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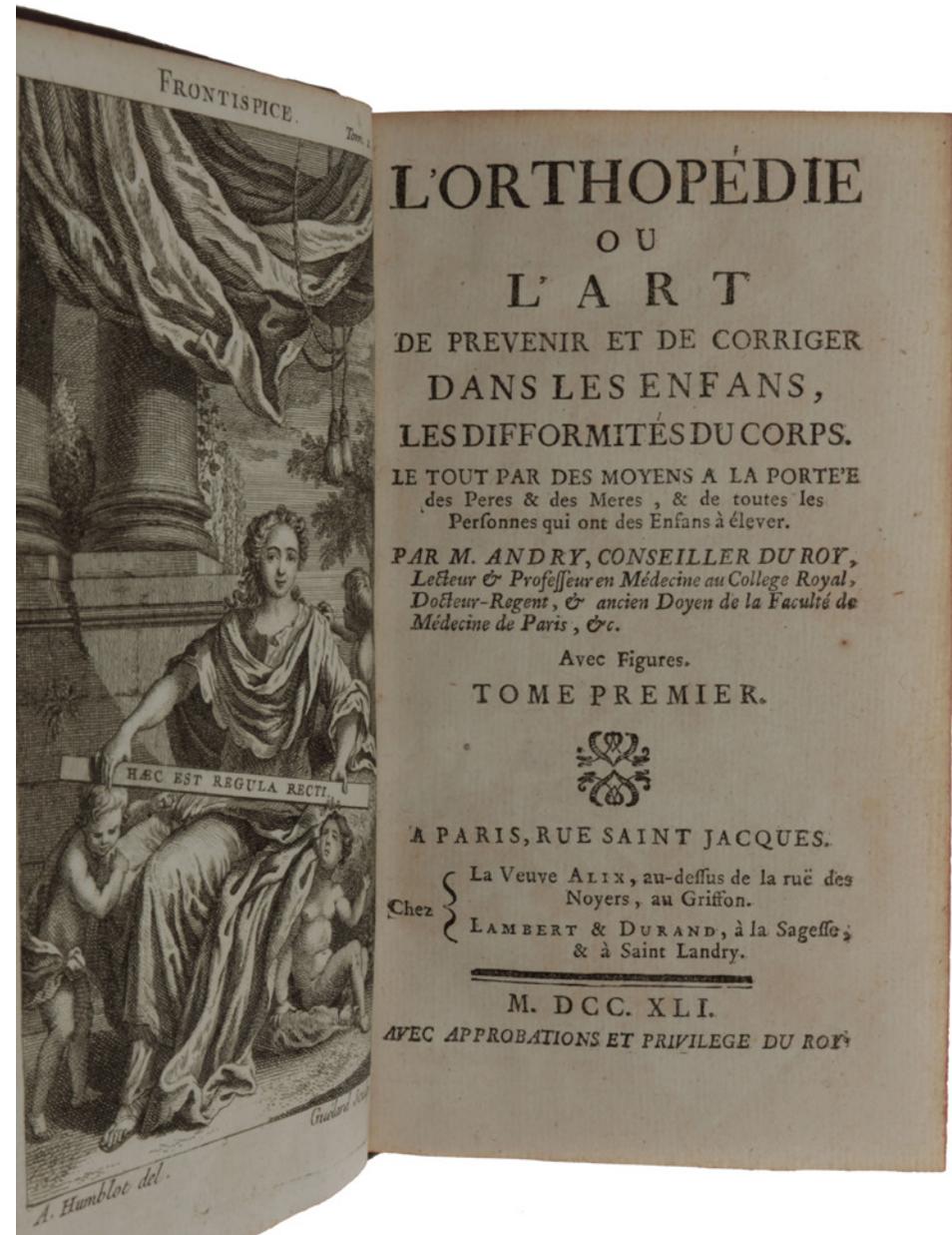
THE FOUNDING WORK OF ORTHOPEDICS

ANDRY, Nicolas. *L'orthopédie ou l'art de prevenir et de corriger dans les enfans, les difformités du corps.* Paris: Chez la veuve Alix; Lambert & Durand, 1741.

\$18,500

First edition, rare, and a very fine copy, of the “first book on orthopaedics” (Garrison-Morton). A work “of supreme importance” (Bick). “Nicholas Andry coined the word ‘orthopaedics’ in French as orthopédie, derived from the Greek words orthos (‘correct’, ‘straight’) and paidion (‘child’), when he published *Orthopedie* (translated as Orthopaedia: or the Art of Correcting and Preventing Deformities in Children) in 1741. Though as the name implies it was initially developed with attention to children, the correction of spinal and bony deformities in all stages of life eventually became the cornerstone of orthopedic practice” (Wikipedia).

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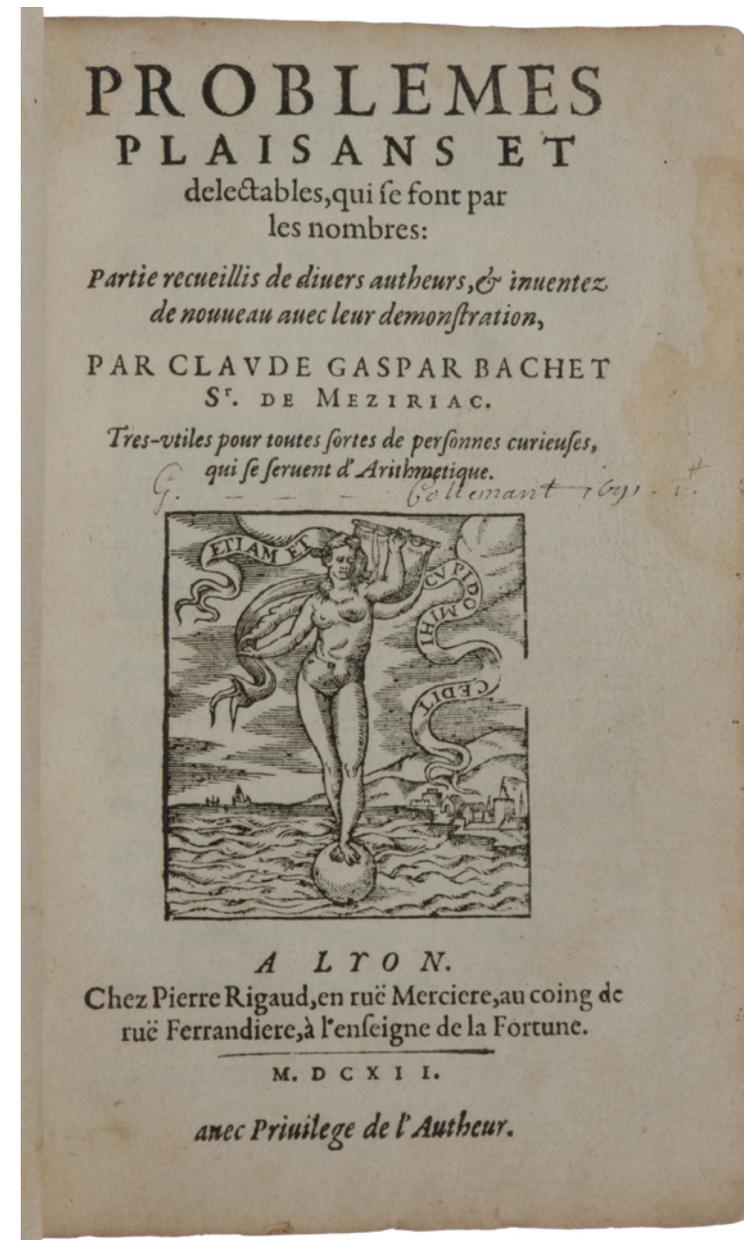
THE FIRST BOOK ON RECREATIONAL MATHEMATICS – A GREAT RARITY

BACHET DE MÉZIRIAC, Claude-Gaspard. *Problèmes plaisans et délectables, qui se font par les nombres; Partie recueillis de divers auteurs, & inventez de nouveau avec leur demonstration. Tres-utiles pour toutes sorte de personnel curieuses, qui se servent d'arithmetique.* Lyon: Pierre Rigaud, 1612.

\$32,500

First edition, exceptionally rare, of the first printed book devoted to recreational mathematics, which Bachet regarded as a precursor to his edition of Diophantus (1621). “This book is, after the problems of the Greek Anthology [*ca.* 6th century], the first germ of all mathematical recreations which subsequently appeared” (Montucla). There are only two copies in French libraries.

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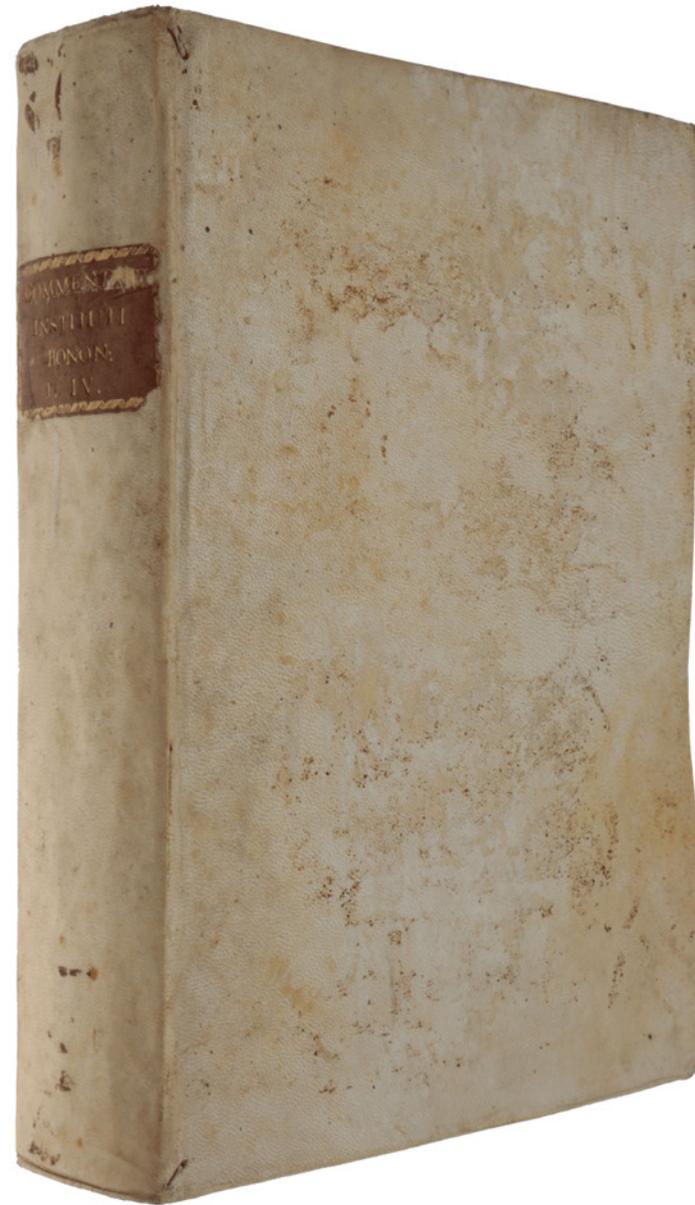
THE FIRST FEMALE UNIVERSITY PROFESSOR IN EUROPE

BASSI, Laura. 'De Problemate Quodam Hydrometrico,' pp. 61-73. [With:] 'De Problemate Quodam Mechanico,' pp. 74-79 and one plate. In: *De Bononiensi Scientiarum et Artium Instituto atque Academia Commentarii, Tomus quartus*. Bologna: Ex Typographia Laelii a Vulpe, 1757.

\$7,500

First edition of the only published papers of Laura Bassi (1711-78), chosen by the Grolier Club exhibition *Extraordinary Women in Science & Medicine* as one of the two most important women in physics in the eighteenth century (the other was Madame du Châtelet); Bassi was the very first female university professor in Europe (DSB). "Although Bassi lectured publicly, she published very little. Her significant publications were only the two that appeared in 1757 in the annual publication of the Academy of Sciences in Bologna" (Grolier, *Extraordinary Women in Science & Medicine*).

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THE “PROFOUNDLY INFLUENTIAL” BKS PROPOSAL

BOHR, Niels, KRAMERS, Hendrik A. & SLATER, John C.
‘The quantum theory of radiation,’ pp. 785-802 in Philosophical Magazine, Sixth Series, Vol. 47, No. 281, May 1924. London: Taylor & Francis, [1924].

\$3,000

First edition, very rare offprint, inscribed by one of Bohr’s closest friends and collaborators, of this celebrated paper. “The most striking feature of this remarkable paper ... was the renunciation of the classical form of causality in favor of a purely statistical description” (DSB, under Bohr). “Although this idea was not substantiated by subsequent experimental and theoretical work, the paper had a profound influence” (DSB, under Kramers).

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From the PHILOSOPHICAL MAGAZINE, vol. XLVII, May 1924.

The Quantum Theory of Radiation.

By N. BOHR, H. A. KRAMERS, and J. C. SLATER.

Introduction.

IN the attempts to give a theoretical interpretation of the mechanism of interaction between radiation and matter, two apparently contradictory aspects of this mechanism have been disclosed. On the one hand, the phenomena of interference, on which the action of all optical instruments essentially depends, claim an aspect of continuity of the same character as that involved in the wave theory of light, especially developed on the basis of the laws of classical electrodynamics. On the other hand, the exchange of energy and momentum between matter and radiation, on which the observation of optical phenomena ultimately depends, claims essentially discontinuous features. These have even led to the introduction of the theory of light-quanta, which in its most extreme form denies the wave constitution of light. At the present state of science it does not seem possible to avoid the formal character of the quantum theory which is shown by the fact that the interpretation of atomic phenomena does not involve a description of the mechanism of the discontinuous processes, which in the quantum theory of spectra are designated as transitions between stationary states of the atom. On the correspondence principle it seems

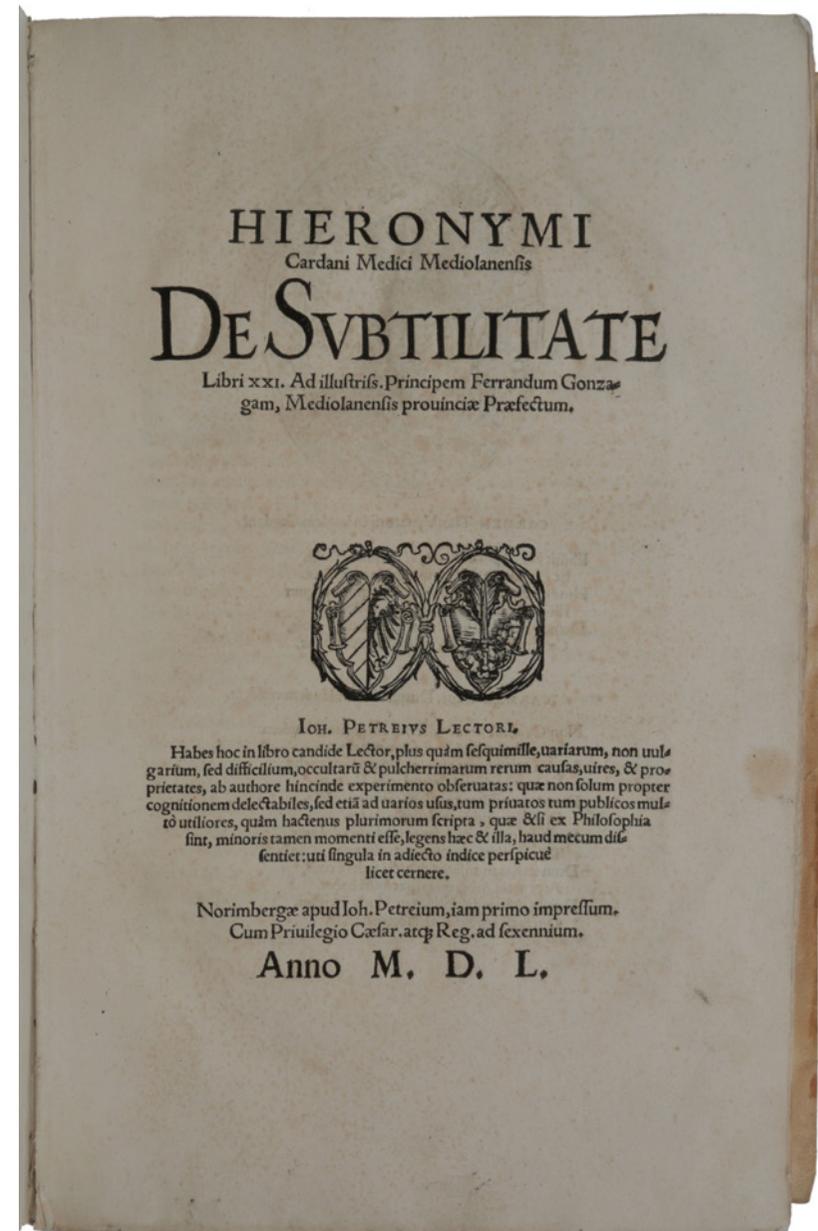
RENAISSANCE ENCYCLOPAEDIA OF THE SCIENCES

CARDANO, Girolamo. *De subtilitate. Libri XXI. Ad illustriss. Principem Ferrandum Gonzagam, Mediolanensis provinciae Praefectum.* Nuremberg: Johann Petreius, 1550.

\$35,000

First edition of Cardano's encyclopaedic survey of the sciences. This "was the most advanced presentation of physical knowledge up to its time. It contains many remarkable observations and ideas, including Cardano's distinction between the attractive powers of rubbed amber (electric) and the lodestone (magnetic), his pre-revolutionary belief in creation as progressive development, and the premise that natural law was unified and could be known through observation and experiment" (Norman catalogue).

