



**IMPORTANT SCIENTIFIC BOOKS  
FROM THE COLLECTION OF  
PETER AND MARGARETHE BRAUNE**

London 9 July 2019

**CHRISTIE'S**

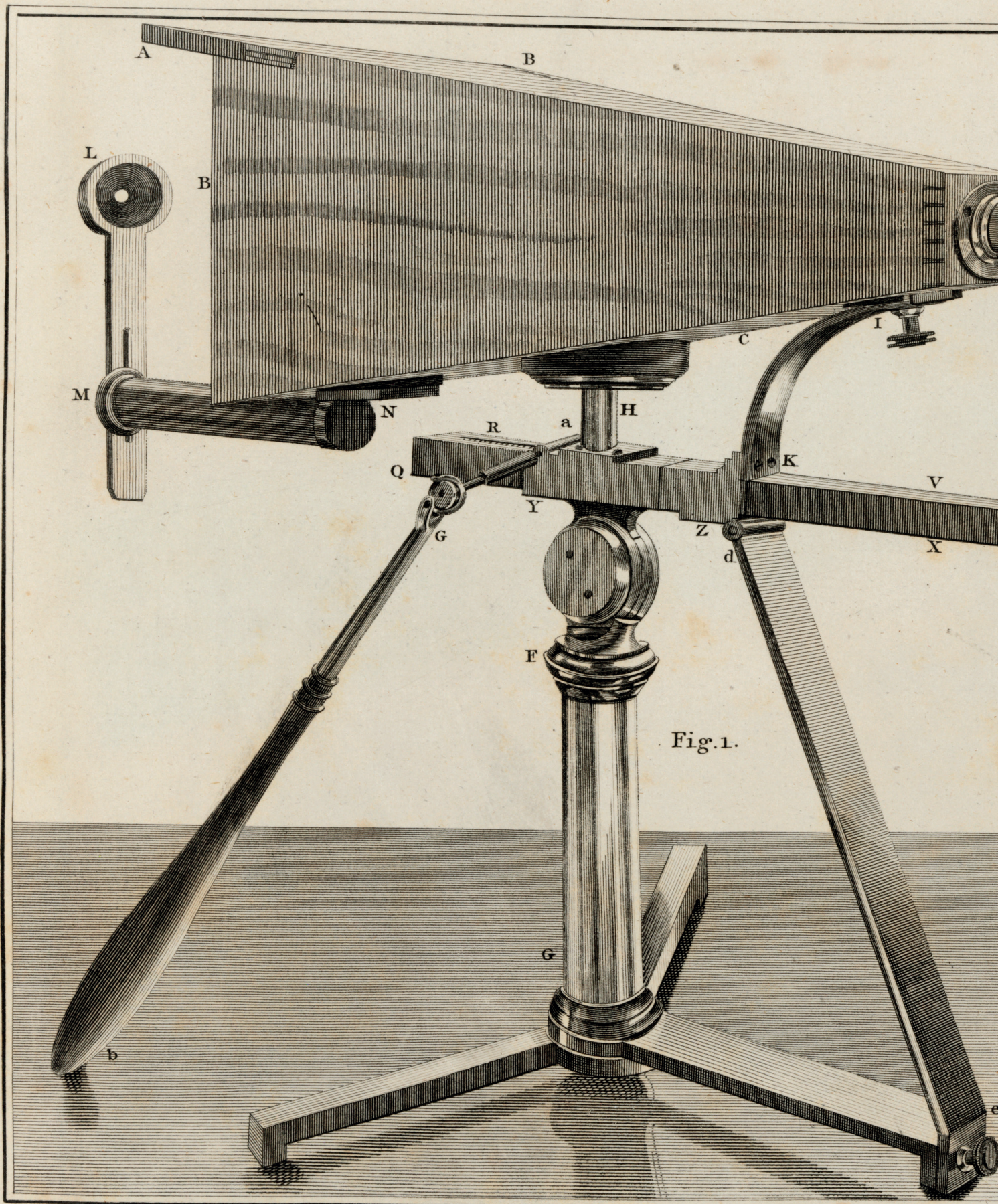


Fig. 1.

