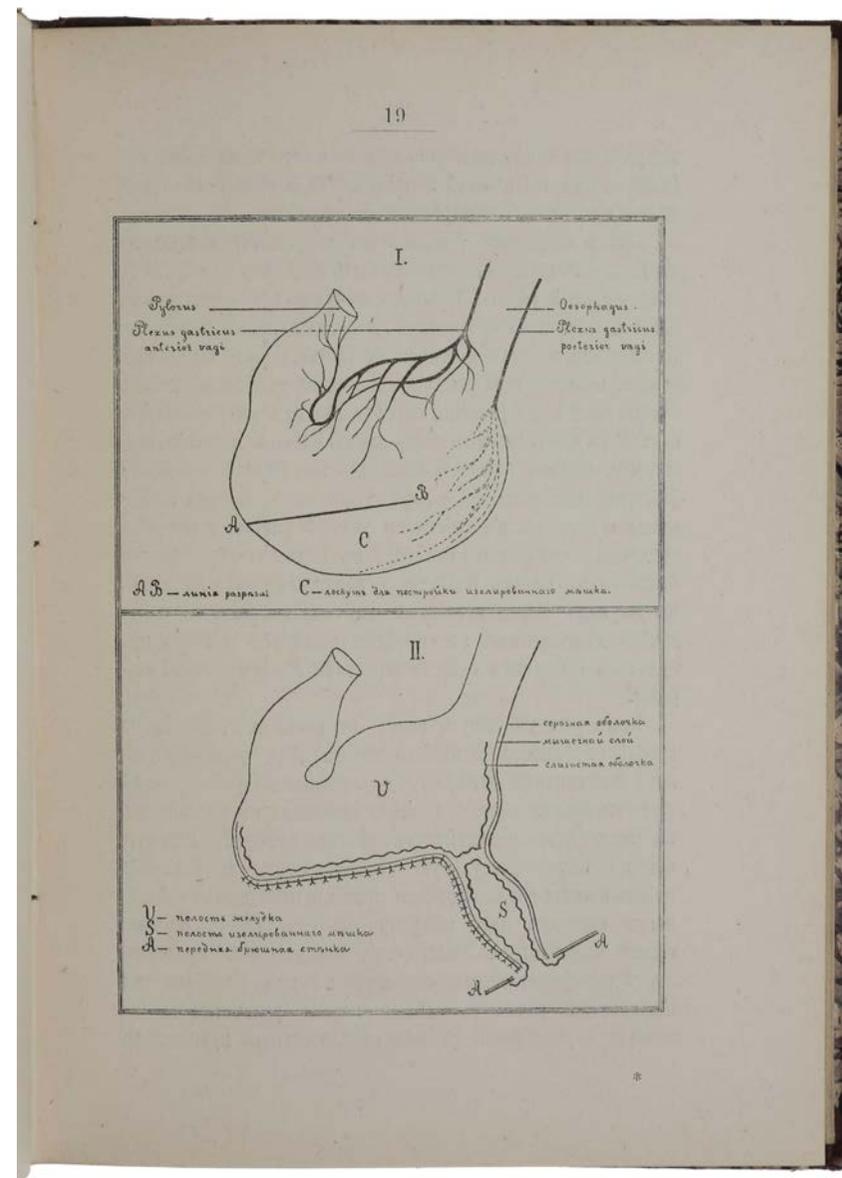
PAVLOV, Ivan Petrovitch. *Lektsii o rabotie glavnikh pishshevaritelnykh zhelyos.*
St. Petersburg: I. N. Kushnereff & Ko., 1897.

\$20,000

8vo (184 x 130 mm), pp. [vi], ii, 223, [1], contemporary Russian brown half calf with gilt spine lettering in cyrillic, initials B.C. of previous owner gilt at bottom of spine. Signature of, dated 1902, to front fly leaf, old Russian booksellers A very fine copy, completely unrestored copy in it's original state.

First edition of this seminal work on biology and neurology, containing the first expression of what Pavlov would later term the 'conditioned reflex'. "From a series of experiments increasingly detailed, and a tabulation of results increasingly exact, he found that virtually any natural phenomenon may be developed into a conditioned stimulus to produce the selected response... All that was necessary was to submit the animal to the selected stimulus at feeding time and the stimulus would eventually cause salivation in the absence of food. The elaboration of these experiments and their extension to children demonstrated how great a proportion of human behaviour is explicable as a series of conditioned reflexes. Indeed some psychologists seem nowadays to believe that behaviour is all. Pavlov's results are, indeed, clearly complementary to those of Freud and many regard them as of more fundamental significance..." (PMM). The Nobel Prize in Physiology or Medicine 1904 was awarded to Ivan Petrovich Pavlov "in recognition of his work on the physiology of digestion, through which knowledge on vital aspects of the subject has been transformed and enlarged."