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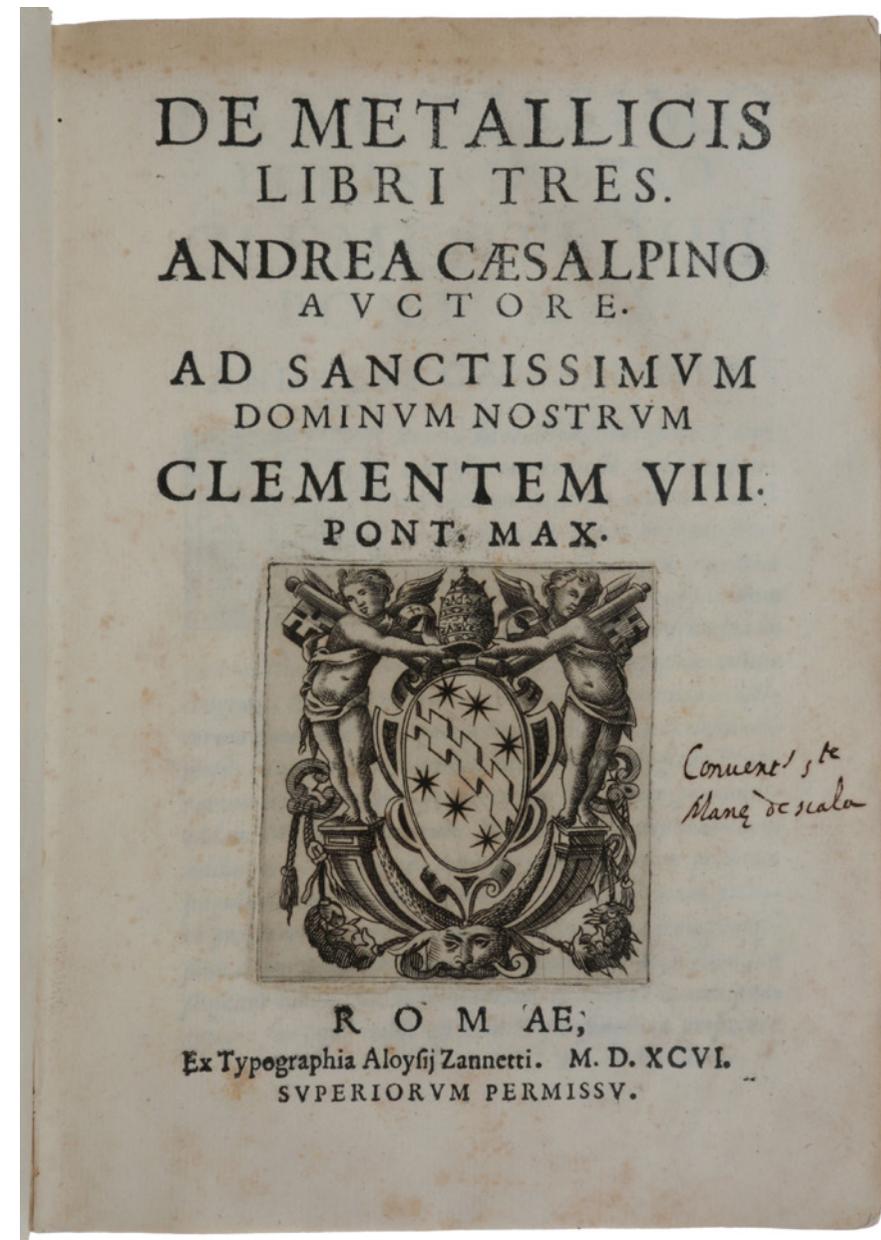
ONE OF THE MOST IMPORTANT EARLY WORKS ON METALLURGY

CESALPINO, Andrea. *De metallicis libri tres*. Rome: Alvisse Zanetti, 1596.

\$25,000

First edition, the Honeyman copy, of this rare and important early work on metallurgy, for which Georges Cuvier called Cesalpino the creator of the doctrines of mineralogy. It was written as a companion to the author's famous botanical work, *De Plantis* (1583); *De metallicis* was intended to extend his visionary theory of botanical classification to the mineral kingdom. It includes an analysis of crystallization which was later adopted by Haüy, and an early recognition of the true organic nature of fossils.

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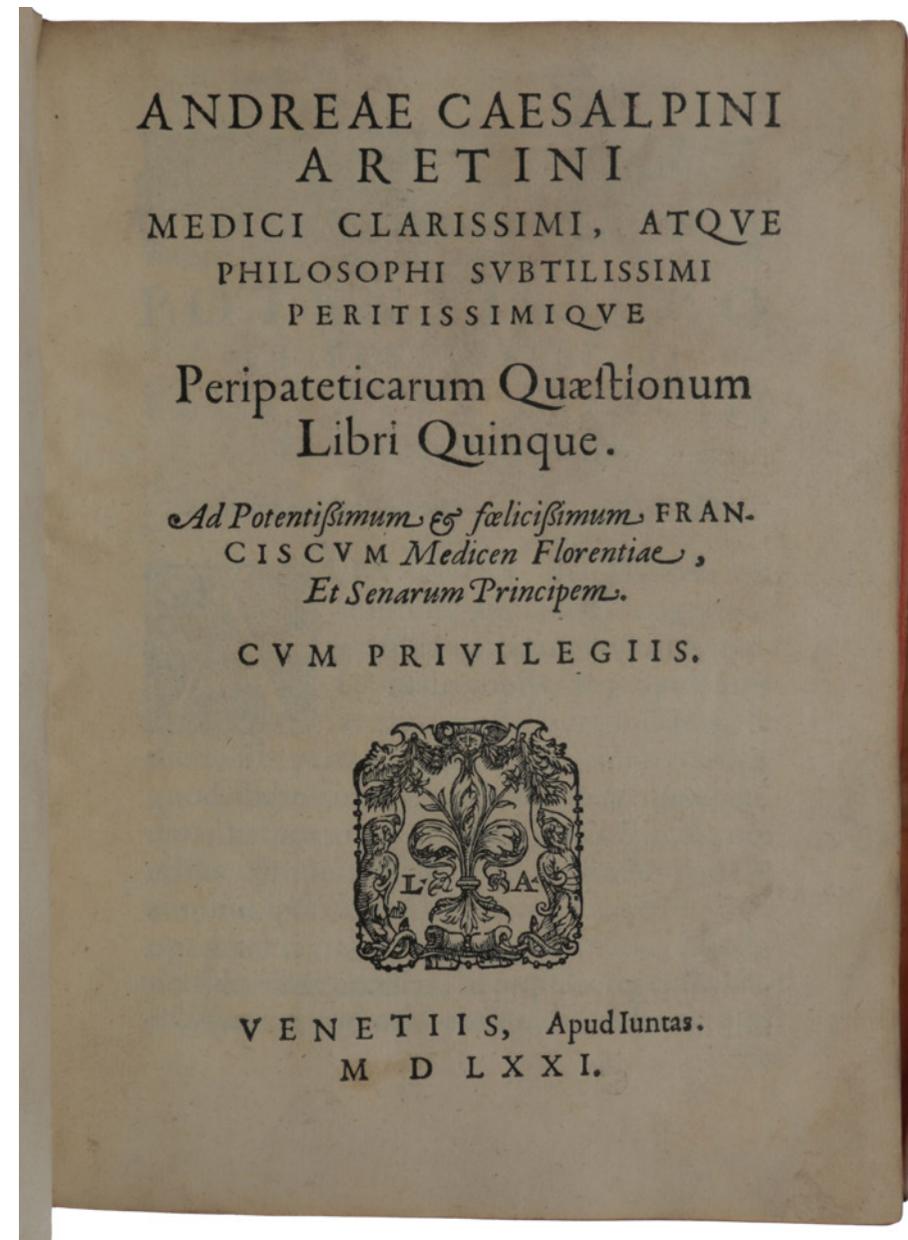
COINED THE PHRASE 'CIRCULATION OF THE BLOOD'

CESALPINO, Andrea. *Peripateticarum Quaestionum Libri Quinque.* [Bound with:] PATRIZI, Francesco. *Discussionum Peripateticarum, tomi primi, libri XIII: In quorum lectione, innumera sane inuenient studiosi, non solum in Aristotelica philosophia, tironibus: sed etiam, et in ea, et in reliqua literatura veteranis, mirabiliter, tum vtilia, tum rerum veteri nouitatae, iucundissima.* Venice; Venice: Giunta; Dominico de' Franceschi, 1571.

\$95,000

First edition, and a fine copy in a contemporary binding, of Cesalpino's very rare work which coined the phrase "circulation of the blood" (*circulatio sanguinis*, f. 111v) and provided the theoretical basis for Harvey's experimental and quantitative treatment in *De motu cordis* (1628). "Cesalpino preceded Harvey in the discovery of the concept of the circulation, and Harvey must have known of his ideas" (Garrison-Morton). "No-one who reads Cesalpino impartially can deny the eminent part that he played in the discovery of the circulation of the blood" (Castiglioni, p. 438).

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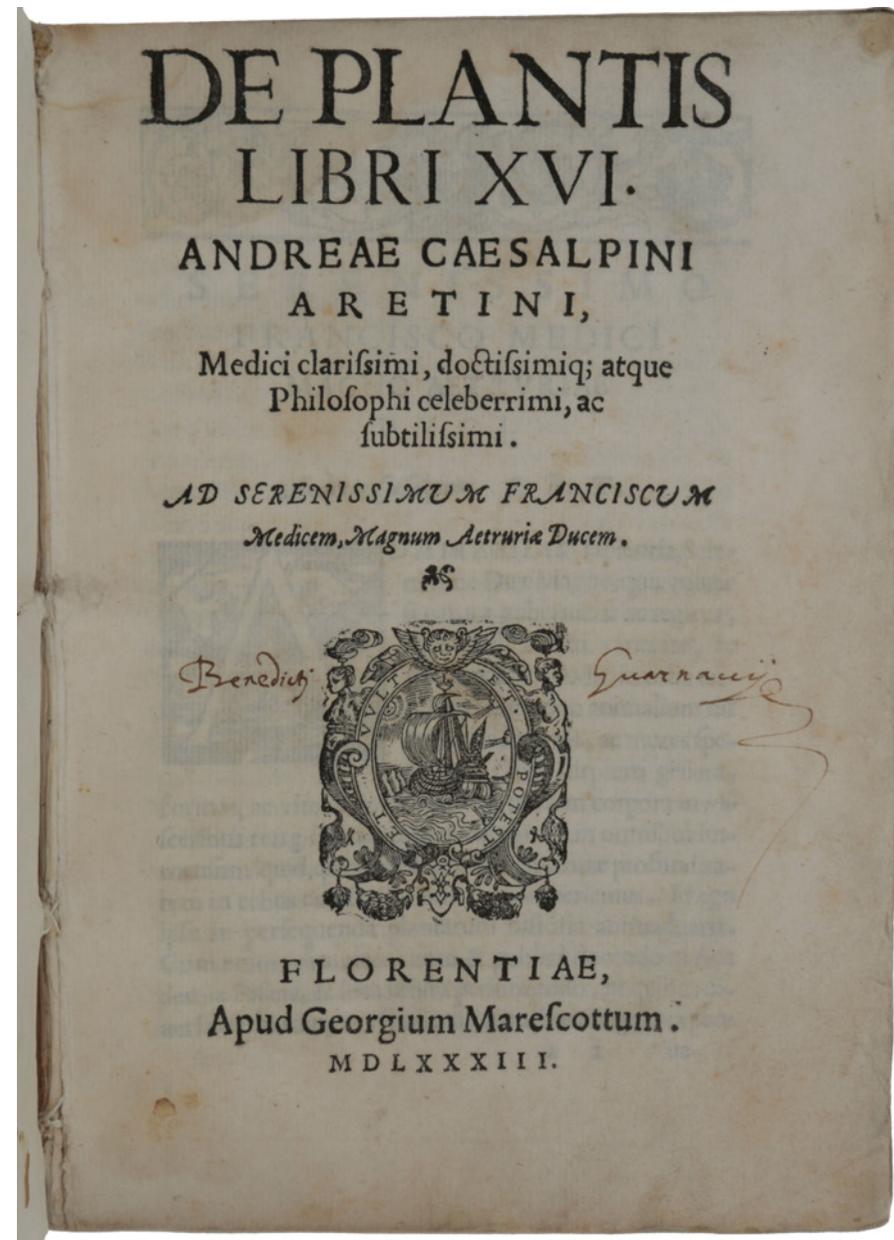
THE FOUNDATION TEXT OF SCIENTIFIC BOTANY AND THE FIRST ARTICULATION OF THE MODERN CONCEPT OF SPECIES

CESALPINO, Andrea. *De Plantis libri XVI*. Florence: Giorgio Marescotti, 1583.

\$48,000

The very rare first edition of “the first true textbook of botany” (DSB): the introduction of Cesalpino’s classification system, which anticipated *Linnaeus*’ system of binomial nomenclature. “Whereas other sixteenth-century botanists were content simply to compile vast haphazard catalogues of plants, Cesalpino was the first to devise a rational classification system based upon plant morphology, the principles of which he set forth in the first book of *De plantis*” (Norman).

<http://sophiararebooks.com/5133>



THE FOUNDATION WORK ON THE GREGORIAN CALENDAR - RED MOROCCO BINDING FOR THE DEDICATEE POPE CLEMENT VIII

CLAVIUS, Christoph. *Romani Calendarii a Gregorio XIII. P.M. restituiti explicatio, Clementis VIII P.M. jussu edita. Accessit confutatio eorum, qui Calendario aliter instaurandum contenderunt.* Rome: Luigi Zanetti, 1603.

\$50,000

First edition, the dedication copy, in a magnificent contemporary red morocco binding by the Soresini workshop, of the most important work on the construction and accuracy of the Gregorian calendar. Clavius served as the chief technical advisor on the commission for calendar reform convened by Pope Gregory XIII, to whom the present work is dedicated. The Gregorian calendar was introduced in 1582 in the papal bull 'Inter gravissimas,' and gradually adopted by most of the nations of the world in the course of the following centuries.

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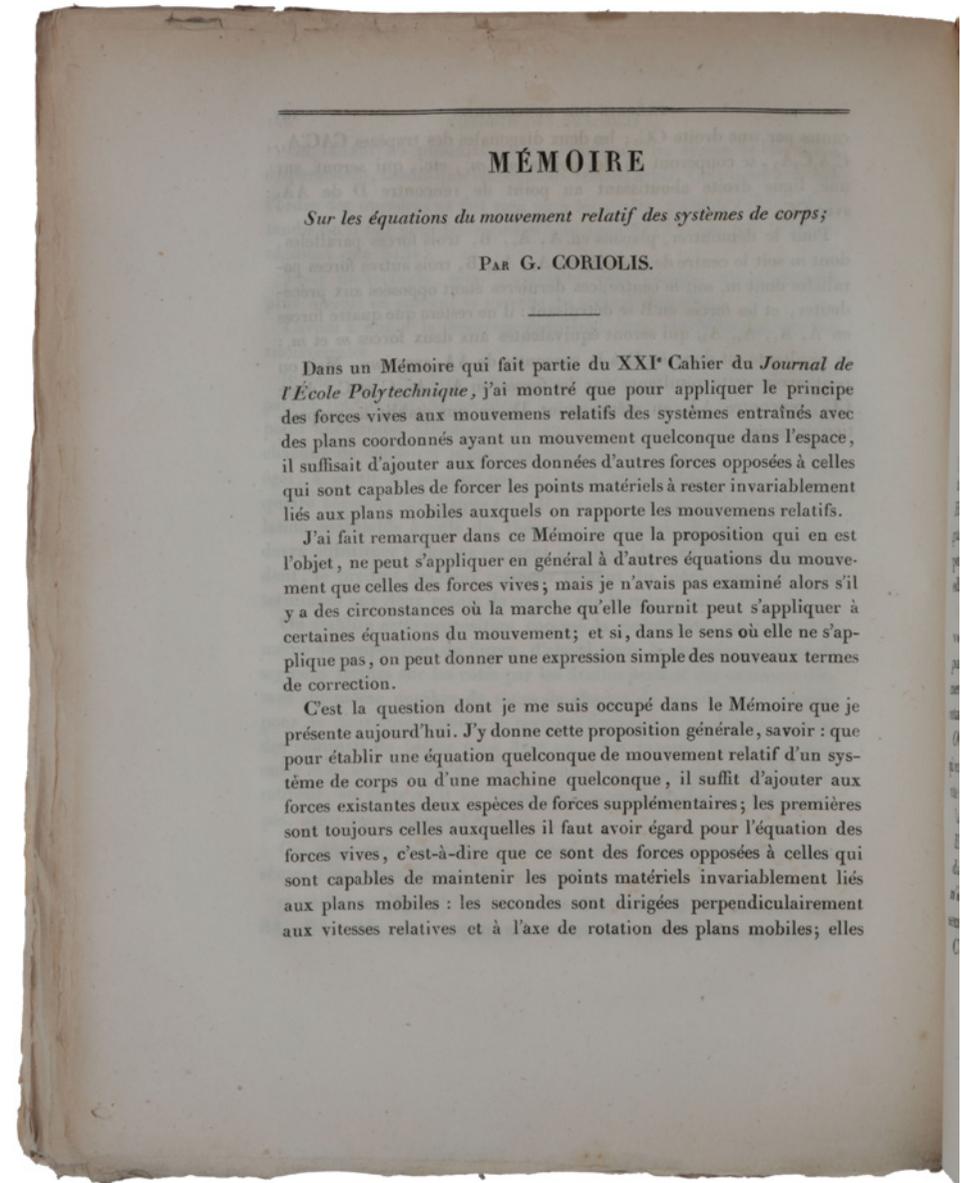
THE CORIOLIS FORCE

CORIOLIS, Gaspard Gustave. 'Sur les équations du mouvement relatif des systèmes de corps,' pp. 142-154 in: *Journal de l'École Royale Polytechnique, Cahier XXIV, Tome XV.* Paris: Bachelier, 1835.