*T. Milne del.*

London. Printed & Published by George Adams. N

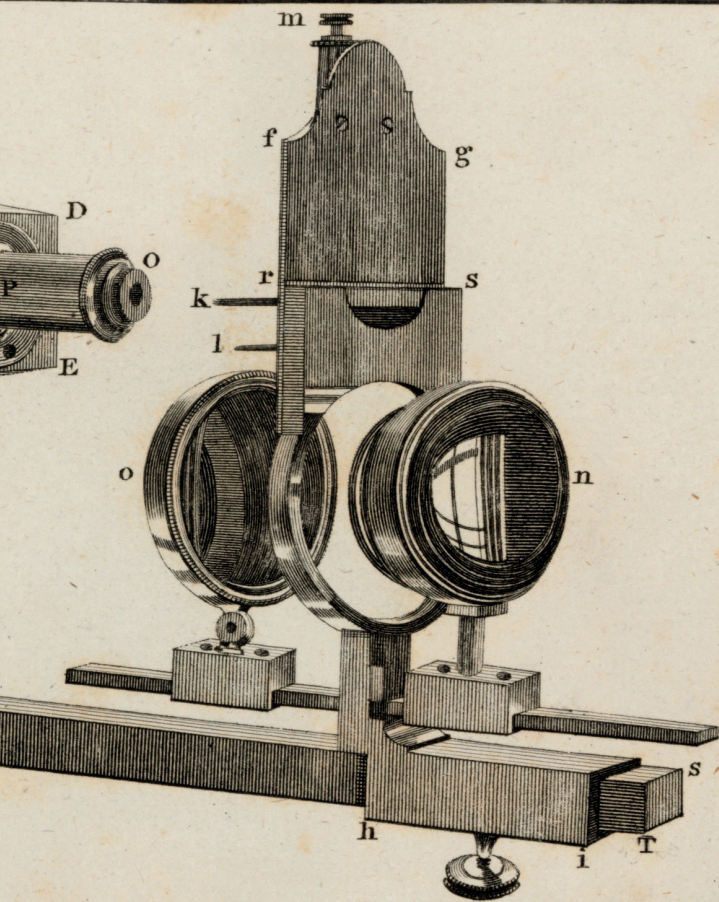


Fig. 4.

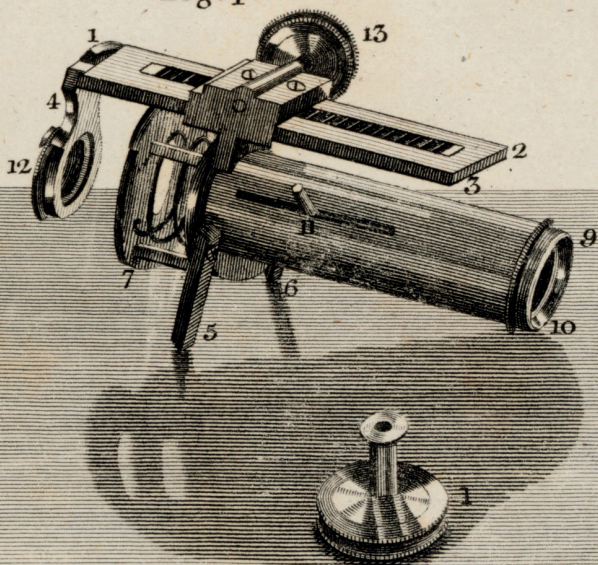


Fig. 2.