<http://sophiararebooks.com/4196>



ONE OF THE MOST IMPORTANT ACHIEVEMENTS OF 19TH CENTURY MATHEMATICS

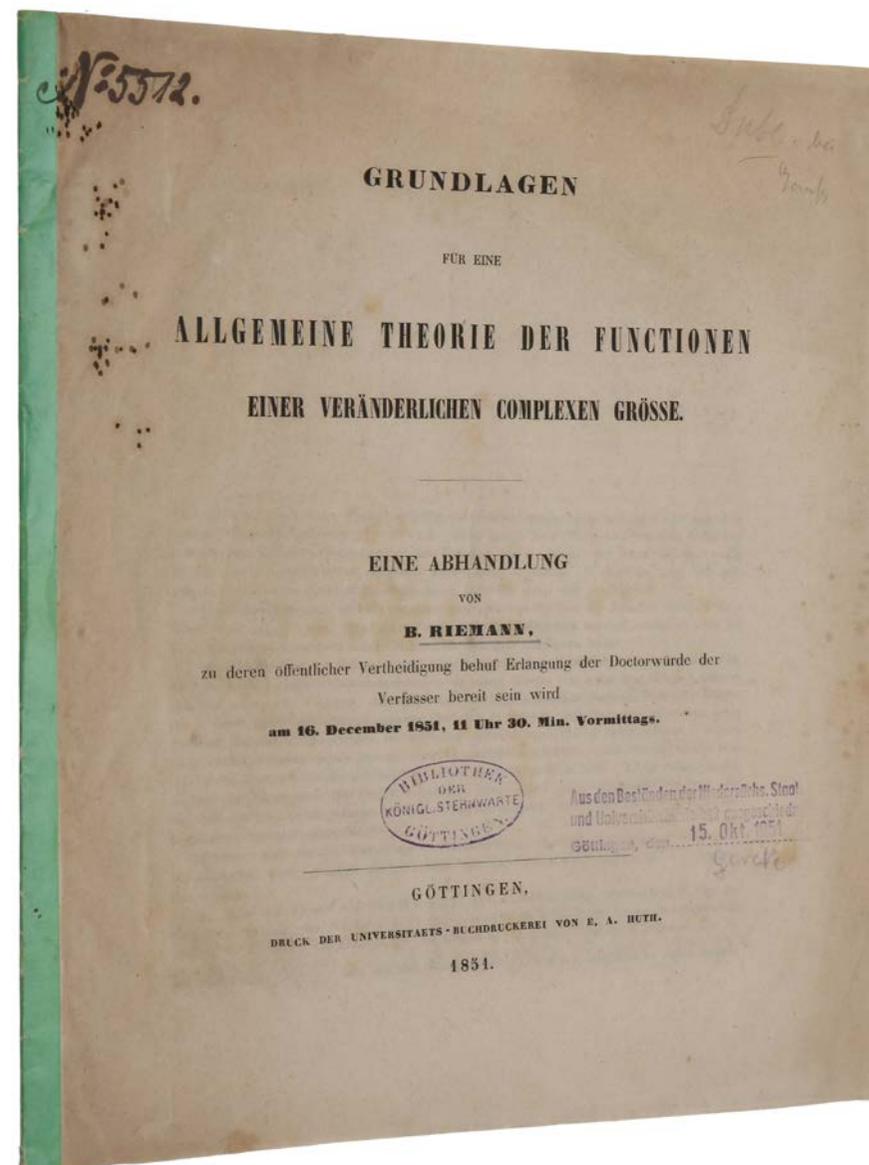
RIEMANN, George Friedrich Bernhard. *Grundlagen für eine allgemeine Theorie der Functionen einer veränderlichen complexen Grösse.* Göttingen: E. A. Huth, 1851.

\$28,500

4to (255 x 211 mm), pp [ii] 32. Stamps on title of the Göttingen Royal Observatory (of which Gauss was director from 1807 to 1855), and of Göttingen State and University Library (deaccessioned by librarian). The leaves contemporarily bound with green paper strip spine.

Very rare first edition of Riemann's *Dissertation*, "one of the most important achievements of 19th century mathematics" (Laugwitz), "which marked a new era in the development of the **theory of analytic functions**" (Kolmogorov & Yushkevich), introducing geometric and topological methods, notably the idea of a 'Riemann surface'. "Riemann's doctoral thesis is, in short, a masterpiece" (Derbyshire). It is also of great rarity, for "although [it] was a printed booklet, it was not usually published or publicised in the normal way; the candidate had to pay for the print-run, and sales and marketing were executed on an infinitesimal scale. So the first printing of Riemann's thesis consisted only of the obligatory copies he had to hand in at Göttingen University, and a few copies for his personal use" *Landmarks in Western Mathematics*, no. 34). The present copy is evidently one of those handed to the University.

<http://sophiararebooks.com/4523>



ONE OF THE MOST LAVISHLY ILLUSTRATED ASTRONOMICAL WORKS

SCHEINER, Christoph. *Rosa ursina sive Sol ex admirando facularum & macularum suarum phoenomeno varius...* Bracciano: Andreas Phaeus, 1626-30.