\$2,500

First edition, complete journal issue ('cahier') in original printed wrappers, of the first formulation of the 'Coriolis force'. On a rotating earth the Coriolis force acts to change the direction of a moving body to the right in the Northern Hemisphere and to the left in the Southern Hemisphere. This deflection is instrumental in the large-scale atmospheric circulation, the development of storms, and the sea-breeze circulation.

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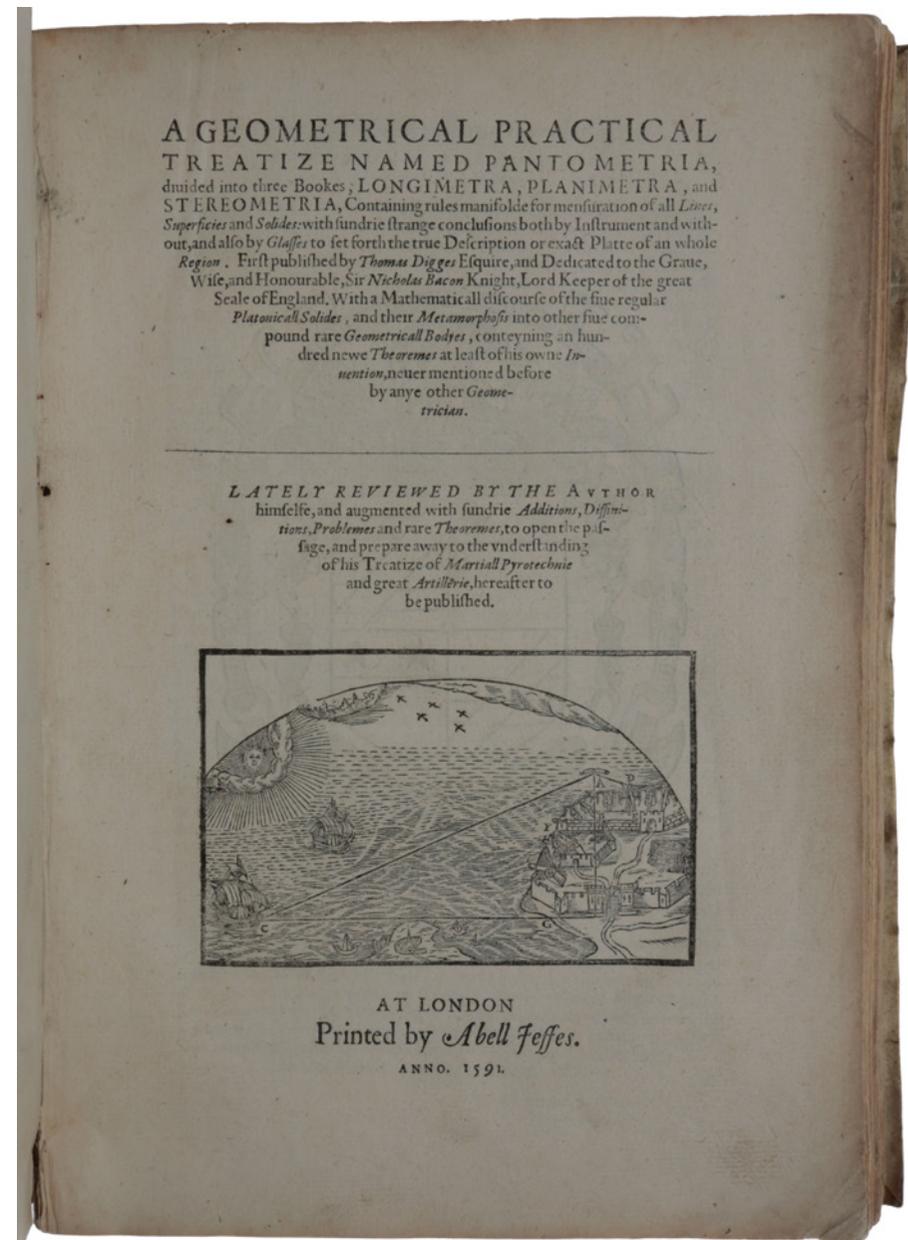
“THE FIRST SERIOUS BALLISTIC STUDIES IN ENGLAND” (DSB).

DIGGES, Leonard & Thomas Digges. *A geometrical practical treatize named Pantometria, divided into three bookes, longimetrica, planimetra, and stereometria. Containing rules manifolde for mensuration of all lines, superficies and solides: with sundrie strange conclusions both by instrument and without, and also by glasses to set forth the true description or exact platte of an whole region.* London: Abell Jeffes, 1591.

\$48,000

Second and best edition of this important Elizabethan work on practical geometry, in which “for the first time, we have indications of an instrument which we may call a reflecting telescope” (King, *The History of the Telescope*, p. 29). This second edition contains several appendices by Thomas Digges, not present in the first edition, which constitute “the first serious ballistic studies in England” (DSB). The book also contains the first description and illustration of the theodolite.

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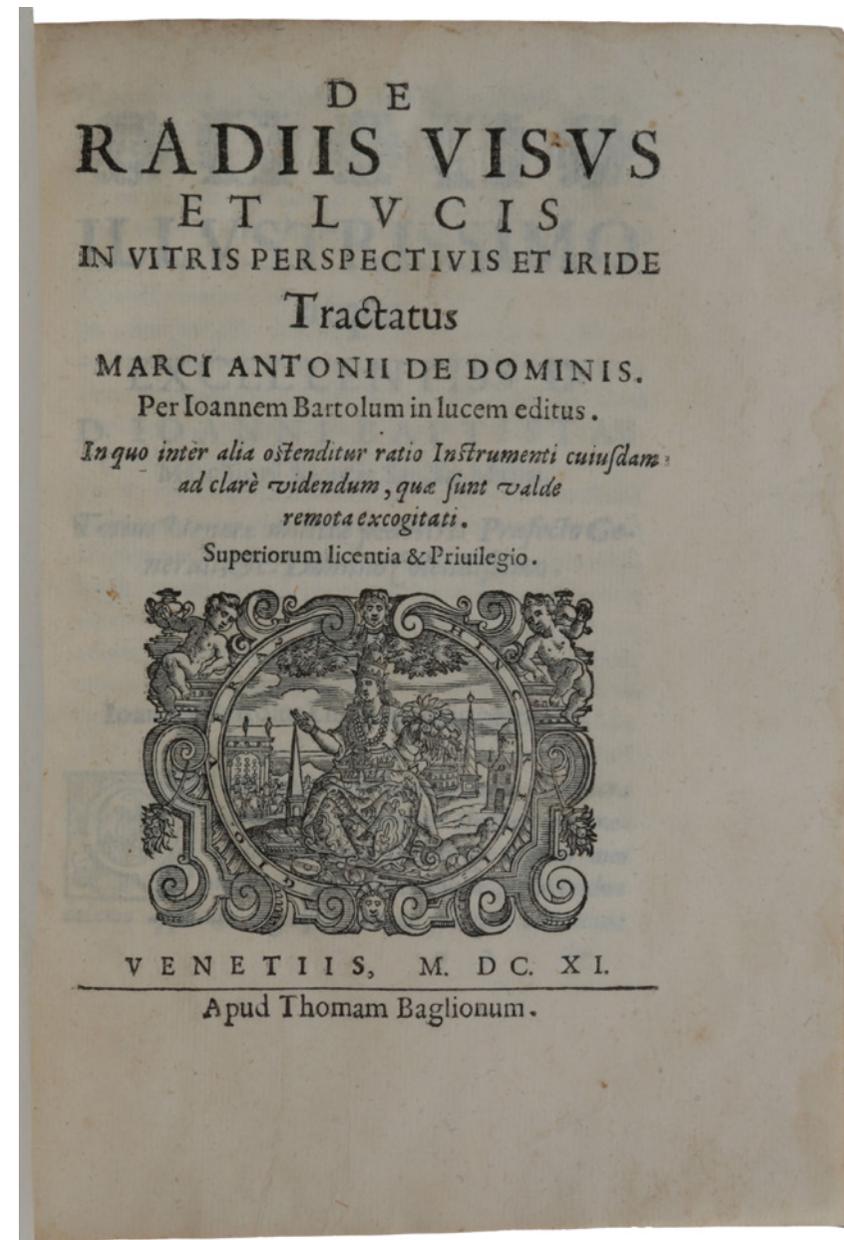
THE FIRST CORRECT THEORY OF THE RAINBOW

DOMINIS, Marco Antonio de (Marko Antonije). *De radiis visus et lucis in vitris perspectivis et iride tractatus ... In quo inter alia ostenditur ratio instrumenti cuiusdam ad clare videndum, quae sunt valde remota excogitate ...* Venice: Tomasso Baglioni, 1611.

\$70,000

First edition, extremely rare, of this important early work on the optics of the telescope and related optical phenomena, and containing the first essentially correct theory of the rainbow to be published. Dominis sought to provide the theoretical explanation behind Galileo's telescopic observations, and his work appears to have been completed before Galileo's *Sidereus nuncius*, although published later. The preface is the source for the erroneous claim that Galileo 'invented' the telescope. The second half of the book is taken up with the phenomena of refraction and reflection in raindrops and the rainbow.

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THE FOUR PAPERS DOCUMENTING EINSTEIN'S COMPLETION AND VERIFICATION OF GENERAL RELATIVITY

EINSTEIN, Albert. 1. 'Zur allgemeinen Relativitätstheorie'; 2. 'Nachtrag'; 3. 'Erklärung der Perihelbewegung des Merkur aus der allgemeinen Relativitätstheorie'; 4. 'Die Feldgleichungen der Gravitation'. Berlin: George Reimer for the Königlich Akademie der Wissenschaften, 1915.

\$28,000

First edition of Einstein's first publication of the fully correct form of his general theory of relativity, together with its confirmation by astronomical observations. The final version of the theory was first published in paper 4. "The November 25 paper is a monumental contribution" (Pais, *Subtle is the Lord*, p. 266). Paper 3 contains "two of his greatest discoveries. Each of these changed his life" (*ibid.*, p. 253). These were his quantitatively correct explanations of the precession of Mercury's perihelion, an open problem since 1859, and the bending of light by gravity – the confirmation of the latter by observations made during a total solar eclipse in 1919 made Einstein world famous.



<http://sophiararebooks.com/5109>

THE MOST SUCCESSFUL MATHEMATICS TEXTBOOK SINCE EUCLID

EULER, Leonhard. *Vollständige Anleitung zur Algebra. Erster [- Zweiter] Theil.* St. Petersburg: Imperial Academy of Sciences, 1770.

\$15,000

First edition in German, its language of composition, and first obtainable edition, of Euler's 'Complete instruction in algebra,' from the basics, including negative and imaginary numbers, through to the solution of quadratic, cubic and biquadratic equations, and concluding with a long section on Diophantine problems (the solution of algebraic equations in whole numbers). "There is only one other book in the field of mathematics which in the entire history of culture has had a comparable success in sales: the *Elements* of Euclid, after the Bible the most frequently printed book of all" (Fellmann, *Leonhard Euler*, p. 121).

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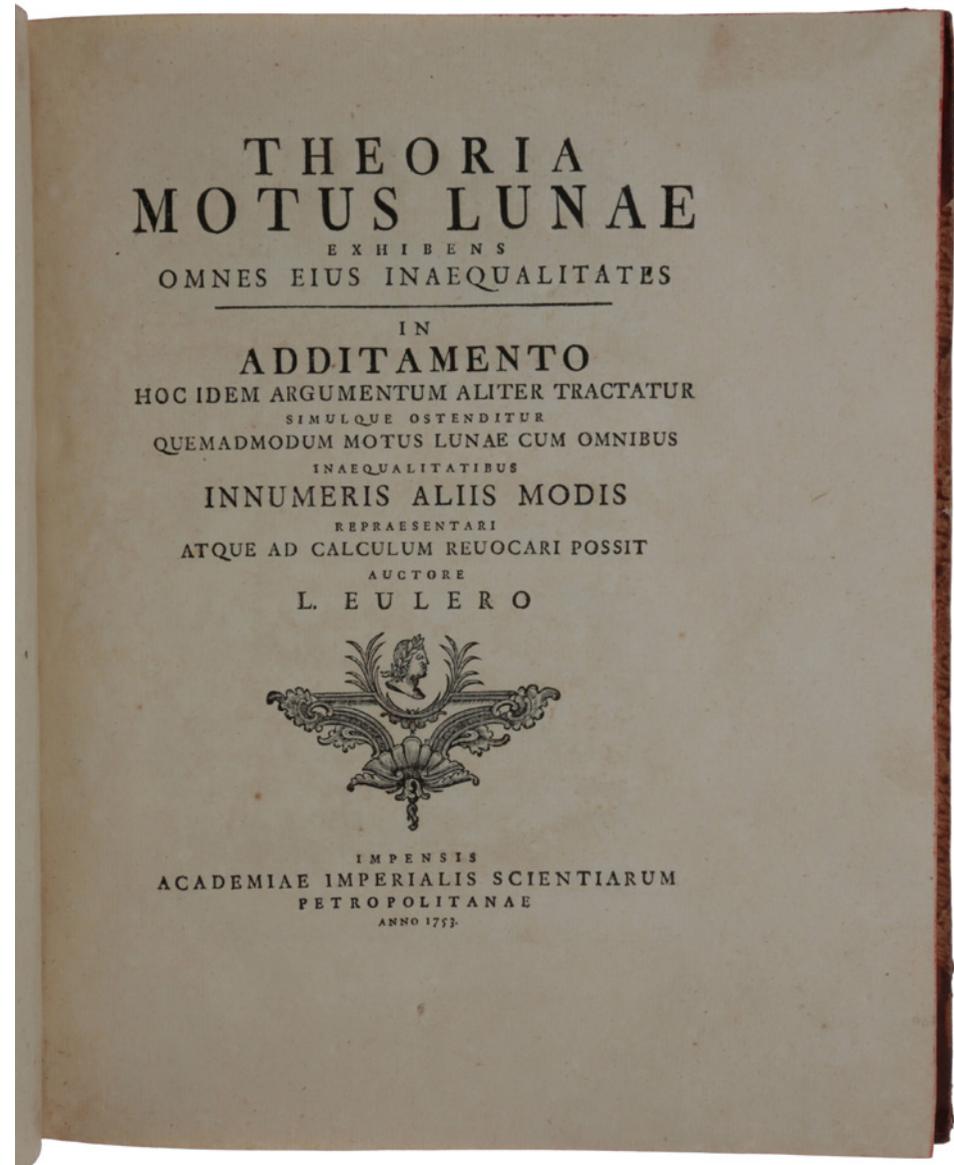
EULER'S FIRST LUNAR THEORY

EULER, Leonhard. *Theoria Motus Lunae Exhibens Omnes Eius Inaequalitates.* St. Petersburg: Academiae Imperialis Scientiarum, 1753.

\$19,500

First edition of one of Euler's rarest books, in which he elaborated an original method of approximate solution to the three-body [Earth-Sun-Moon] problem, the so-called first Euler lunar theory. This "had an important practical consequence: Tobias Mayer, an astronomer from Göttingen, compiled, according to its formulas, lunar tables (1755) that enabled the calculation of the position of the moon and thus the longitude of a ship with an exactness previously unknown in navigation" (DSB). In 1765 the British Parliament awarded Mayer's widow a prize of £3000 and Euler £300 for his preliminary theoretical work.