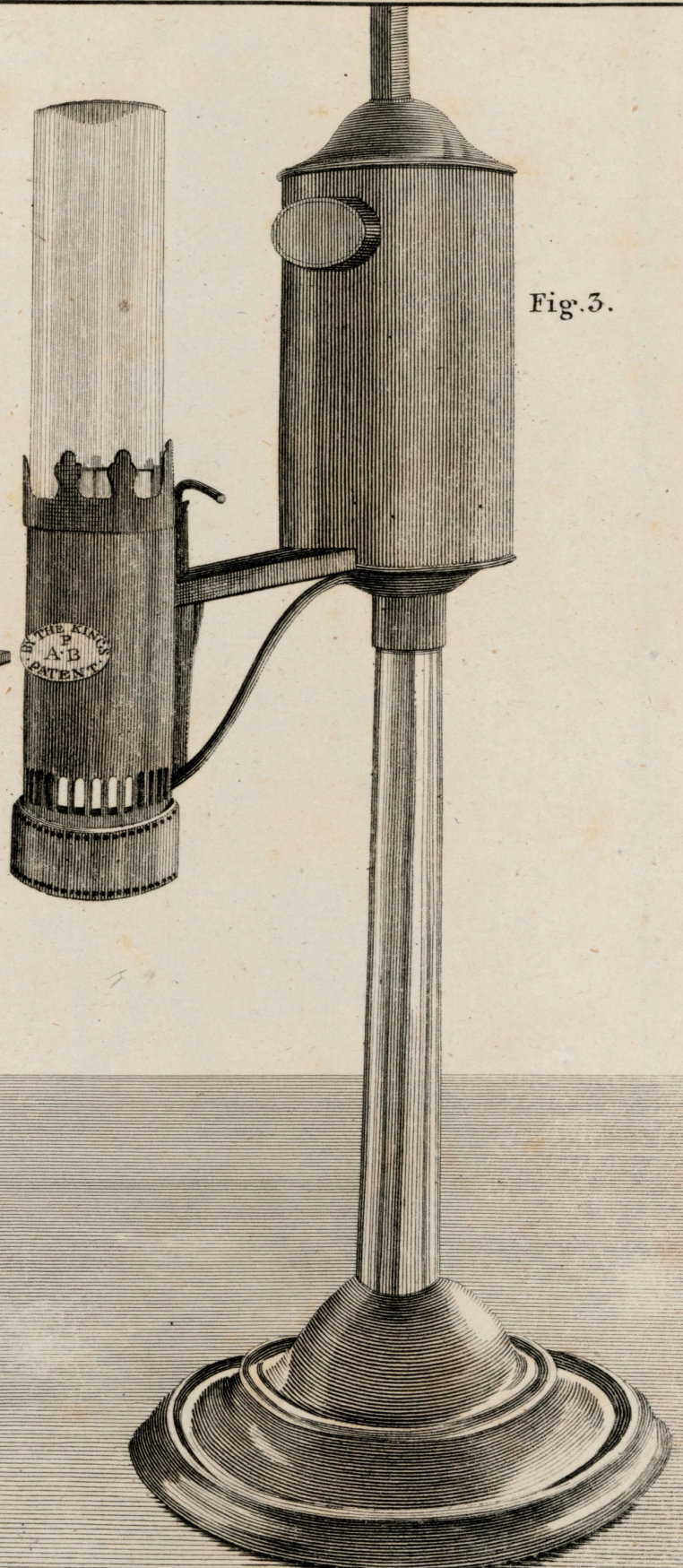


Fig. 3.

## BOOKS & MANUSCRIPTS AND SCIENCE



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# IMPORTANT SCIENTIFIC BOOKS FROM THE COLLECTION OF PETER AND MARGARETHE BRAUNE

**TUESDAY 9 JULY 2019**

### AUCTION

Tuesday 9 July 2019  
at 2.00 pm

8 King Street, St. James's  
London SW1Y 6QT

### VIEWING

Saturday	6 July	12.00 pm – 5.00 pm
Sunday	7 July	12.00 pm – 5.00 pm
Monday	8 July	9.00 am – 4.30 pm & 6.00 pm – 8.30 pm