\$95,000

Folio (352 x 248 mm), pp. [xl, including frontispiece], 1-66, [2, blank], [67]-125, [126]; ff. 126-149, [12, including blank R6]; pp. [2, unpaginated opening leaf of *Liber tertius*], 149-784, [2, blank], [36, index and errata], with engraved frontispiece, engraved plate on title, engraved portrait of Orsini, and 172 engraved plates folded in. Contemporary vellum with manuscript title on spine. Moderate browning and spotting to some leaves - much less than is usually seen in this work.

First edition of the most lavishly illustrated astronomical work published in the first half of the seventeenth century, with many exceptional full-page illustrations of Scheiner's observations of the sun and of the optical instruments he had designed for the purpose. "For his masterpiece, Scheiner produced the first monograph on a heavenly body, the Sun. Even today it is still an impressive volume, with scores of engravings of sunspots and the various instruments needed for solar observations" (*Jesuit Science in the Age of Galileo*). "Scheiner's drawings in the *Rosa Ursina* are of almost modern quality, and there was little improvement in solar imaging until 1905" (*Britannica*).

<http://sophiararebooks.com/4508>



THE FOUNDING PAPER OF INFORMATION THEORY

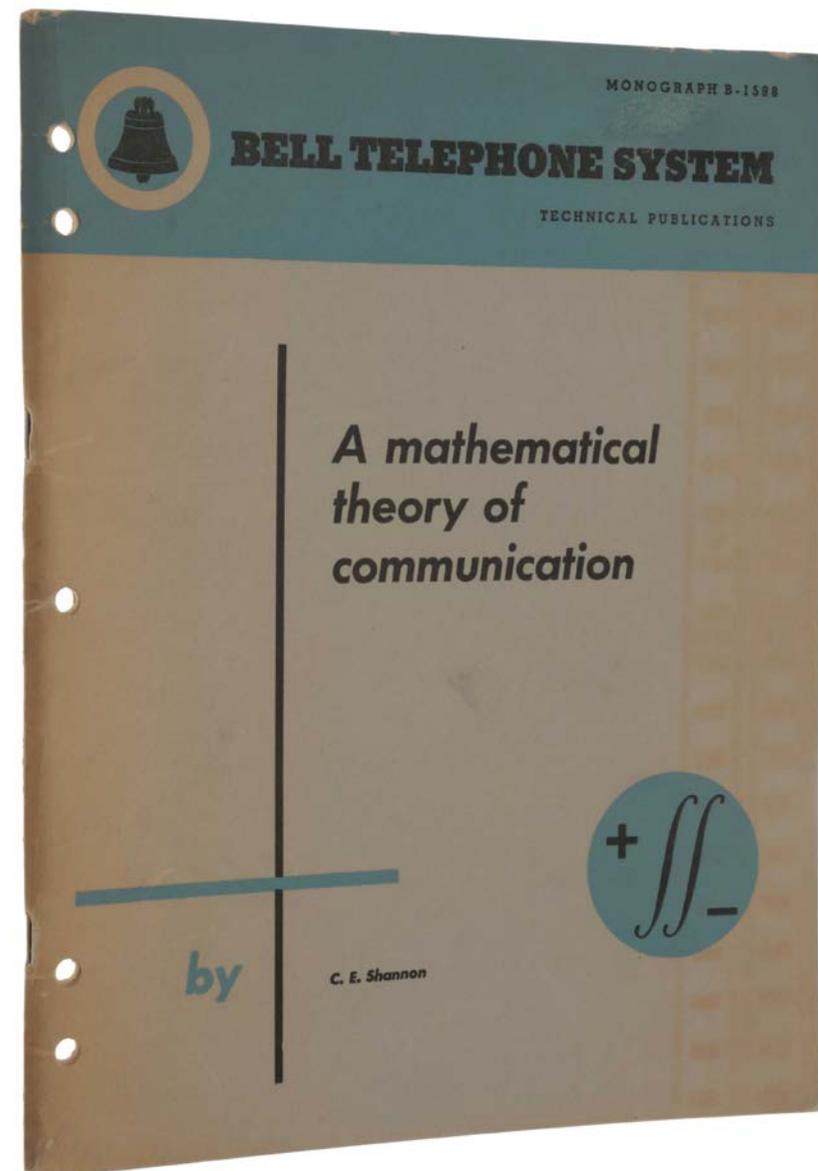
SHANNON, Claude Elwood. *A Mathematical Theory of Communication*. Offprint from Bell System Technical Journal, Vol. 27 (July and October). New York: American Telephone and Telegraph Company, 1948.

\$9,500

4to, pp. 80. Original printed wrappers, hole punched for ring binder (as always), obituary of Shannon pasted onto blank recto of rear wrapper (extracted from *Nature*, Vol. 410, 12 April 2001, p. 768).

First edition, the rare offprint, of “the most famous work in the history of **communication theory**” (*Origins of Cyberspace*). “Probably no single work in this century has more profoundly altered man’s understanding of communication than C. E. Shannon’s article, ‘A mathematical theory of communication,’ first published in 1948” (Slepian). “Th[is] paper gave rise to ‘information theory,’ which includes metaphorical applications in very different disciplines, ranging from biology to linguistics via thermodynamics or quantum physics on the one hand, and a technical discipline of mathematical essence, based on crucial concepts like that of channel capacity, on the other” (DSB).