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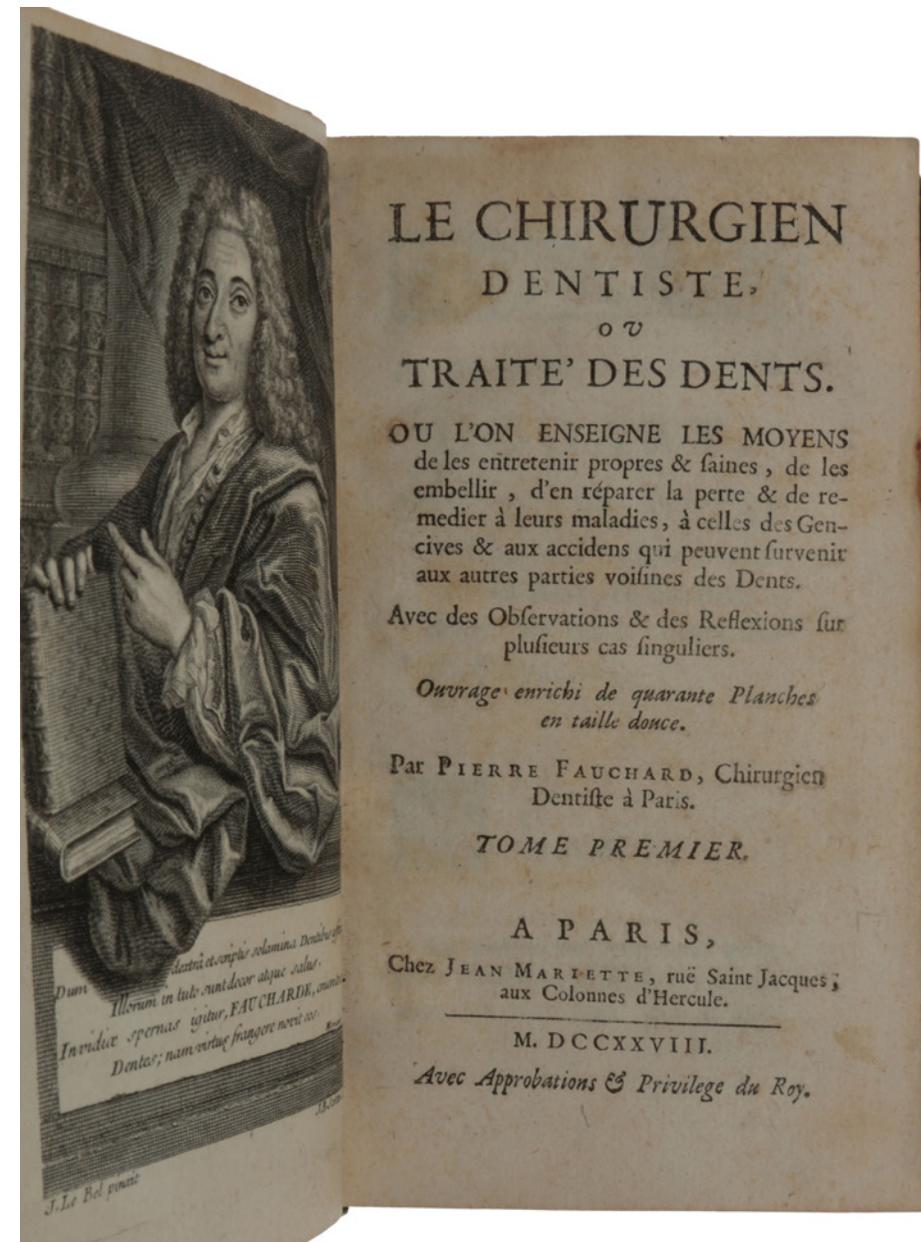
FAUCHARD'S PIONEERING TREATISE ON DENTISTRY - "THE FIRST SCIENTIFIC WORK ON ITS SUBJECT" (PMM)

FAUCHARD, Pierre. *Le chirurgien dentiste, ou traité des dents. Ou l'on enseigne les moyens de les entretenir propres & saines, de les embellir, d'en réparer la perte & de remédier à leurs maladies, à celles des gencives & aux accidens qui peuvent survenir aux autres parties voisines des dents. Avec des observations & des reflexions sur plusieurs cas singuliers ...* Paris: Jean Mariette, 1728.

\$49,500

First edition of Fauchard's pioneering work in the field of modern dentistry. "Fauchard summarized in his pages with numerous illustrations all that was best in the practice of his day and disclosed what had been hitherto jealously guarded secrets. *Le Chirurgien Dentiste* ... is in fact the first scientific work on its subject, and modern dentistry begins with its publication. Fauchard describes in the fullest detail the procedure in operative dentistry, in the filling of teeth and most especially in prosthesis ... He used antiseptic methods in filling teeth long before the germ theory of infection" (PMM).

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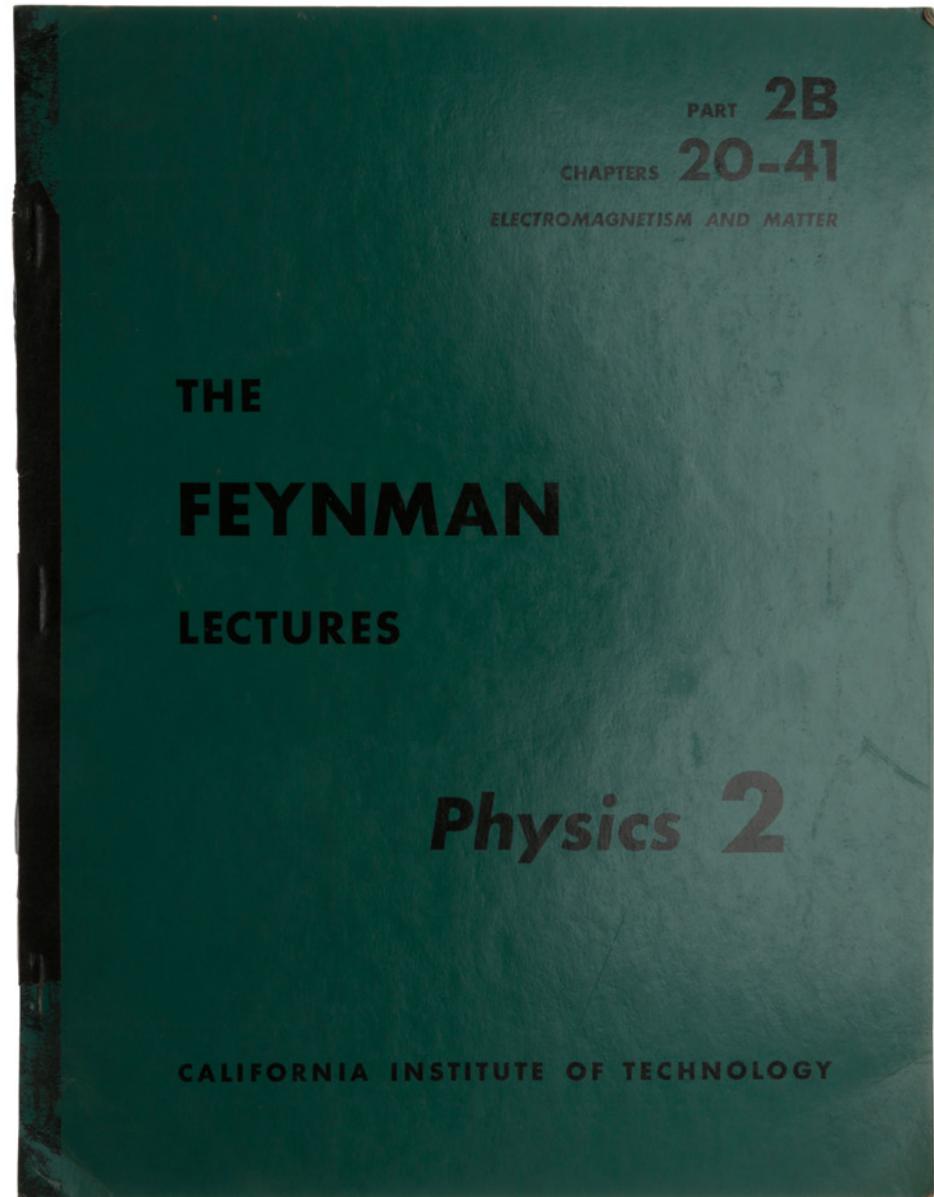
FEYNMAN'S LECTURES ON PHYSICS- EXTREMELY RARE PRE-PUBLICATION ISSUE

FEYNMAN, Richard P., LEIGHTON, Robert B. (ed.) & SANDS, Matthew (ed.). *The Feynman Lectures: Physics 2: Part 2B, Chapters 20-41: Electromagnetism and Matter*. Pasadena, CA: The California Institute of Technology, 1963.

\$1,850

Extremely rare pre-publication issue of a section of Feynman's legendary lectures on physics, namely that devoted to electromagnetism, from Maxwell's equations to the optical and magnetic properties of materials, and concluding with four lectures on elasticity and fluid flow. According to the curators of Caltech's Feynman Lectures website, this preliminary edition was produced by Caltech's graphics department between the end of the 1962-1963 academic year and the beginning of the 1963-64 academic year. It is copyrighted 1963, one year before the first published edition of the Feynman lectures, produced by Addison-Wesley. No more than 300 copies of this pre-publication edition were printed.

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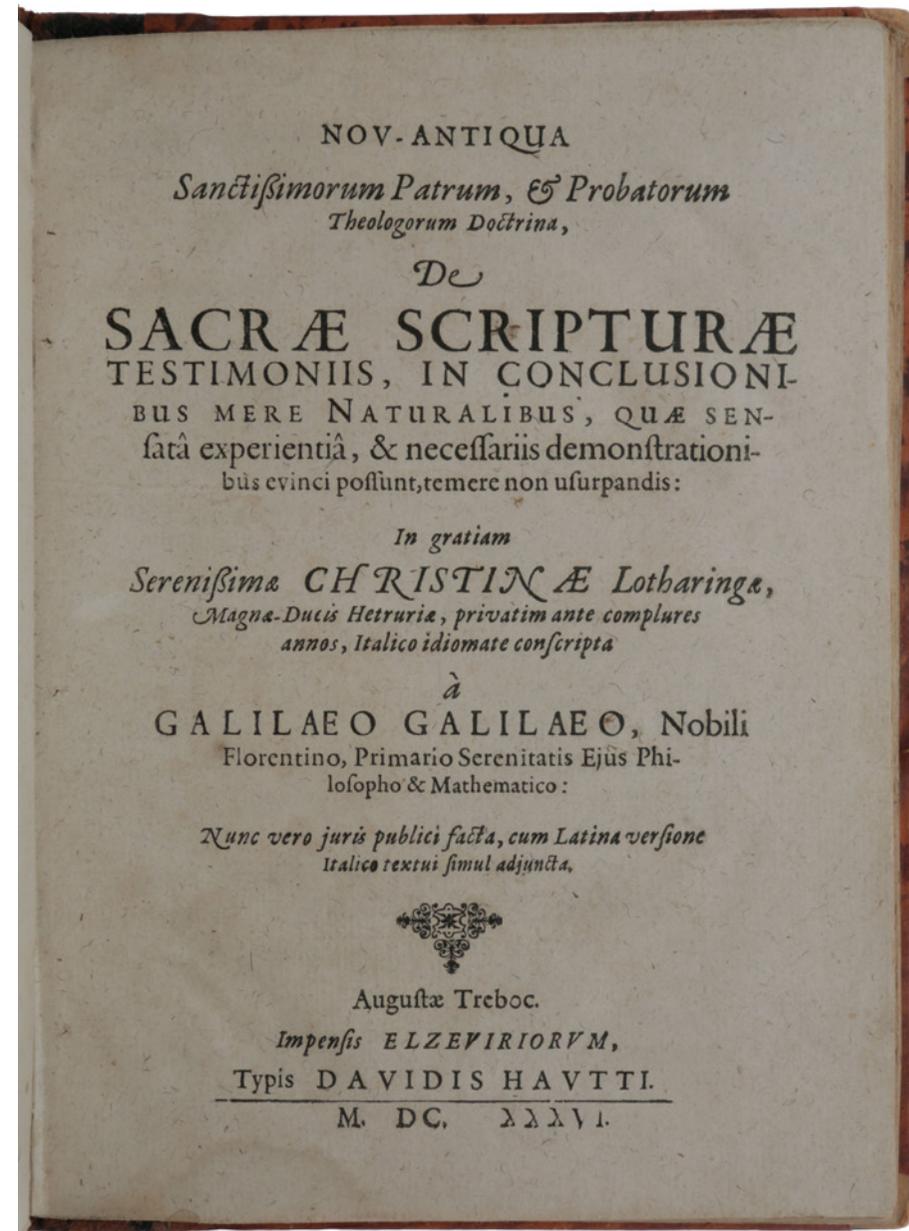
A SUPERB MANIFESTO OF THE FREEDOM OF THOUGHT

GALILEI, Galileo. *Nov-Antiqua Sanctissimorum Patrum, & Probatorum Theologorum Doctrina, de Sacrae Scripturae Testimonilis, in conclusionibus mere naturalibus, quae sensata experientia, & necessariis demonstrationibus evinci possunt, temere non usurpandis: In gratiam Serenissima Christinae Lotharingae, Magna-Ducis Hetruriae, privatim ante complures annos, Italico idiomate conscripta ... Nunc vero juris publici facta, cum Latina versione Italico textui simul adjuncta.* Strasbourg: Elzevier, 1636.

\$85,000

First edition of a great Galilean rarity, the *Nov-Antiqua* or 'Letter to Christina'. The *Nov-Antiqua* is a "superb manifesto of the freedom of thought" (Koestler, p. 436). "Its purpose was to silence all theological objections to Copernicus. Its result was the precise opposite: it became the principal cause of the prohibition of Copernicus, and of Galileo's downfall ... As a work of polemical literature, the *Letter* is a masterpiece" (*ibid.*, pp. 434). "The edition was small and the book was rigorously suppressed in Catholic countries" (Drake, *Discoveries and Opinions of Galileo*, p. 171).

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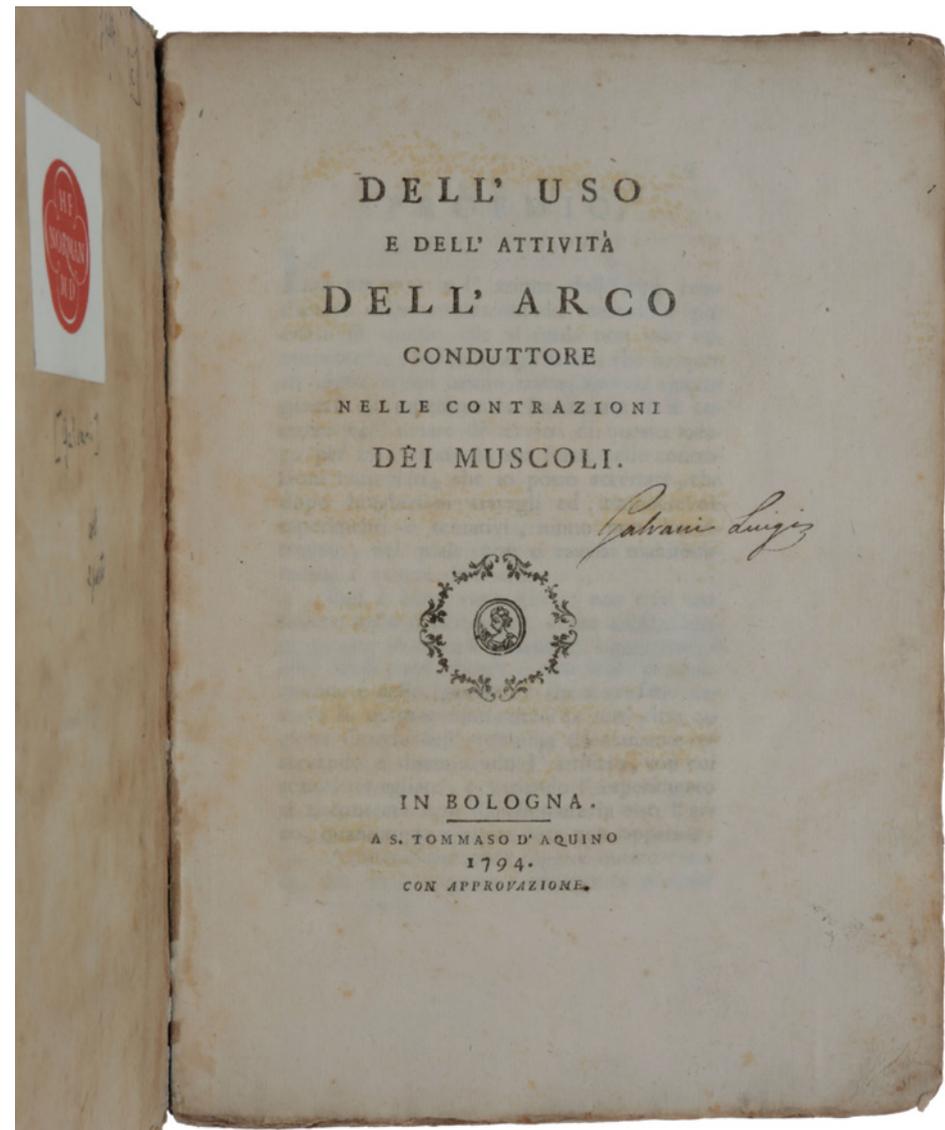


“THE FIRST PROOF OF ANIMAL ELECTRICITY” (GARRISON-MORTON)

[GALVANI, Luigi]. *Dell'uso e dell'attivit  dell'arco conduttore nelle contrazioni dei muscoli. – Supplemento al trattato dell'uso ... dell'arco conduttore.* Bologna: a S. Tommaso d'Aquino, 1794.

\$35,000

First edition, including the very rare Supplement, of “the first account of Galvani’s electrical experiments without the presence of metals, in which he demonstrated the presence of electrical energy in living tissue by showing that convulsions in frog nerve-muscle preparations could be produced simply by touching nerve to muscle. This observation of the injury current of nerve or demarcation current was the first proof of animal electricity. The key experiment appears in a 23-page “Supplemento” following p. 168” (Garrison-Morton).