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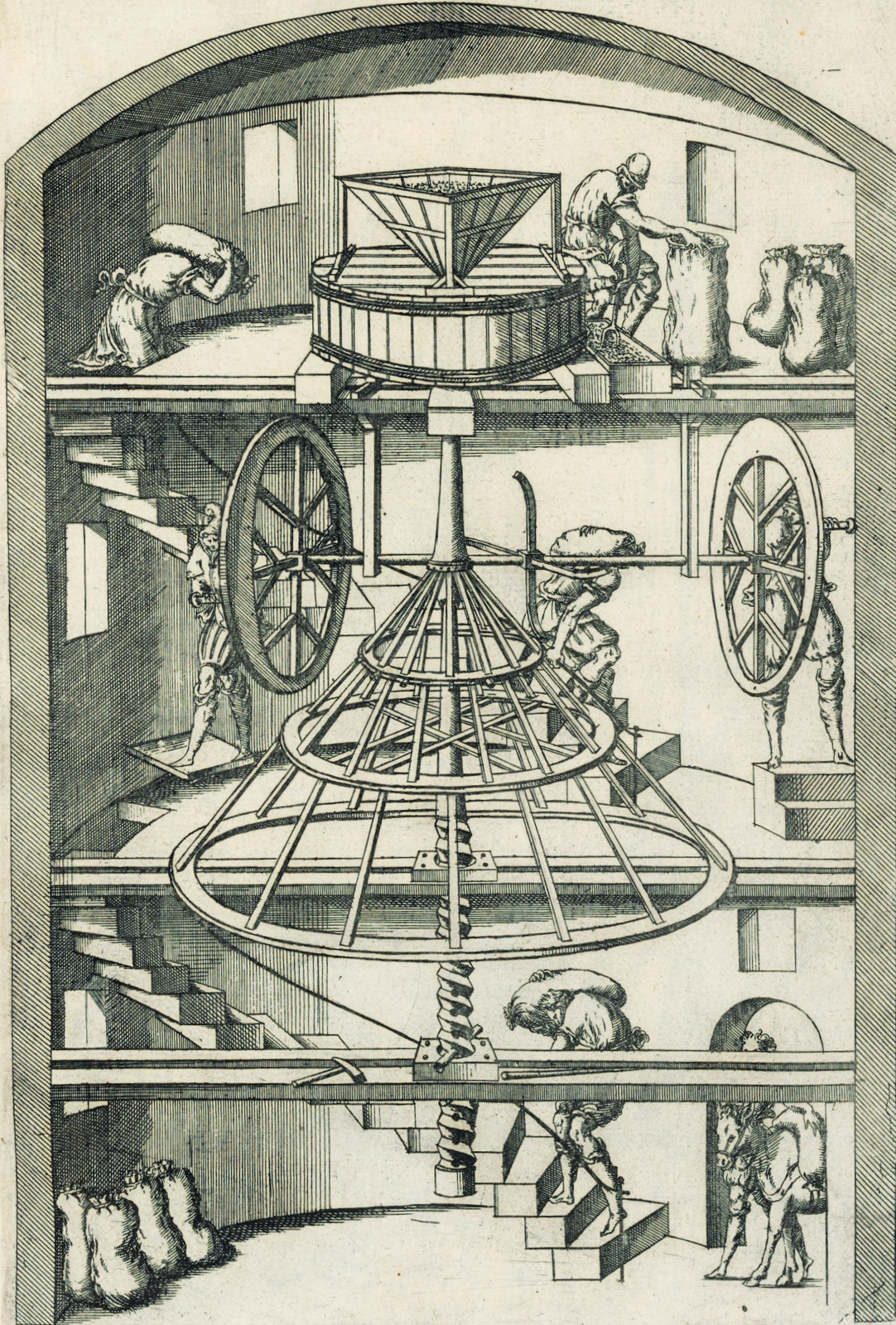
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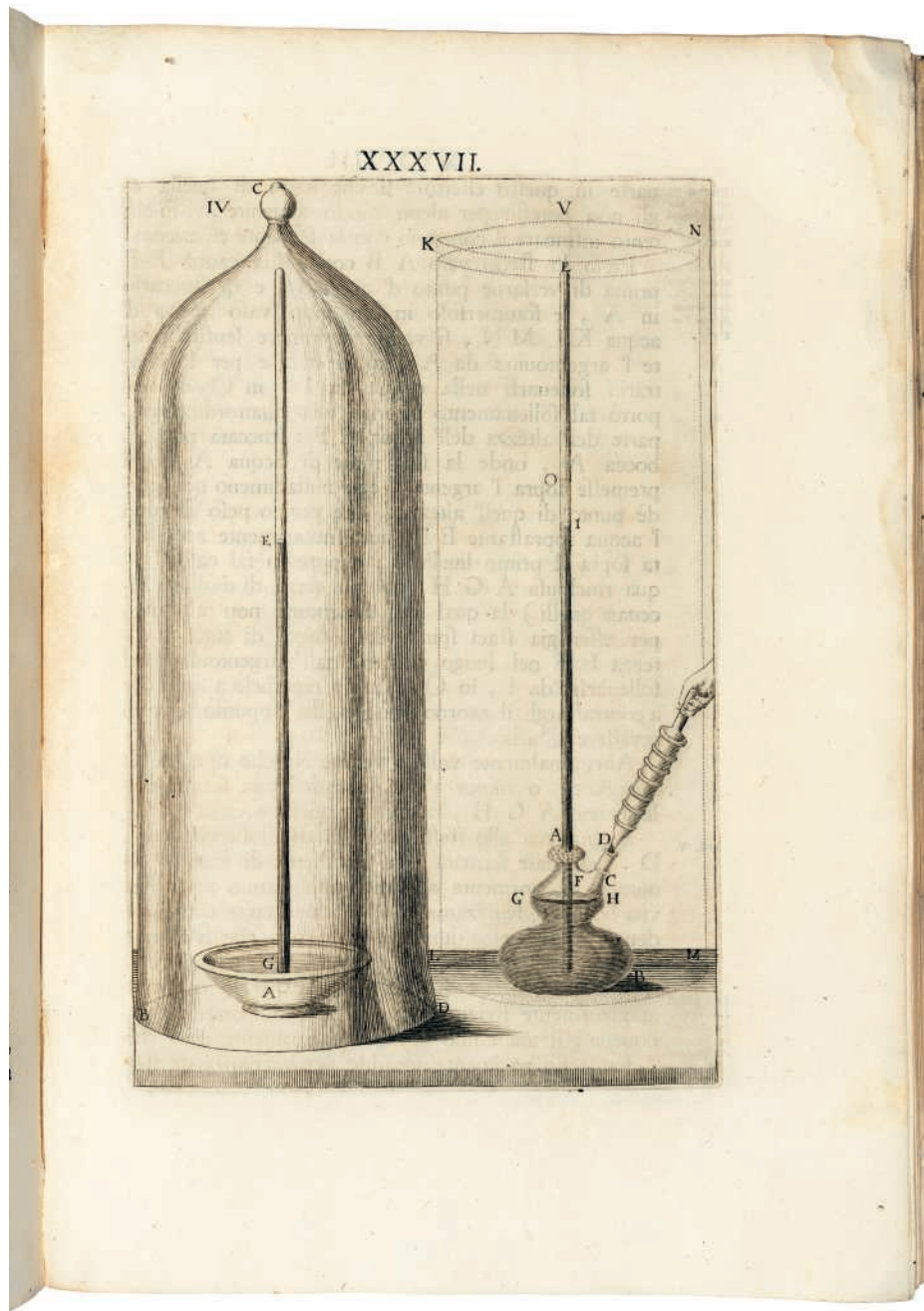
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# CHRISTIE'S