<http://sophiararebooks.com/4656>



FIRST EDITION OF SPINOZA'S ETHICS

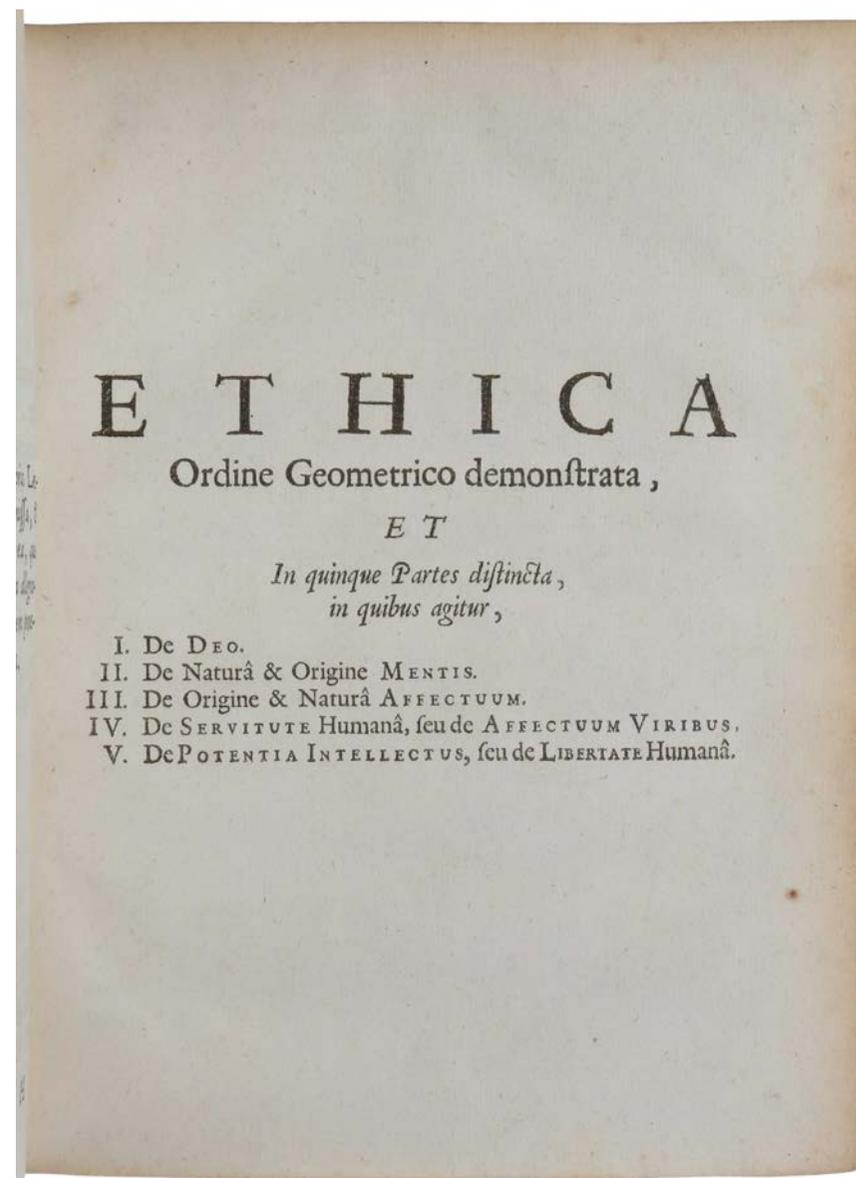
[SPINOZA, Benedictus de] B. d. S. *Opera Posthuma. Quorum series post Praefationem exhibetur.* [Amsterdam: Jan Rieuwertsz], 1677 .

\$17,500

4to, pp. [40], 614, [34], 112, [8], with woodcut vignette on title. Contemporary vellum, handwritten title to spine. A very fine and fresh copy with no restoration at all. Rare in such good condition.

First edition, and a very fine copy, of Spinoza's *Opera Posthuma* which "have served, then and since, with the *Tractatus Theologico-Politicus*, to immortalize his name" (PMM 153). The first work in the volume is "Spinoza's one indisputable masterpiece, the *Ethics*" (Bennett, *A Study of Spinoza's Ethics*, p. 7). The first and "principal work in the *Opera Posthuma* is Spinoza's *Ethics*, in which Spinoza bridged the Cartesian duality of body and spirit by maintaining that the universe, including God, constitutes a unified infinite and all-inclusive 'Substance,' of which corporeality and spirituality were merely attributes – a unity expressed in the controversial phrase 'Deus sive Natura' (God or Nature). *Ethics* is thus considered the first systematic exposition of pantheism, the philosophy in which God is identified with the entire universe" (Norman 1988).