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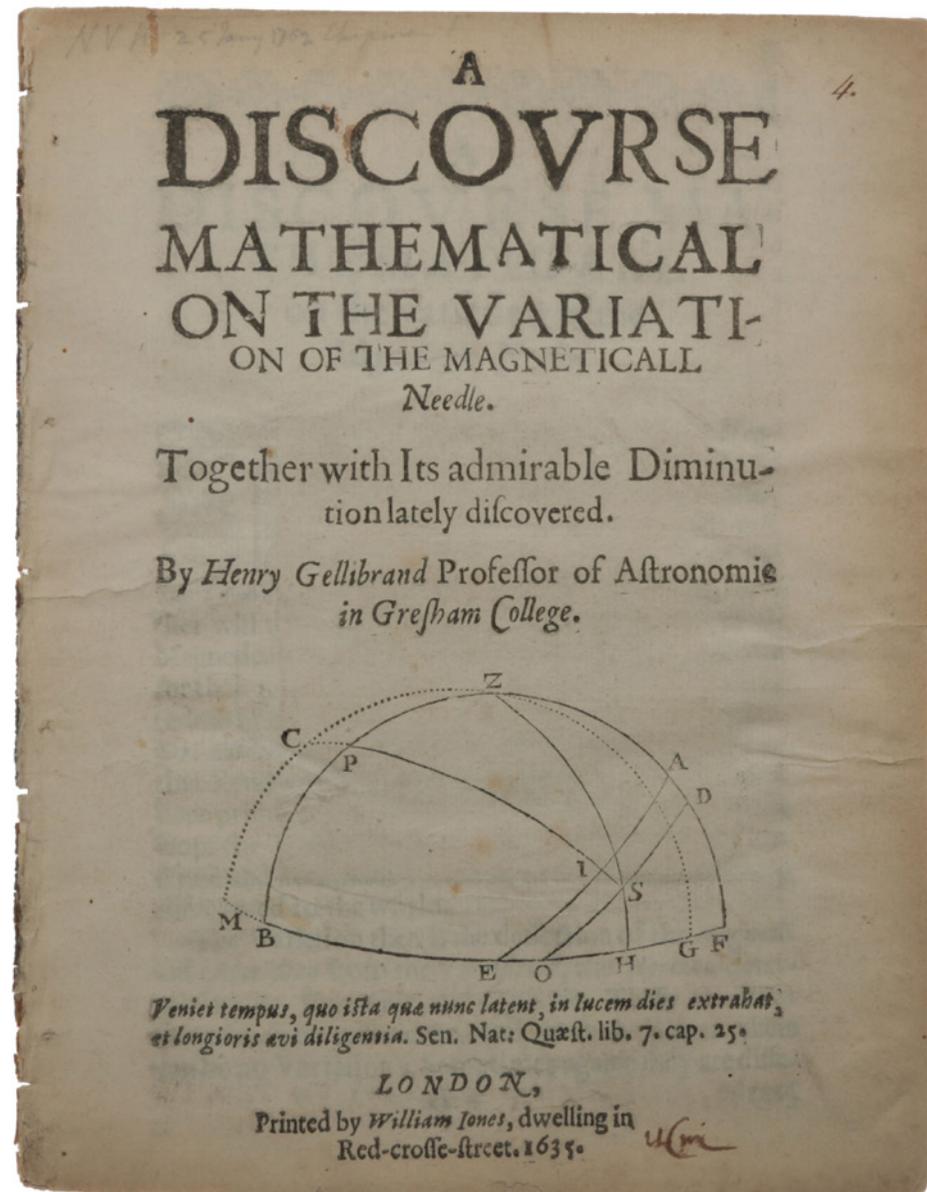
DISCOVERY OF THE SECULAR CHANGE IN MAGNETIC VARIATION

GELLIBRAND, Henry. *A Discourse Mathematical on the Variation of the Magneticall Needle. Together with its admirable Diminution lately discovered.* London: William Jones, 1635.

\$68,000

First edition, extremely rare, of a very important discovery: that the magnetic declination, or variation (the difference in direction between geographical and magnetic north), is not constant but changes with time. This was of great importance for navigation since a knowledge of the declination at various locations was used by sailors as an aid to determining their position at sea.

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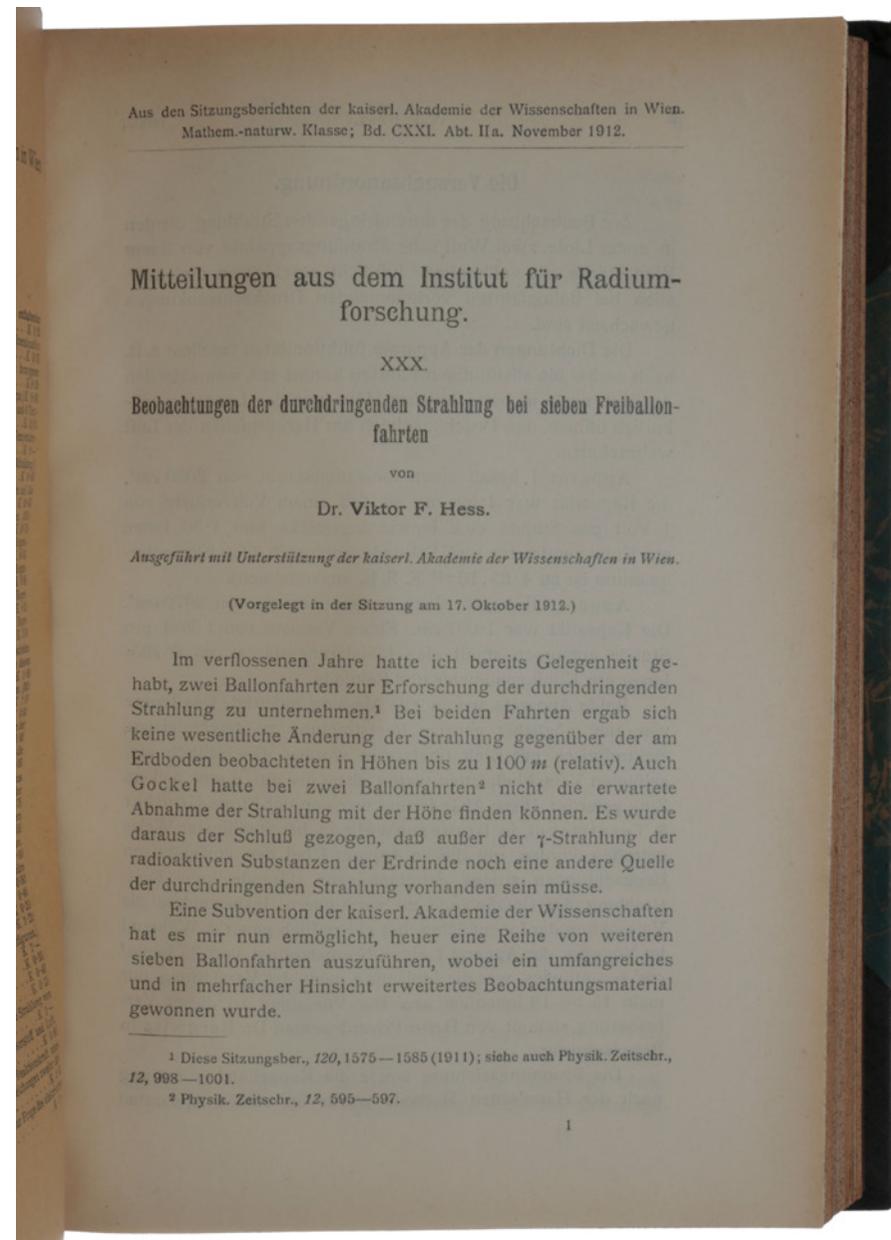
THE DISCOVERY OF COSMIC RAYS – EXTREMELY RARE OFFPRINT

HESS, Victor Franz. *Beobachtungen der durchdringenden Strahlung bei sieben Freiballonfahrten. Offprint from: Sitzungsberichte der Königlichen Akademie der Wissenschaften in Wien, Mathematisch-naturwissenschaftliche Klasse, Band CXXI, Abtheilung IIa, (Mitteilungen aus dem Institut für Radiumforschung XXX), November 1912.* Vienna: Aus der Kaiserlich-Königlichen Hof- und Staatsdruckerei, 1912.

\$12,500

First edition, extremely rare separately-paginated offprint, of the discovery of cosmic radiation, here bound with 49 other offprints from the same journal from 1911 to 1913, including three further offprints by Hess on cosmic rays. The 1936 Nobel Prize in Physics was awarded jointly to Hess “for his discovery of cosmic radiation” and Carl D. Anderson “for his discovery of the positron”, which was found in cosmic radiation.

<http://sophiararebooks.com/5157>



HEVELIUS' OBSERVATORY AND ASTRONOMICAL INSTRUMENTS

HEVELIUS, Johannes. *Machinae Coelestis pars prior; organographiam, sive instrumentorum astronomicorum omnium, quibus auctor hactenus sidera rimatus, ac dimensus est, accuratum delineationem, et descriptionem, plurimis iconibus, aeri incisus ... exhibens...* Danzig: Simon Reiniger for the author, 1673.

\$120,000

First edition of this finely illustrated description of Hevelius' observatory, 'Stellaburgu', and his astronomical instruments. "Hevelius undoubtedly owed the success of his observations to his skill in designing, making, and engraving instruments; and the work in which he described his techniques was of very great interest to his contemporaries: *Machinae coelestis, pars prior*" (DSB).



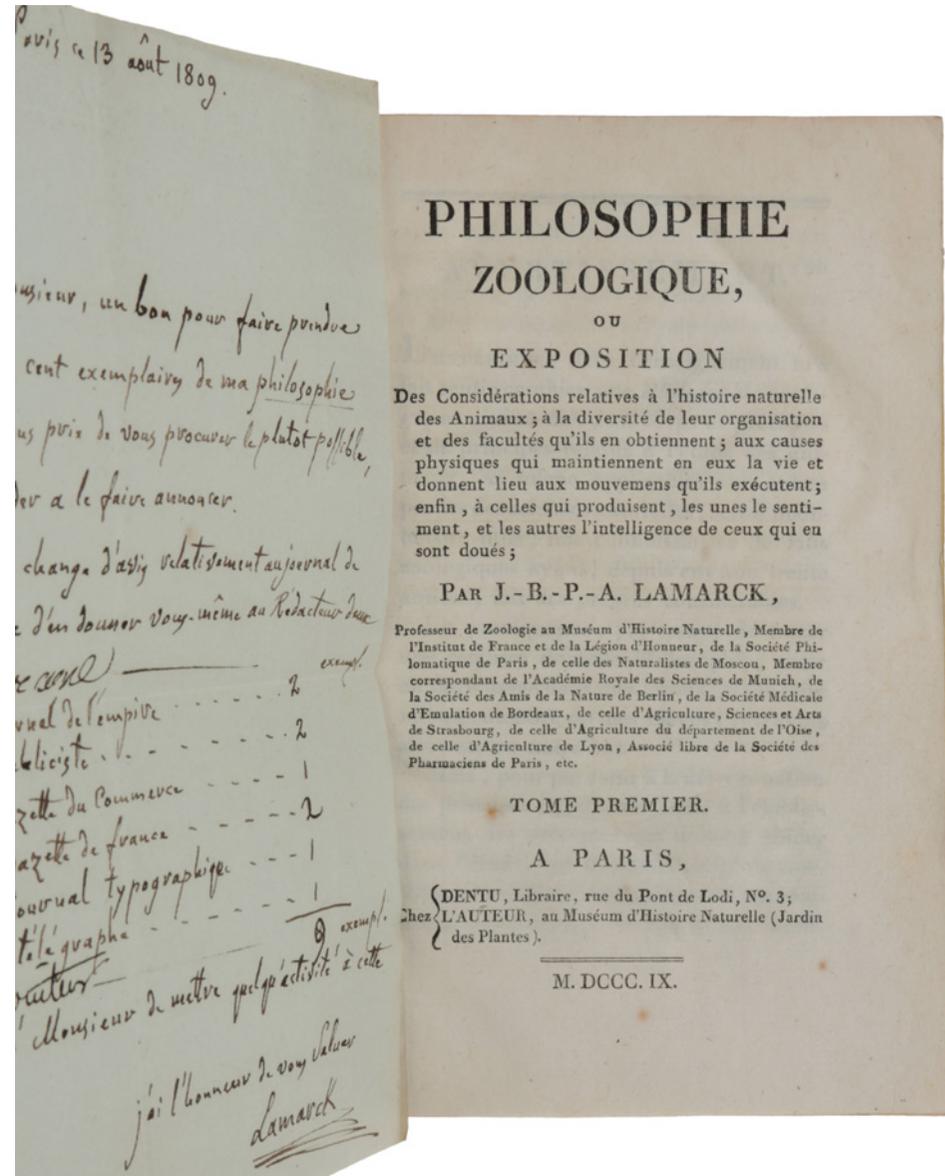
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PMM 262 - LAMARCK'S THEORY OF INHERITED CHARACTERISTICS

LAMARCK, Jean-Baptiste de. *Philosophie zoologique, ou exposition des considérations relatives à l'histoire naturelle des animaux ...* Paris: Dentu; the author, 1809.

\$38,000

First edition, and an exceptionally fine copy with autograph letter by Lamarck, of his most complete presentation of his theory of evolution, “a classic in the literature of evolutionary theory” (PMM). Stephen Jay Gould argues that Lamarck was the “primary evolutionary theorist”, and Darwin himself, in the third edition of *Origin*, stated that Lamarck “did the eminent service of arousing attention to the probability of all change in the organic as well as in the inorganic world being the result of law, and not of miraculous intervention” (*ibid.*).



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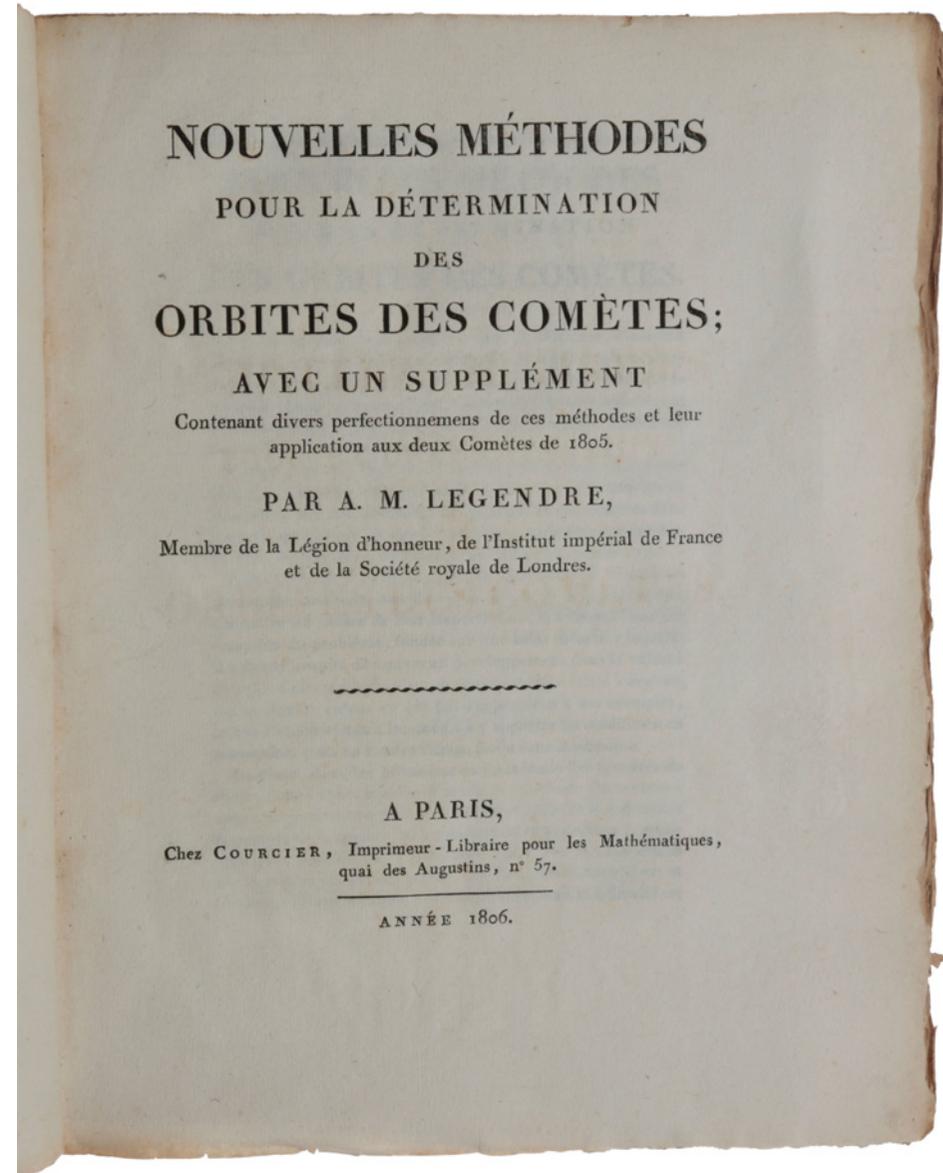
THE METHOD OF LEAST SQUARES

LEGENDRE, Adrien Marie. *Nouvelles méthodes pour la détermination des orbites des comètes; avec un supplément contenant divers perfectionnemens de ces méthodes et leur application aux deux Comètes de 1805.* Paris: Firmin Didot, 1806.

\$4,000

First edition, second issue, but the first to contain the Supplement, of the invention of the method of least squares, “the automobile of modern statistical analysis” and the origin of “the most famous priority dispute in the history of statistics” (Stigler, *History of Statistics*). “For stark clarity of exposition the presentation is unsurpassed; it must be counted as one of the clearest and most elegant introductions of a new statistical method in the history of statistics” (*ibid.*).