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 TRITICI DE PROMITVR, QVANTVM APTO LOCO AQVIS  
 AVT VENTIS ABVNDĒ SVPPETENTIBVS, SOLET





0201

ACCADEMIA DEL CIMENTO. *Saggi di naturali esperienze fatte nell'Accademia del Cimento*. Florence: Giuseppe Cocchini, 1666.

**First edition, first issue, of the only publication by the earliest scientific society.** Although short-lived, the Accademia del Cimento was highly active in the ten years from 1657 to 1667 and was vastly influential through its experiments and discoveries. The *Saggi* contains a description of the first true thermometer and first true hygrometer, describes an improved barometer, and also gives the results of classic experiments on air pressure, sound velocity, radiant heat, phosphorescence, and the expansion of water on freezing. The academy was so exclusive that it consisted of only 10 members, among them Galileo's pupil Vincenzo Viviani, Giovanni Borelli, Francesco Redi and Niels Stensen. The delicate glass tubes, pendulums, thermometers and other measuring devices which are so finely depicted in Modiana's plates were

provided by Prince Leopold, himself an amateur scientist, who guided the academy's experimental agenda. Dibner *Heralds* 82; Norman 486: 'a very beautiful and expensively produced work'.

Folio (345 x 240mm). Half-title, title printed in red and black with engraved alchemical device of the Academy, engraved portrait of Grand Duke Ferdinand II of Tuscany by Lotaringus after François Spierre, 4pp. dedication from the 1667 second issue inserted, 75 full-page illustrations of experimental apparatus, engraved head- and tailpieces, large woodcut historiated initials (lacking the blank, some browning to the dedication leaves and a few others, small wormholes, marginal wormtracks restored throughout, c.20 leaves faintly waterstained at fore-edge). 20th-century binding using old vellum.