<http://sophiararebooks.com/4364>



DOUBLE-ENTRY BOOK-KEEPING

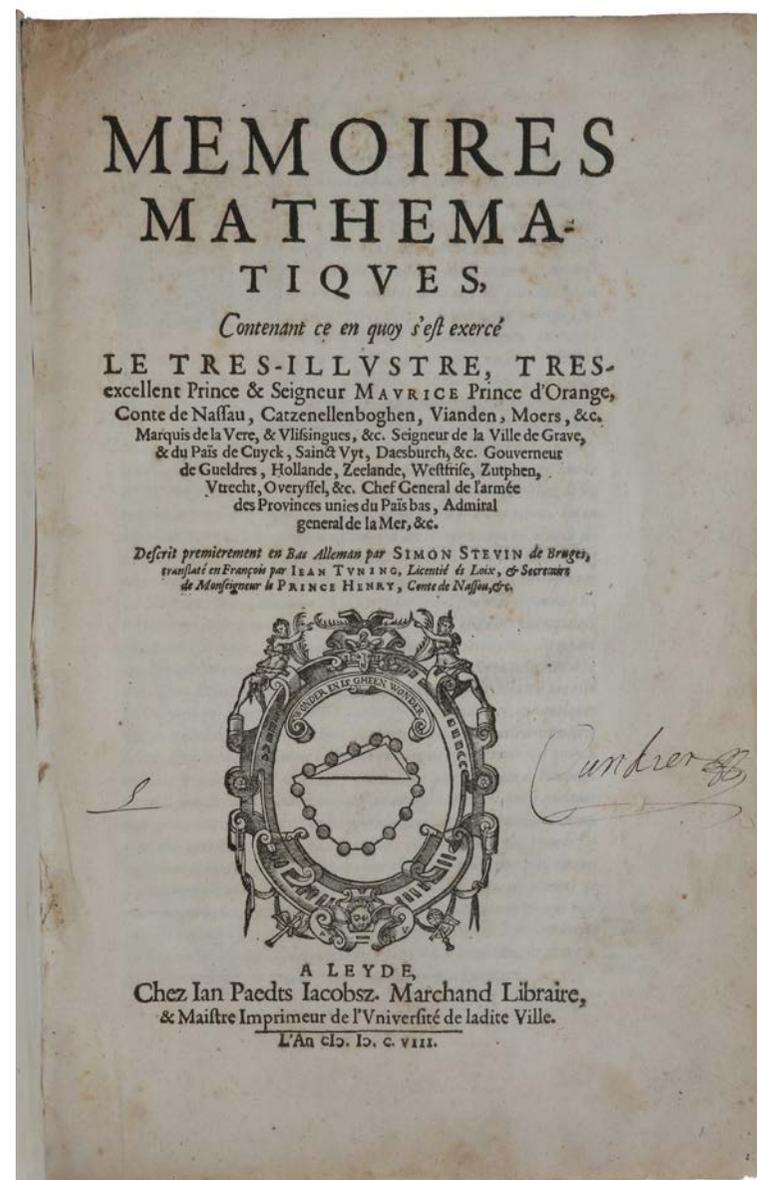
STEVIN, Simon. *Mémoires Mathématiques, Contenant ce en quoy s'est exercé le très-illustre, très-excellent Prince et Seigneur Maurice Prince d'Orange, Conte de Nassau ... translate en François par Jean Tuning*. Leyden: Jan Paedts Jacobsz, 1608-05-05-08.

\$55,000

Four parts in one volume (numbered I, II, III & V), folio (310 x 197mm), pp. [12, last leaf blank], 1-234, 231-360; 132; 91; 10, [2, blank], 21, [3], 6, 58, [2], 8, 108 (including 'Annotation de l'auteur' on pp. 107-108), [2, blank]. Woodcut device of Stevin on title-page, woodcut device of the printer on other titles, woodcut initials and tailpieces, woodcut diagrams (those on B6r and C2r in part III with pasted-on folding flaps). Contemporary vellum over boards with yapped edges, manuscript title along spine. A fine, unrestored copy but for some intermittent browning which commonly affects this book.

Very rare first edition in French of this collection of works, which was published almost simultaneously in Dutch, French and Latin. They deal, among other topics, with geometry, trigonometry, perspective, and double-entry book-keeping – Stevin was one of the first authors to compose a treatise on governmental accounting. The *Appendice Algébrique*, which Sarton called 'one of Stevin's most important publications,' is the first published general method of solving algebraic equations. The only other complete copy of this French edition listed by ABPC/RBH is the De Vitry copy, in a nineteenth-century binding (Sotheby's, April 11, 2002, lot 779, £15,200 = \$21,935). OCLC lists Columbia, Harvard and UCLA only in US.