<http://sophiararebooks.com/5112>



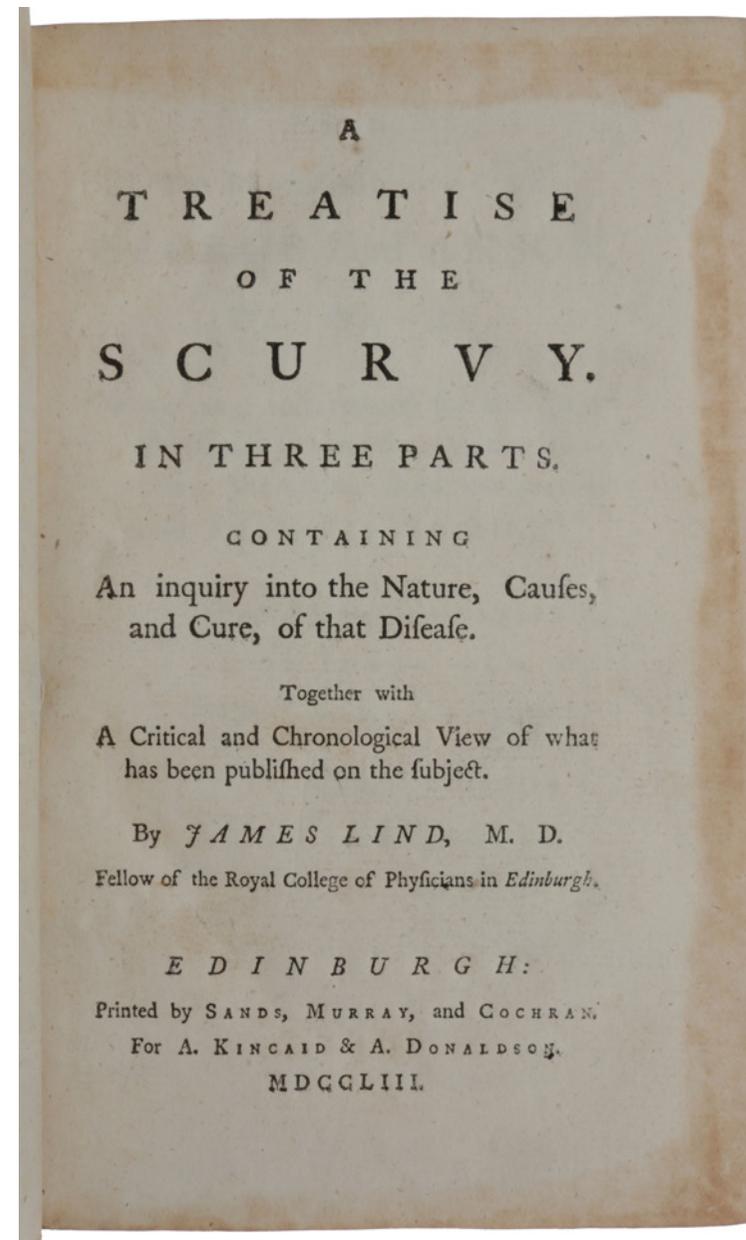
THE PREVENTION OF SCURVY – AND THE FIRST CLINICAL TRIAL

LIND, James. *A Treatise of the Scurvy, in three parts. Containing an inquiry into the Nature, Causes, and Cure, of that Disease. Together with a Critical and Chronological View of what has been published on the subject ...* Edinburgh: Sands, Murray, and Cochran, for A. Kincaid and A. Donaldson, 1753.

\$65,000

First edition, first issue, and a fine copy in unrestored contemporary binding, of Lind's epochal work on the prevention of scurvy, the identification of a dietary deficiency as the cause, and the first recorded example of a clinical trial. "A century before the absence of vitamin C was identified as the cause of scurvy, this disease, so long endemic among seamen, had largely disappeared. This was mainly due to the work of James Lind and to the publication in 1753 of his *Treatise of the Scurvy*" (Grolier Medicine).

<http://sophiararebooks.com/5100>



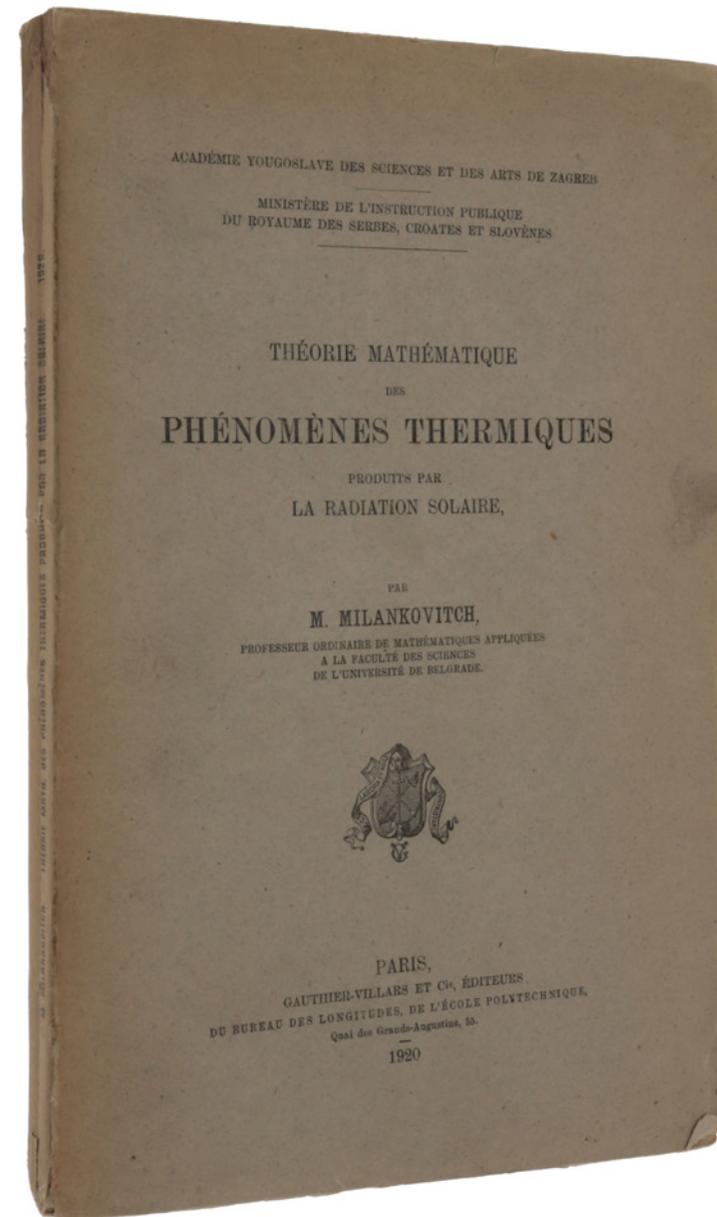
MILANKOVIĆ CYCLES

MILANKOVIĆ (or MILANKOVITCH), Milutin. *Théorie mathématique des phénomènes thermiques produits par la radiation solaire.* [Première partie, exposé théorique; Deuxième partie, applications.] Académie Yougoslave des Sciences et des Arts de Zagreb. Ministère de l'Instruction publique des Serbes, Croates et Slovènes. Paris: Gauthier-Villars, 1920.

\$5,500

First edition, very rare, of Milanković's first extensive work on his astronomical theory of climate, including the famous 'Milanković cycles' – cyclical changes in a planet's climate caused by the variations in its orbit around the Sun. Milanković's theory was confirmed in 1976, when ocean sediment records were shown to contain the same temporal cycles that it predicted.

<http://sophiararebooks.com/5113>



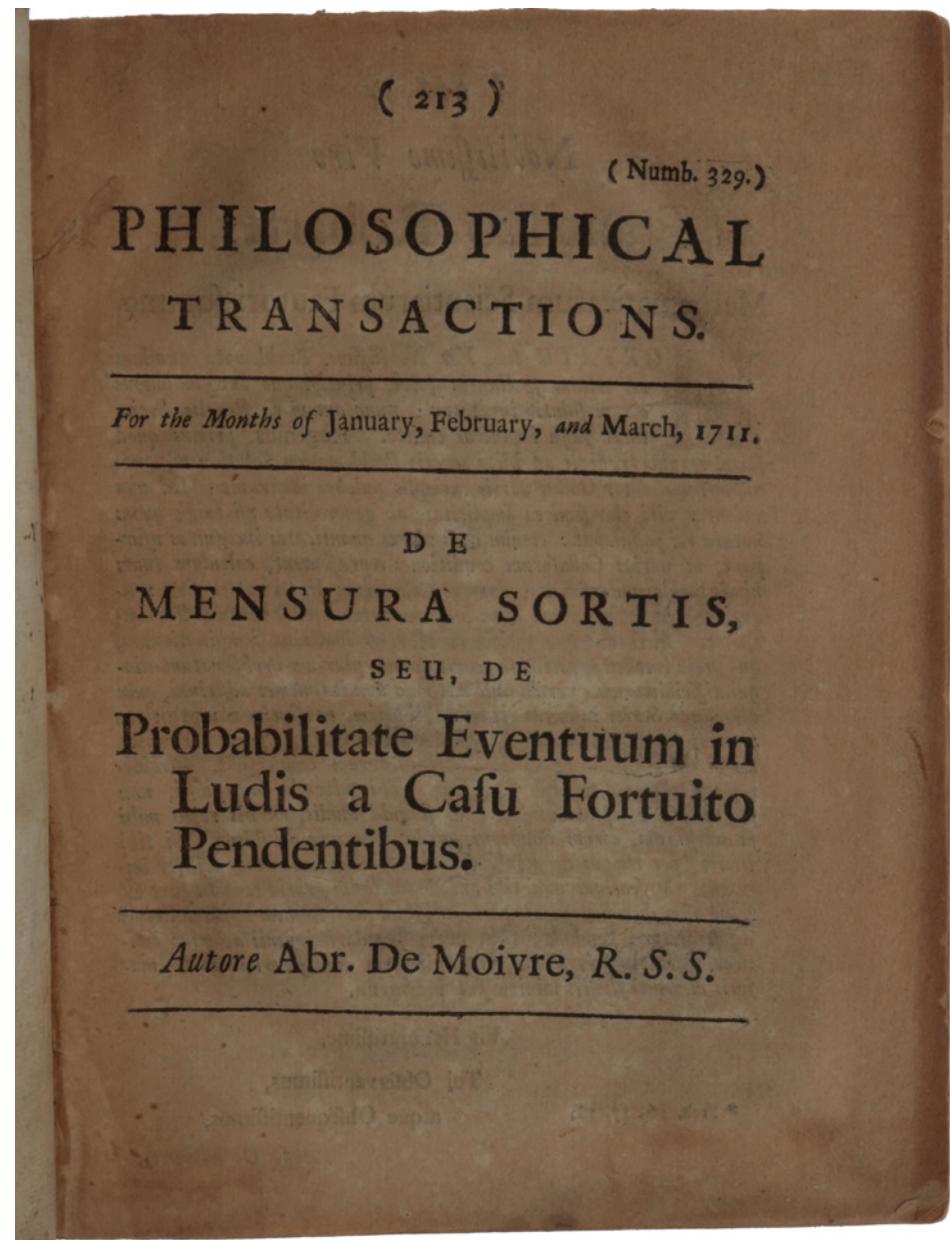
DE MOIVRE'S FIRST PUBLISHED WORK ON PROBABILITY

MOIVRE, Abraham de. *'De Mensura Sortis, seu, de Probabilitate Eventuum in Ludis a Casu Fortuito Pendentibus,'* pp. 213-264 in *Philosophical Transactions*, Vol. 27, No. 329. For the months of January, February, and March 1711. London: printed for H. Clements ... and W. Innys ... and D. Brown, [1712].

\$5,000

First edition of de Moivre's first published work on probability, and the first original work on the subject published in Britain. "Nearly all of *De Mensura Sortis* was later incorporated into de Moivre's book *The Doctrine of Chances* (1718, 1738, 1756), which was the most important textbook on probability theory until the publication of Laplace's *Théorie Analytique des Probabilités* (1812)" (Hald).

<http://sophiararebooks.com/5154>



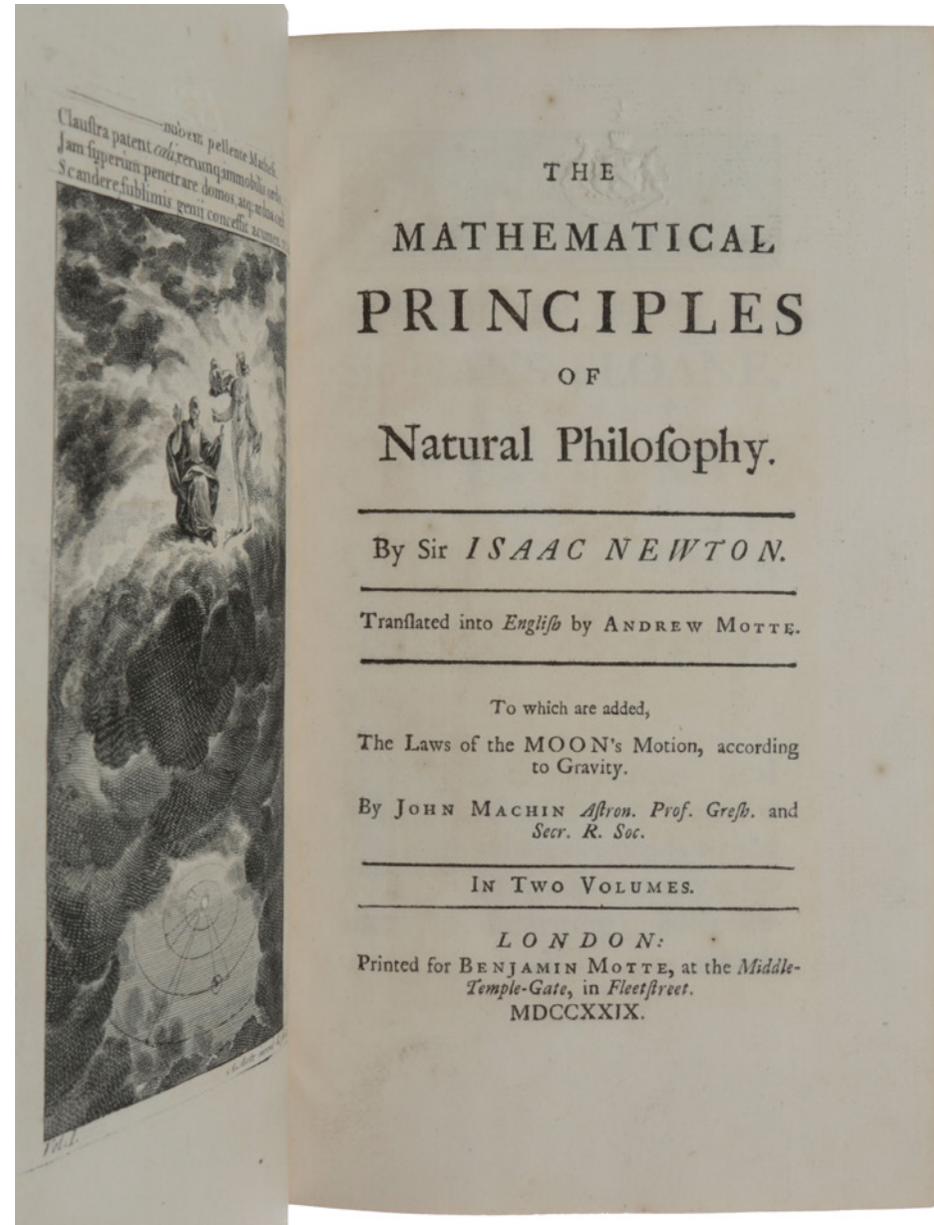
FIRST EDITION IN ENGLISH OF THE PRINCIPIA - THE MAGNIFICENT JONES-MACCLESFIELD LARGE PAPER COPY

NEWTON, Isaac. *The Mathematical Principles of Natural Philosophy... Translated... by Andrew Motte. To which are added, the laws of the moon's motion, according to gravity. By John Machin...* In two volumes. London: for Benjamin Motte, 1729.

\$195,000

First edition in English of the *Principia*, the magnificent Jones-Macclesfield large paper copy in contemporary morocco; with its important provenance, this is surely the most desirable copy in private hands. The first edition was published in Latin in 1687 and “is generally described as the greatest work in the history of science. Copernicus, Galileo and Kepler had certainly shown the way; but where they described the phenomena they observed, Newton explained the underlying universal laws ... [Newton] is generally regarded as one of the greatest mathematicians of all time and the founder of mathematical physics” (PMM 161).

<http://sophiararebooks.com/5105>



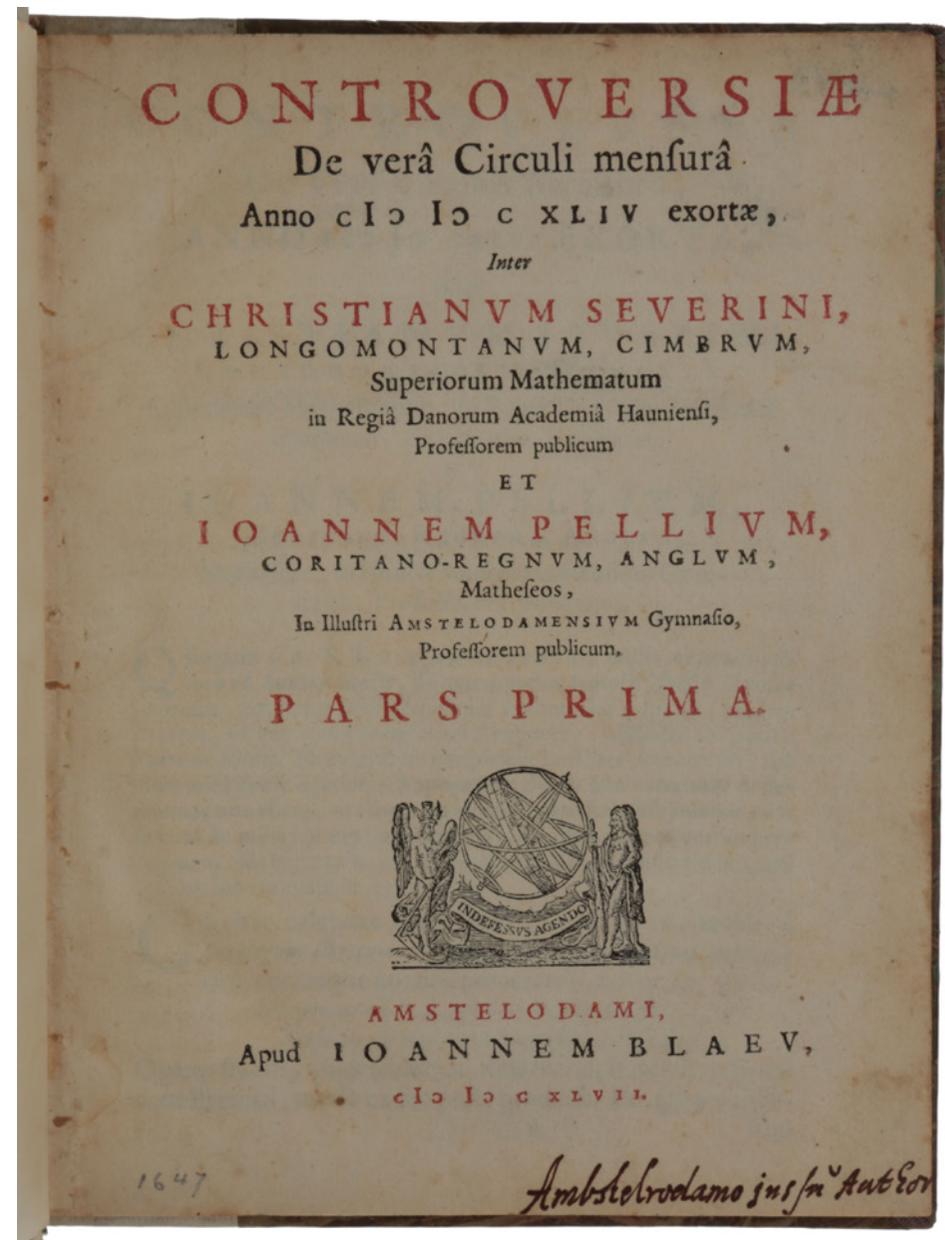
SQUARING THE CIRCLE - WITH CONTRIBUTIONS BY CAVALIERI, DESCARTES, AND MERSENNE

PELL, John. *Controversiæ de vera Circuli mensura Anno 1644 exortæ, inter Christianum Severini Longomontanum ... et Joannem Pellium ... Pars prima [all published].* Amsterdam: Johan Blaeu, 1647.