£2,000-3,000

US\$2,600-3,800  
€2,300-3,400



0202

ADAMS, George (1709-1772). *Micrographia illustrata*. London: printed for the author, 1771.

**Fourth edition, abundantly illustrated, of an important work on microscopy.** Among the 72 plates are examples of Adams's own instruments for sale at his shop at the sign of Tycho Brahe's head, as well as microscopic studies of various animals and other substances. ESTC T53472.

Octavo (211 x 132mm). Folding engraved frontispiece and 71 plates, of which 12 folding, with 14pp. 'A catalogue of mathematical, philosophical, and optical instruments' at end (some spotting). Modern burgundy morocco, spine gilt. *Provenance*: Freeman C.S. Roper (author of *Catalogue of works on the microscope* [1865]; bookplate) - Copenhagen, Fr. E.L. Hausen (title inscription) - 'F.B.' (monogram stamp on title).

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700

0203

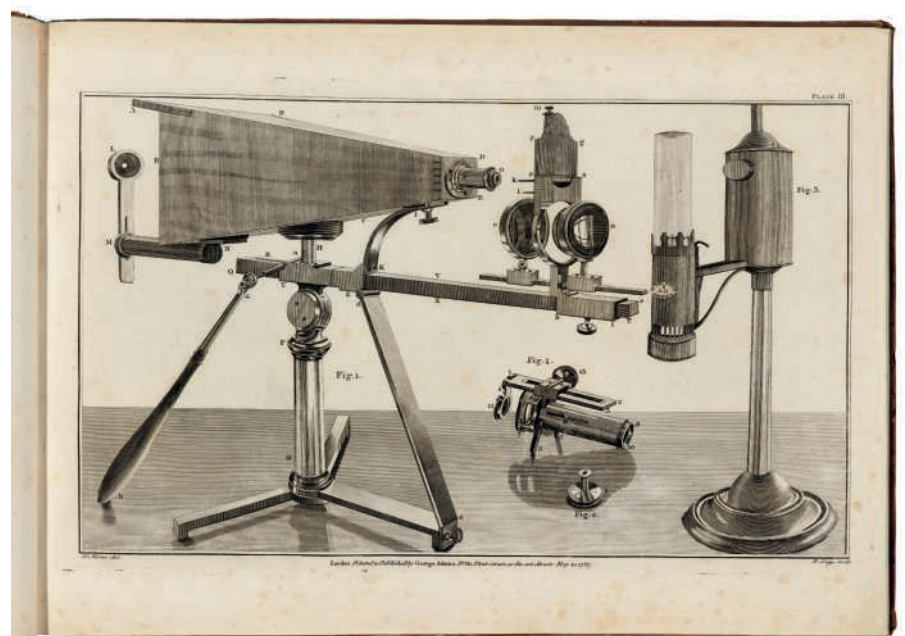
ADAMS, George Jr. (1750-1795). *Essays on the Microscope*. London: Robert Hindmarsh for the Author, 1787.

**First edition of an illustrated work on microscopy** by George Adams Junior, who succeeded his father as mathematical instrument maker to George III; he retained the position under George IV. Nissen ZBI 24.

2 volumes, comprising one text volume, quarto (268 x 213mm) and one plate volume, oblong folio (263 x 372mm). 36 engraved plates on 32 sheets (some plates variably spotted). Contemporary marbled calf, red straight-grained morocco lettering pieces, edges green (head and foot of plate volume just chipped, extremities lightly rubbed). *Provenance*: Francois Fremineur (bookplate). (2)

£2,000-3,000

US\$2,600-3,900  
€2,300-3,400







**0204**

AETIUS AMIDENUS (fl. mid-5th - mid-6th century). *Aetii Amideni quem alii Antiochenum vocant medici clarissimi libri xvi, in tres tomos divisi*. Basel: Froben, 1533-1535.

**First edition thus, the rare first complete Froben edition**, of the medical corpus by the 6th-century Byzantine Greek physician, among the earliest recorded Christian medics and the first to record the 'template wording' of many popular healing prayers of intercession. Though his work, printed several times with the editorial care of different Renaissance scholars, relies primarily on Galen and Oribasius, it is regarded as a valuable witness to ancient medical thought, as a compilation of the writings of many authors, many of which were preserved in the Alexandrian Library and are lost. One detail in Aetius' work

has remained in our vocabulary: in the extant relevant manuscript the word  $\kappa\alpha$  (acme) is written as  $\kappa\nu$  – the origin of the modern word acne.