<http://sophiararebooks.com/4588>



THE RIEMANN HYPOTHESIS

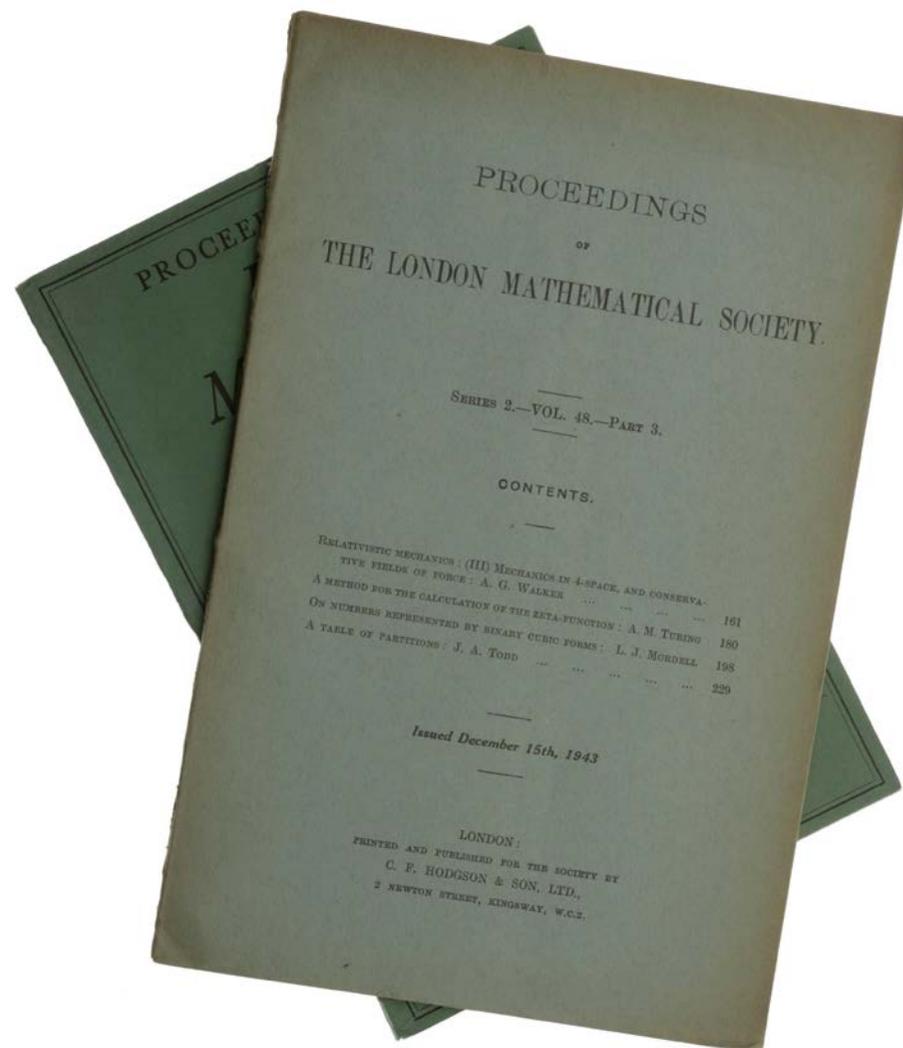
TURING, Alan. 'A Method for the Calculation of the Zeta-Function', pp. 180-197 in *Proceedings of the London Mathematical Society, Series 2, Vol. 48, No. 3, December 15, 1943.* London: C. F. Hodgson and Son, 1943. [Offered with:] 'Some calculations of the Riemann zeta-function,' pp. 99-117 in *ibid.*, Series 3, Vol. 3, No. 9, March 1953. London: C. F. Hodgson and Son, 1943; 1953.

\$3,850

Two vols., large 8vo, pp. 161-240 & 1-128. Original printed wrappers (first volume with tiny chip from upper right corner of front wrapper, edges of wrappers lightly browned, second volume with small closed tear at top of spine). Very good copies.

First edition, journal issues in the original printed wrappers, of Turing's groundbreaking work outlining a method to decide the most famous open problem in mathematics, the so-called Riemann hypothesis. This is a conjecture about the location of the zeros of the 'Riemann zeta function' – it asserts that, apart from some 'trivial' zeros, they all lie on a certain 'critical line.' If true, this would have enormous implications for the study of prime numbers. Turing had worked on the zeta function since 1939 and in 'A Method for the Calculation of the Zeta-Function' he outlined a method of calculating the zeros using a mechanical computer. "The Turing archive contains a sketch of a proposal, in 1939, to build an analog computer that would calculate approximate values for the Riemann zeta-function on the critical line. His ingenious method was published in 1943 [as the present work]" (Downey).

<http://sophiararebooks.com/4646>



CONTINENTAL DRIFT

TUZO WILSON, John. *Did The Atlantic Close And Then Re-Open? Offprint from: Nature, Vol. 211, No. 5050, August 13, 1966.* London: Macmillan, 1966.

\$2,850

8vo (213 x 140 mm), pp. [1] 2-15 [16]. Original light blue printed wrappers.

First edition, very rare offprint, of this landmark paper elucidating the history and mechanism of continental drift by “one of the most imaginative Earth scientists of his generation” (DSB). “In 1966, J. Tuzo Wilson published ‘Did the Atlantic Close and then Re-Open?’ in the journal *Nature*. The Canadian author introduced to the mainstream the idea that continents and oceans are in continuous motion over our planet’s surface. Known as **plate tectonics**, the theory describes the large-scale motion of the outer layer of the Earth. It explains tectonic activity (things like earthquakes and the building of mountain ranges) at the edges of continental landmasses (for instance, the San Andreas Fault in California and the Andes in South America)” (Heron).