\$5,500

First edition, **presentation copy inscribed by the author**, of Pell's very rare refutation of the Danish astronomer Longomontanus's attempt to square the circle. Pell was a gifted mathematician, highly regarded by his contemporaries, but has been somewhat forgotten by history as he published little. "At Amsterdam, Pell's fame was enhanced by his *Controversiæ de vera circuli mensura* (1647), which attacked C. S. Longomontanus and earned the approbation of Roberval, Hobbes, Cavendish, Cavalieri, Descartes, and others" (DSB). Only one other copy in auction records.

<http://sophiararebooks.com/5155>



A RARE AND BEAUTIFUL ICHTHYOLOGICAL WORK - PRESENTATION COPY

PLAYFAIR, Lieut. Colonel Sir Robert Lambert & GÜNTHER, Albert Carl Ludwig Gotthilf. *The Fishes of Zanzibar, Acanthopterygii by ... Lambert, Pharyngognathi etc. by ... Günther.* London: John van Voorst, 1866.

\$9,500

First edition, an important presentation copy, of this beautiful and rare ichthyological work. It is based on the collections formed by Playfair during the “course of a residence of many years at Aden and Zanzibar, during which he made frequent trips to the African coast and the adjacent islands” (Preface).



<http://sophiararebooks.com/5116>

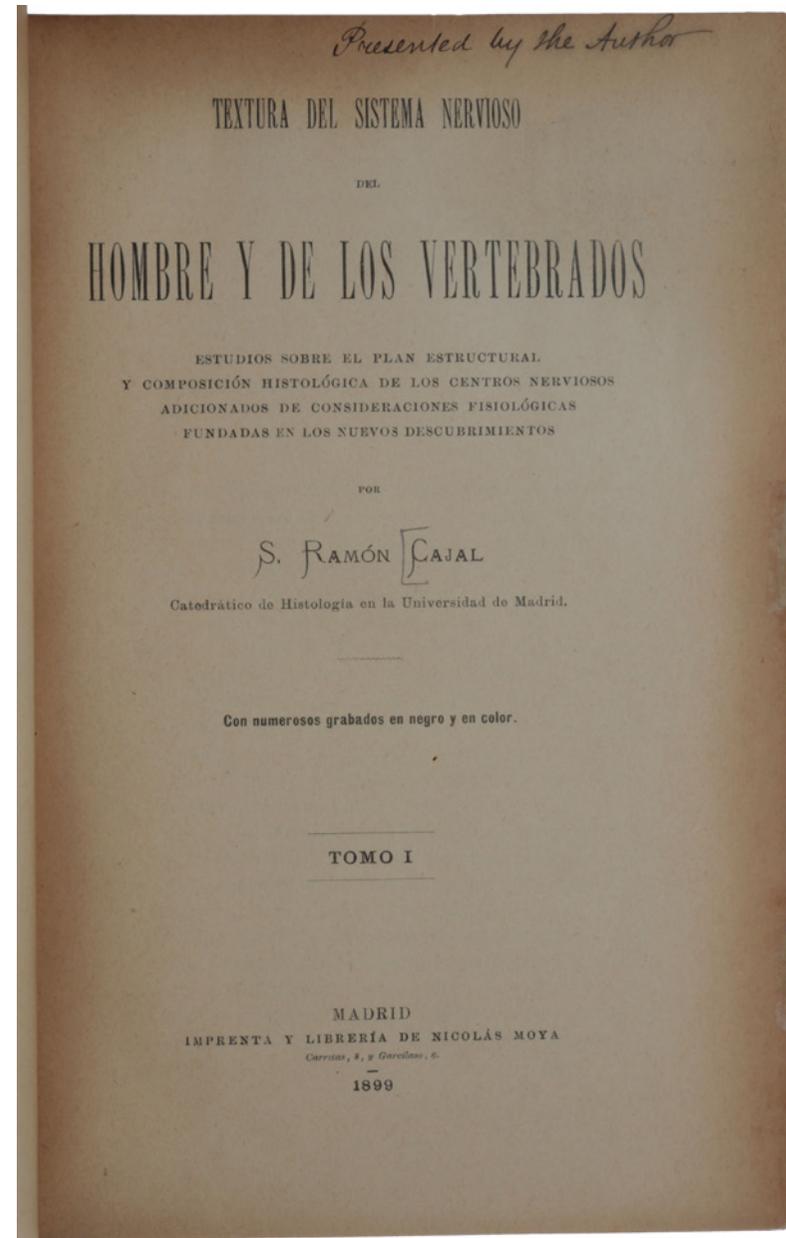
THE FOUNDATIONS OF MODERN NEUROLOGY - THE ONLY KNOWN PRESENTATION COPY

RAMÓN Y CAJAL, Santiago. *Textura del sistema nervioso del hombre y de los vertebrados.* Madrid: Nicolas Moya, 1899-1904.

\$58,000

First edition, rare; this, **the only known presentation copy**, was exhibited at the Grolier Club in 1995. “This monumental work sets out the cytological and histological foundations of modern neurology. Ramón y Cajal’s research confirmed the neuron doctrine; his classification of neurons provided a histological basis for cerebral localization. His descriptions of the cerebral cortex are still the most authoritative” (GM).

<http://sophiararebooks.com/5115>



RICCIOLI'S GREAT JESUIT ENCYCLOPAEDIA OF ASTRONOMY - WITH A NEW AND ACCURATE MAP OF THE MOON

RICCIOLI, Giambattista. *Almagestum Novum astronomiam veterem novamque complectens observationibus aliorum, et propriis novisque theorematibus, problematibus, ac tabulis promotam, in tres tomos distributam quorum argumentum sequens pagina explicabit.* Bologna: heirs of Vittorio Benacci, 1651.

\$32,000

First edition of Riccioli's 'New Almagest', his attempt at a comprehensive and detailed non-Copernican account of the heavens that would reconcile theology with observational astronomy. "Riccioli designed a series of experiments by which he hoped to disprove Galileo's conclusions, but instead ratified them. This is especially true of his accurate and ingenious investigations of falling bodies ... He observed the topography of the moon and, in concert with Grimaldi, introduced some of the nomenclature that is still used to describe lunar features" (DSB). The map of the Moon, drawn by Grimaldi, was more accurate than any of its predecessors, including those of Hevelius.

<http://sophiararebooks.com/5123>



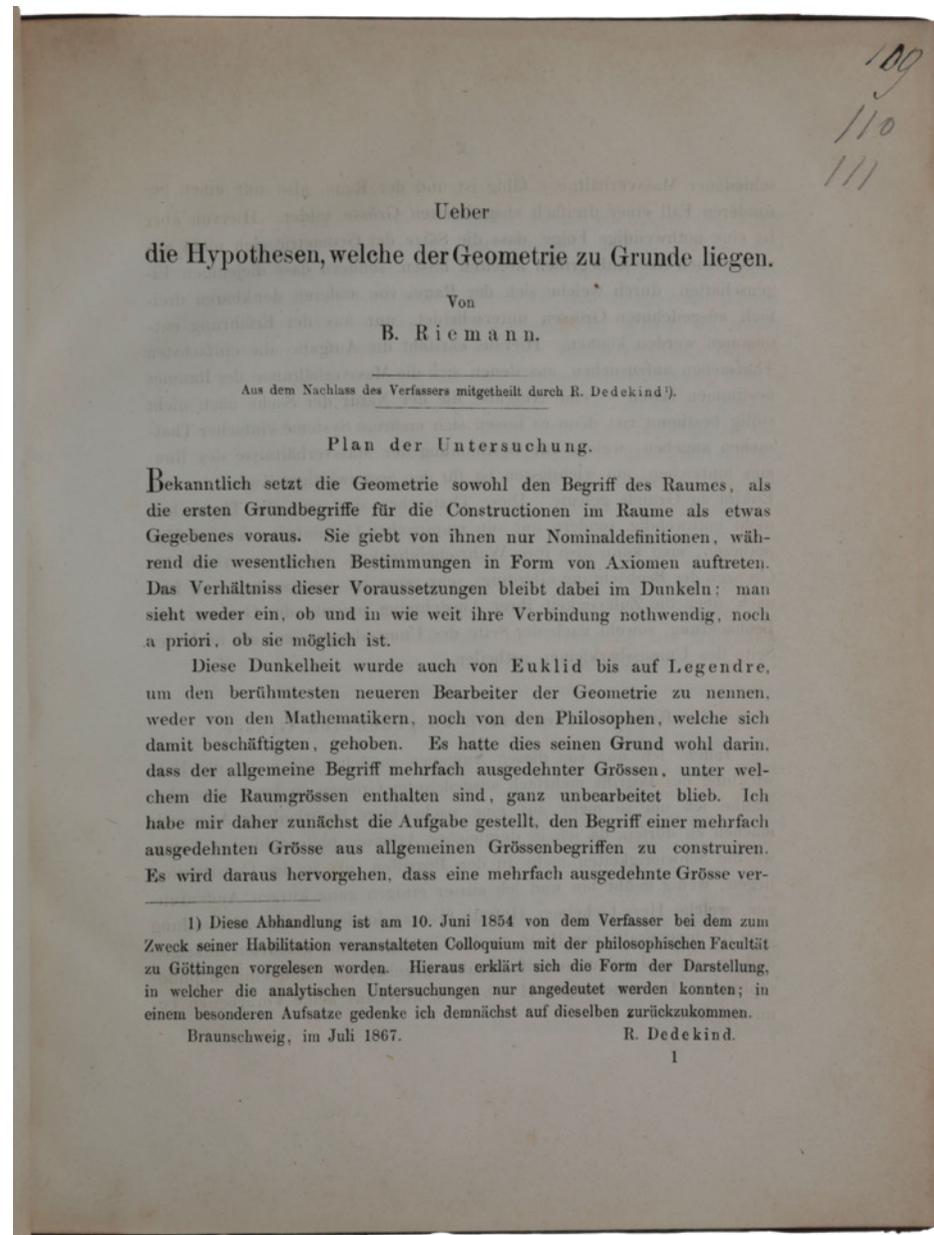
PMM 293 - ONE OF THE HIGHLIGHTS IN THE HISTORY OF MATHEMATICS

RIEMANN, Bernhard. *Ueber die Hypothesen, welche der Geometrie zu Grunde liegen.* [With:] *Über die Darstellbarkeit einer Funktion durch eine trigonometrische Reihe.* Göttingen: Dieterich, 1867.

\$115,000

First edition, very rare separately-paginated offprints, of these two landmark papers: Riemann's celebrated Habilitationsvortrag on the foundations of geometry which "did more to change our ideas about geometry and physical space than any work on the subject since Euclid's *Elements*" (*Landmark Writings in Western Mathematics*, p. 507); bound with his famous Habilitationsschrift on Fourier series which introduced the Riemann integral and "led to the creation of set theory" (*ibid.*, p. 491).

<http://sophiararebooks.com/5132>

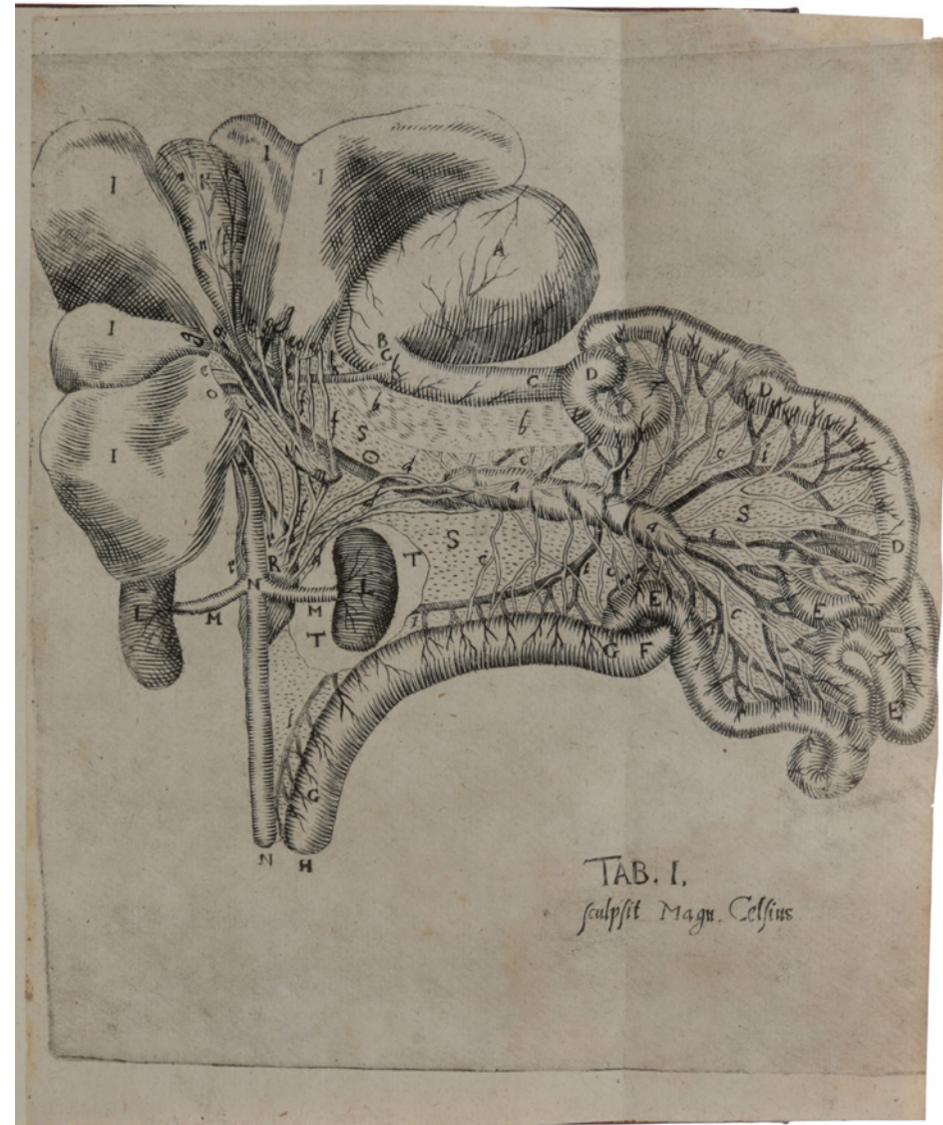


**“ONE OF THE GREAT MEDICAL RARITIES”
(NORMAN)**

RUDBECK, Olof. *Nova exercitatio anatomica, exhibens ductus hepaticos aquosos, & vasa glandularum serosa, nunc primum inventa, æneisque figuris delineata.* Arosia [Västerås]: Eucharius Lauringer, 1653.

\$75,000

First edition of “one of the great medical rarities” (Norman); this is possibly the only copy in private hands. Rudbeck’s work documents his discovery, at the age of 20, of the structure and course of the lymphatic vessels and their valves, the lymph glands, and the nature of the lymphatic fluid.



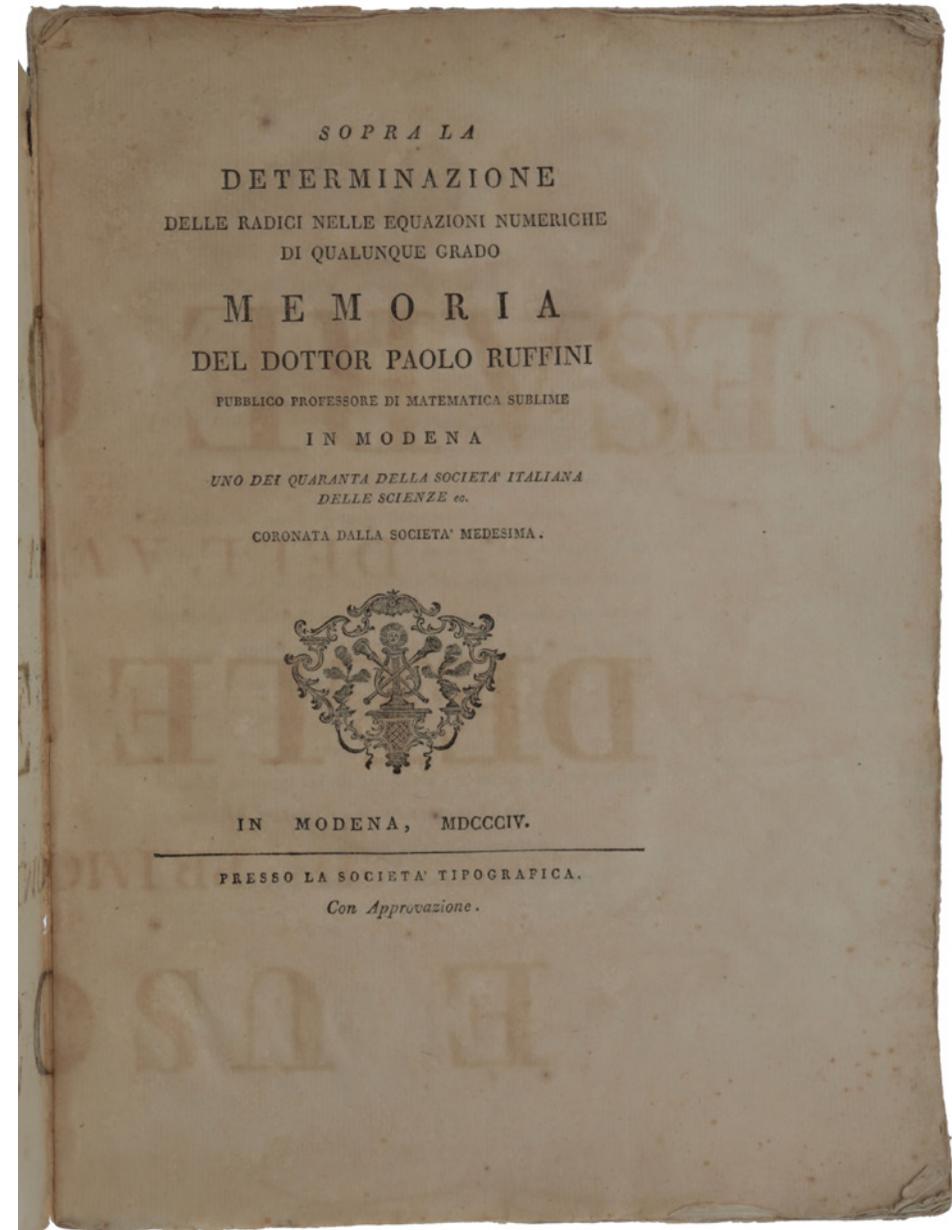
SOLVING HIGHER DEGREE EQUATIONS

RUFFINI, Paolo. *Sopra la determinazione delle radici nelle equazione numeriche di qualunque grado ... [Bound as issued with:] [ABBATI MARESCOTTI, Pietro]. Riflessioni di Pietro Abati modenese intorno al metodo di Lodovico Lagrange ... per la soluzione delle equazione numeriche.* Modena: Presso la Societa Typographica, 1804.

\$1,000

First edition, very rare, of this important work in the history of numerical analysis, containing Ruffini's method of finding approximate solutions of polynomial equations, now usually called Horner's method. Ruffini is best known for showing that the general equation of degree greater than four cannot be solved by successive extraction of roots; an exact solution being unavailable, Ruffini then turned to the problem of finding approximate solutions of such equations.

<http://sophiararebooks.com/5110>



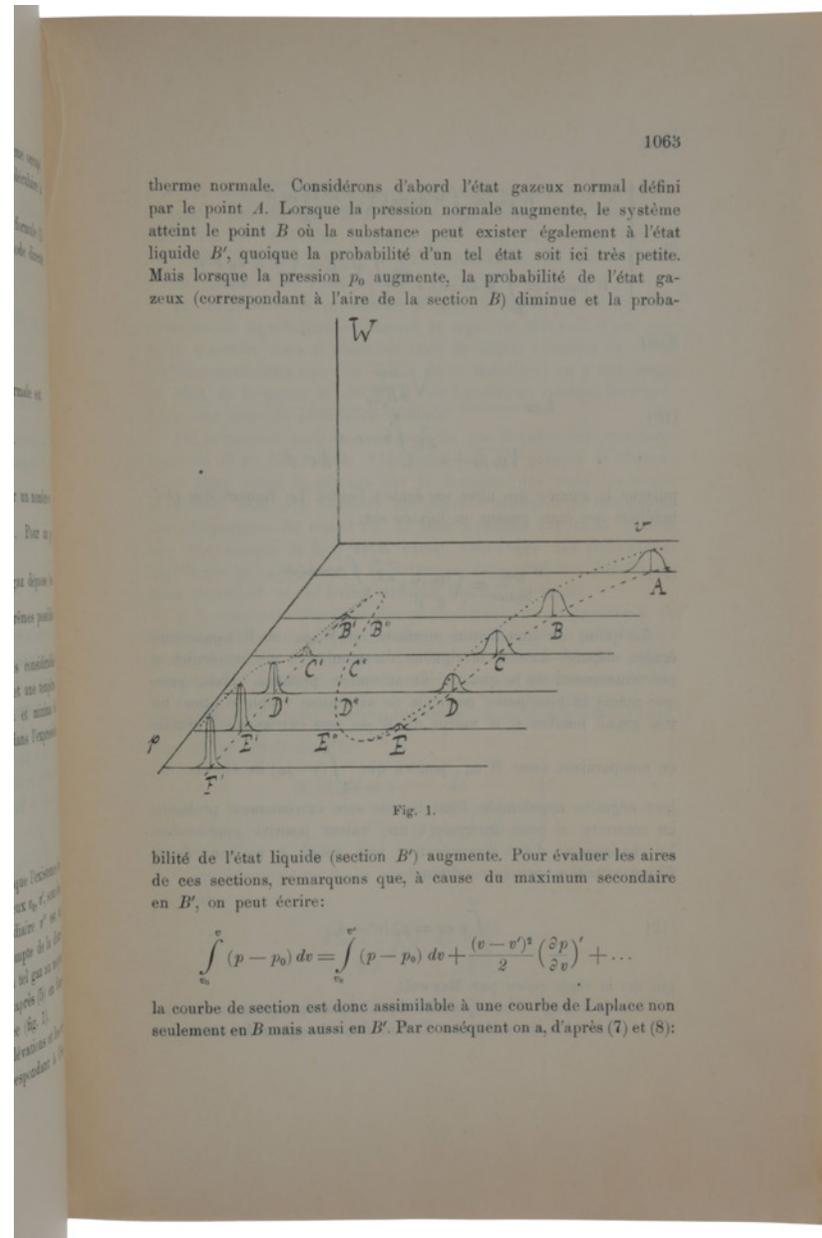
WHY THE SKY IS BLUE

SMOLUCHOWSKI, Marian. *Théorie cinétique de l'opalescence des gaz à l'état critique et de certains phénomènes corrélatifs* (Kinetyczna teoria opalescencyi gazów w stanie krytycznym oraz innych zjawisk pokrewnych). Offprint from *Bulletin de L'Académie des Sciences de Cracovie*, December, 1907. Cracow: Imprimerie de L'Université, 1907.

\$1,500

First edition, extremely rare offprint, of Smoluchowski's paper on critical opalescence, which also gives the first correct explanation for why the sky is blue – blue light is scattered preferentially compared to red light from density fluctuations in the Earth's atmosphere. Three years later, in one of his most often-cited papers, Einstein gave what he called a “quantitative realization of the theory by Smoluchowski.”

<http://sophiararebooks.com/5134>



HYDRAULIC ENGINEERING

SWITZER, Stephen. *An introduction to a general system of hydrostaticks and hydraulicks...* London: for T. Astley, S. Austen and L. Gilliver, 1729.

\$6,500

First edition of the best contemporary survey of hydraulic engineering in Britain in the early eighteenth century. "His great *Introduction to a General System of Hydraulicks and Hydrostaticks*, in two extensively illustrated volumes, appeared in 1729. It is his major and most scientific work, and was clearly of great importance to him; as a milestone in the development of industrial processes, especially the creation of the network of canals from mid-century, it deserves an honourable place" (ODNB).



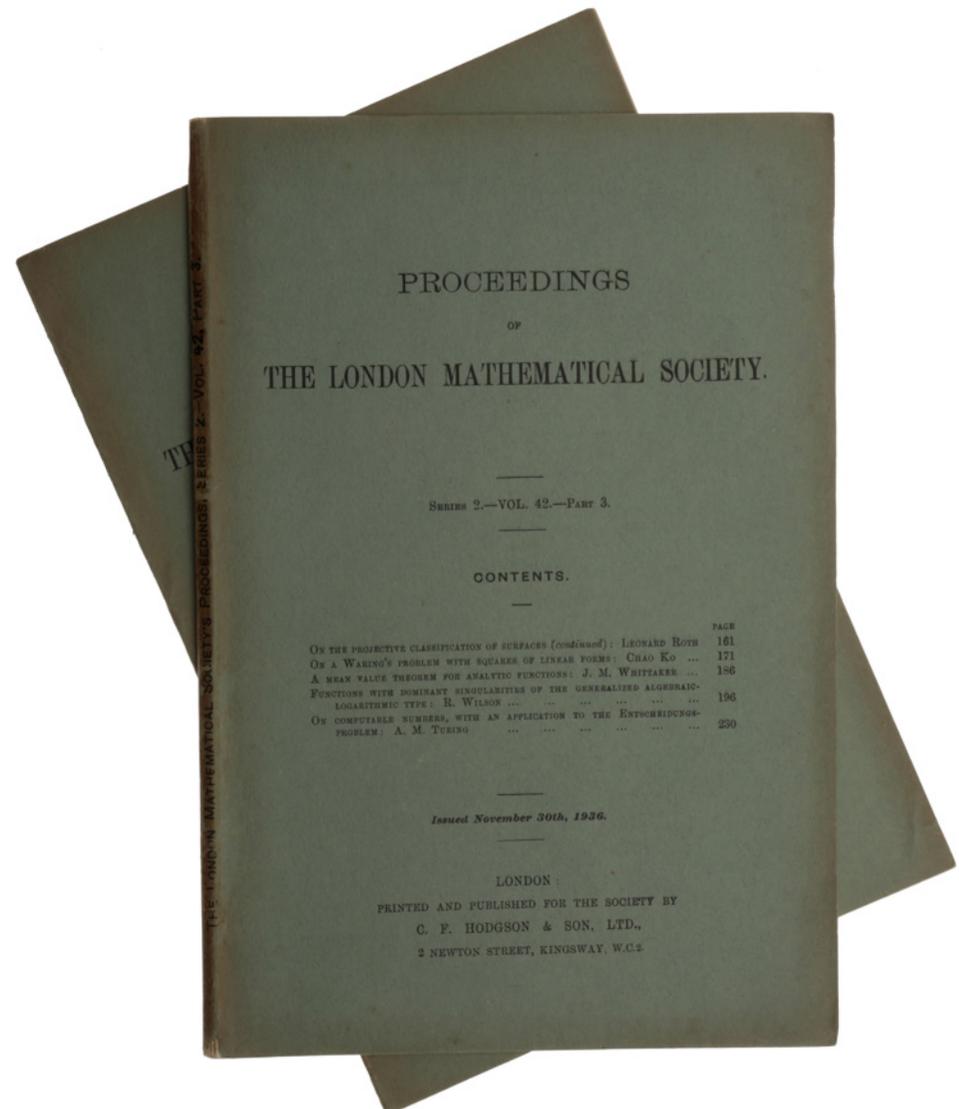
<http://sophiararebooks.com/5089>

THE FOUNDING PUBLICATION OF MODERN COMPUTER SCIENCE

TURING, Alan Mathison. 'On computable numbers, with an application to the Entscheidungsproblem,' pp. 230-265 in *Proceedings of the London Mathematical Society, series 2, vol. 42, part 3, November 30, 1936 & part 4, December 23, 1936.* London: C.F. Hodgson and Son, [1936-] 1937.

\$95,000

First edition, journal issues in the original printed wrappers, of the founding publication of modern computer science. "On Computable Numbers' is the birthplace of the fundamental principle of the modern computer, the idea of controlling the machine's operations by means of a programme of coded instructions stored in the computer's memory. In addition Turing ... proved that not all precisely stated mathematical problems can be solved by computing machines. One such is the *Entscheidungsproblem* or 'decision problem'" (Copeland, *The Essential Turing*, p. 6).



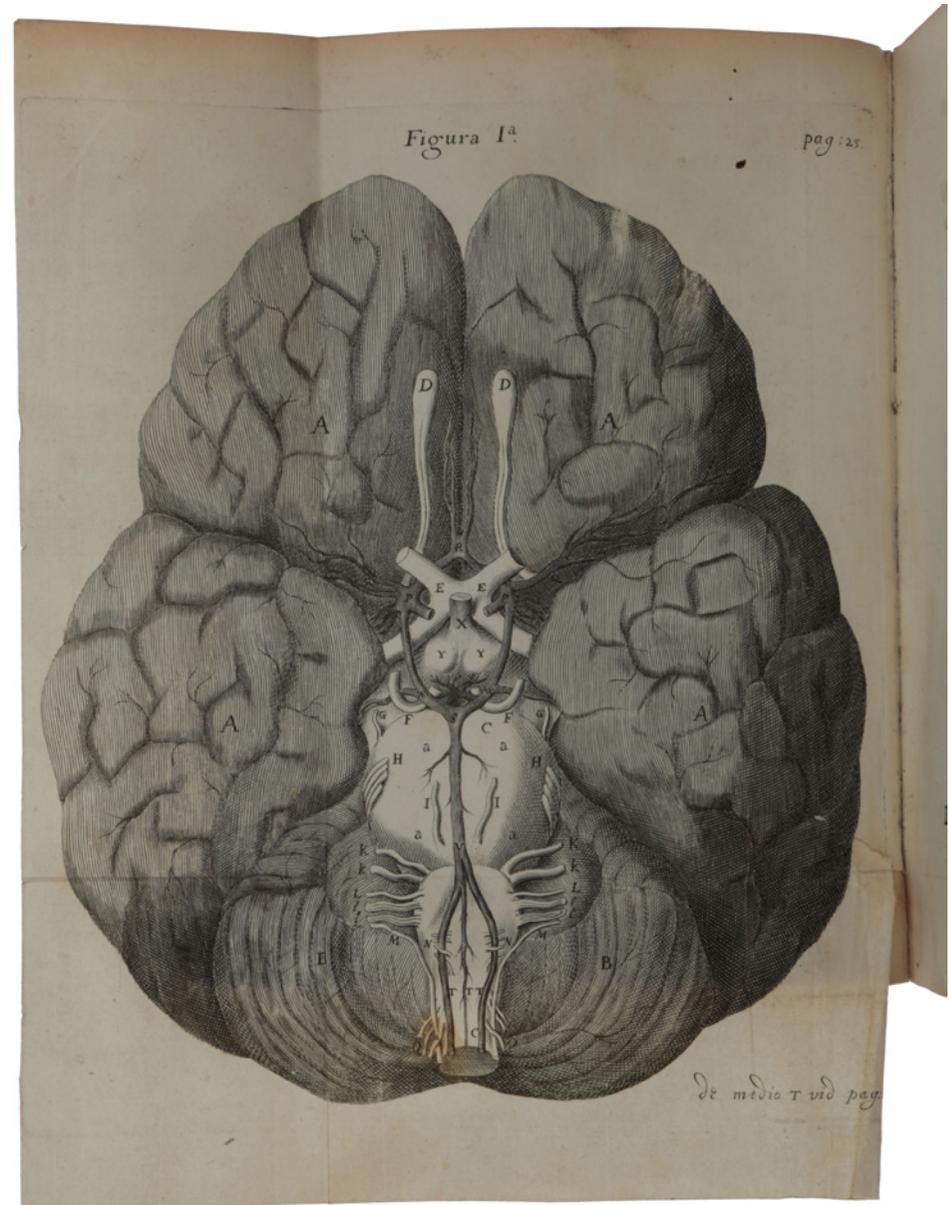
<http://sophiararebooks.com/5130>

THE FOUNDING WORK OF NEUROLOGY

WILLIS, Thomas. *Cerebri anatome: cui accessit nervorum descriptio et usus.* London: Typis Ja. Flesher, Impensis Jo. Martyn & Ja. Allestry, 1664.

\$32,500

First edition of the “most complete and accurate account of the nervous system which had hitherto appeared, and the work that coined the term ‘neurology’” (GM). “With this contribution, [Willis] was entitled to be a member of the notable group of seventeenth-century anatomists that included Valsalva, Malpighi, Leeuwenhoek, and others” (Lilly).



<http://sophiararebooks.com/5128>

THE FIRST COMPREHENSIVE EUROPEAN TREATISE ON OPTICS

WITELLO. *Peri optikes* [in Greek], id est de natura, ratione, & projectione radiorum visus, luminum, colorum atque formarum, quam vulgo perspectivam vocant, libri X. Nuremberg: Johann Petri, 1535.

\$120,000

First edition, rare, and a fine copy, of the first comprehensive European treatise on optics, and the first work to contain descriptions of medieval laboratory instruments. Witelo summarizes all the achievements of antiquity in the field of geometry, as far as they are relevant for optics, discusses theories of radiation, reflection by plain and curved mirrors, light, colour, perspective, etc. Witelo describes experiments such as the production of artificial rainbows through refraction in crystals or water bottles. His account of how to make parabolic mirrors was new in Europe. Witelo's principal source was Ibn al-Haytham's *Optics*; Witelo's treatise is thus the first printed source for Ibn al-Haytham's work, which was not printed until 1572.

<http://sophiararebooks.com/5136>