<http://sophiararebooks.com/4582>

(Reprinted from *Nature*, Vol. 211, No. 5050, pp. 676-681, August 13, 1966)

DID THE ATLANTIC CLOSE AND THEN RE-OPEN?*

By PROF. J. TUZO WILSON

Institute of Earth Sciences, University of Toronto

FOR more than a century it has been recognized that an unusual feature of the shallow water marine faunas of Lower Palaeozoic time is their division into two clearly marked geographic regions, which are commonly referred to as faunal realms. “The faunal assemblages are amazingly uniform throughout each realm so that correlation of any Cambrian section with another in the same realm is usually easy; on the other hand, the difference between the faunas in the two separate realms is so great as to make correlation between them very difficult”¹.

Two aspects of the distribution of these realms are remarkable. For one thing, some regions of similar faunas are separated by the whole width of the Atlantic Ocean; then, on the other hand, some regions of dissimilar faunas lie adjacent to one another. This is illustrated by Fig. 1, which is based on work by Cowie², Grabau³ and Hutchinson⁴.

Grabau showed that, if Europe and North America had become separated by continental drift, a simple reconstruction could explain the first anomaly in the distribution of the faunal realms in that, before the opening of the Atlantic Ocean, each realm would have been continuous, with no large gaps between outcrops of similar facies (Fig. 2).

It is the object of this article to show that drift can also explain the second anomaly. It is proposed that, in Lower Palaeozoic time, a proto-Atlantic Ocean existed so as to form the boundary between the two realms, and that during Middle and Upper Palaeozoic time the ocean closed by stages, so bringing dissimilar facies together (Fig. 3). The supposed closing of the Tethys Sea by northward movement of India into contact with the rest of Asia, and the partial closing of the Mediterranean by northward movement of Africa, can be regarded as a similar but more recent event. The figures are based on a reconstruction by Bullard, Everett and Smith⁵, but because those authors pointed out that no allowance had been made for the construction of post-Jurassic shelves, the continents have been brought more closely together.

Four lines of evidence suggest that this proposal is reasonable. (Unfortunately, so far as I can ascertain,

*Contributions No. 133 to the Canadian Upper Mantle Project.

SEQUENCING THE HUMAN GENOME

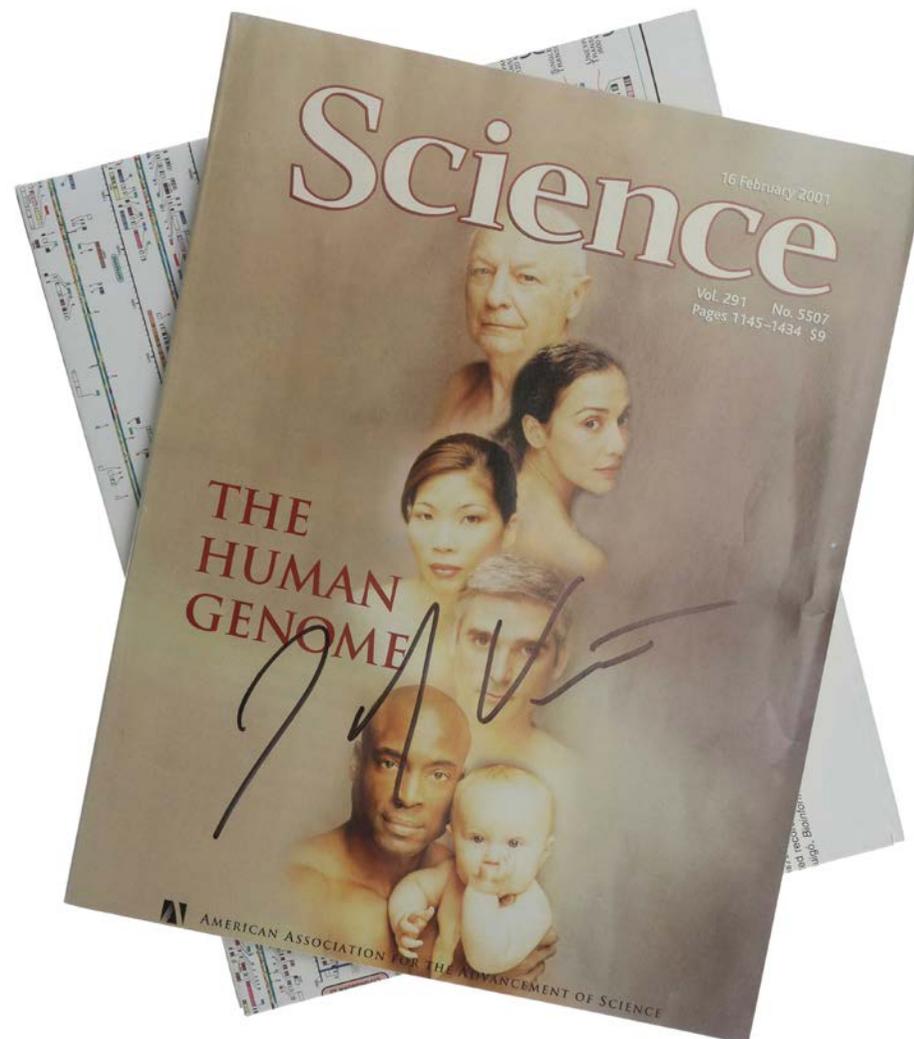
VENTER, J. Craig, et al. *The sequence of the human genome*. 2001.

\$2,500

Pp. 1304-51 in: Science, vol. 291, no. 5507, February 16, 2001. 4to, pp. 1155-1369. Original printed wrappers, signed by Venter on front wrapper, with the very large folding chart 'Annotation of the Celera Human Genome Assembly'.

First edition, journal issue in the original printed wrappers, **signed by Craig Venter**, of the first published announcement of Celera Genomics' sequencing of the human genome. The problem of finding the order of the building blocks of the nucleic acids that make up the entire genetic material of a human was first proposed in 1985, but it was not until 1990 that the Human Genome Project (HGP) was officially initiated in the United States under the direction of the National Institutes of Health (NIH) and the U.S. Department of Energy with a 15-year, \$3 billion plan for sequencing the entire human genome composed of 2.9 billion base pairs.

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THE BIRTH CERTIFICATE OF NUMERICAL ANALYSIS

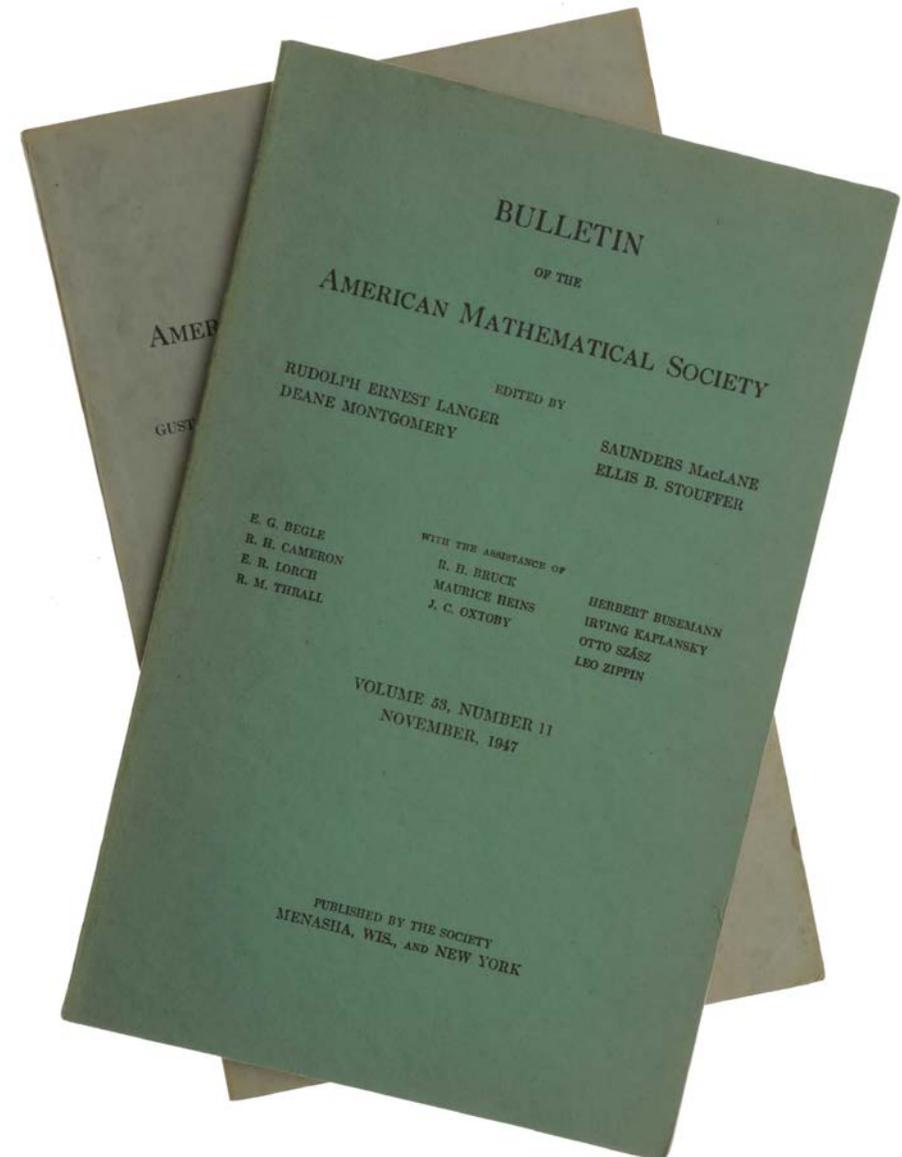
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