3 parts in one volume, folio (317 x 205mm). Books 2 and 3 with separate titles, printer's device on titles and last pages (occasional very light marks). Contemporary panelled calf, sides tooled in blind, brass corner-pieces and catches, paste-downs from a theological manuscript of the 14th century (rebacked with new end-papers but preserving the originals, with the front one repaired probably following removal of a bookplate, clasps perished, abrasions to rear cover). *Provenance*: near-contemporary brief biographical note on the author (inscription at end) – 18th-century and 19th-century illegible names at front.

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700

0205

AGRICOLA, Georgius (1494-1555). *De l'arte de metalli*. Basel: Hieronymus Froben & Nicolaus Episcopius, [1563].

**First Italian edition** of Agricola's best known work. The first edition was published in Latin in 1556 and was 'the first systematic treatise on mining and metallurgy and one of the first technological books of modern times' (PMM). The *Re Metallica* embraces everything connected with the mining industry and metallurgic processes, including administration, prospecting, the duties of officials and companies and the manufacture of glass, sulphur and alum. Some of the most important sections are those on mechanical engineering and the use of water-power, hauling, pumps, ventilation, blowing of furnaces etc. many of which are shown in the fine woodcuts by Z. Specklin (c. 1530-1576) and after Hans Rudolf Deutsch (1525-1571). The work was frequently reprinted and is said to have even reached China in the 17th century. PMM 79 (first edition).



Folio (322 x 220mm). Froben's woodcut device on title and last leaf, 2 folding engraved plates, over 270 woodcuts, some signed with the monogram of Hans Rudolf Deutsch and historiated woodcut initials (lacking \*2, leaves \*1 and \*3 pasted together with a few short marginal tears to \*1, short closed marginal tear to d1, marginal tear to k3 just into text, small marginal chip to o4, 100mm tear to penultimate leaf with colophon). Modern half calf (extremities lightly rubbed). *Provenance*: contemporary annotations – G. Schiffner (stamp).

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700

0206

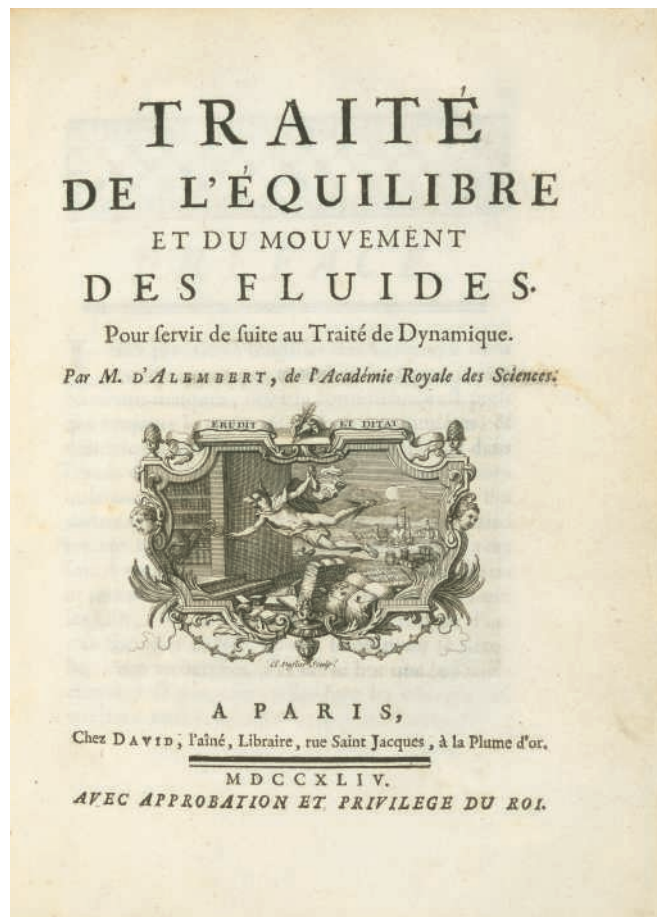
ALEMBERT, Jean le Rond d' (1717-1783). *Traité de l'équilibre et du mouvement des fluides*. Paris: David, the elder, 1744.

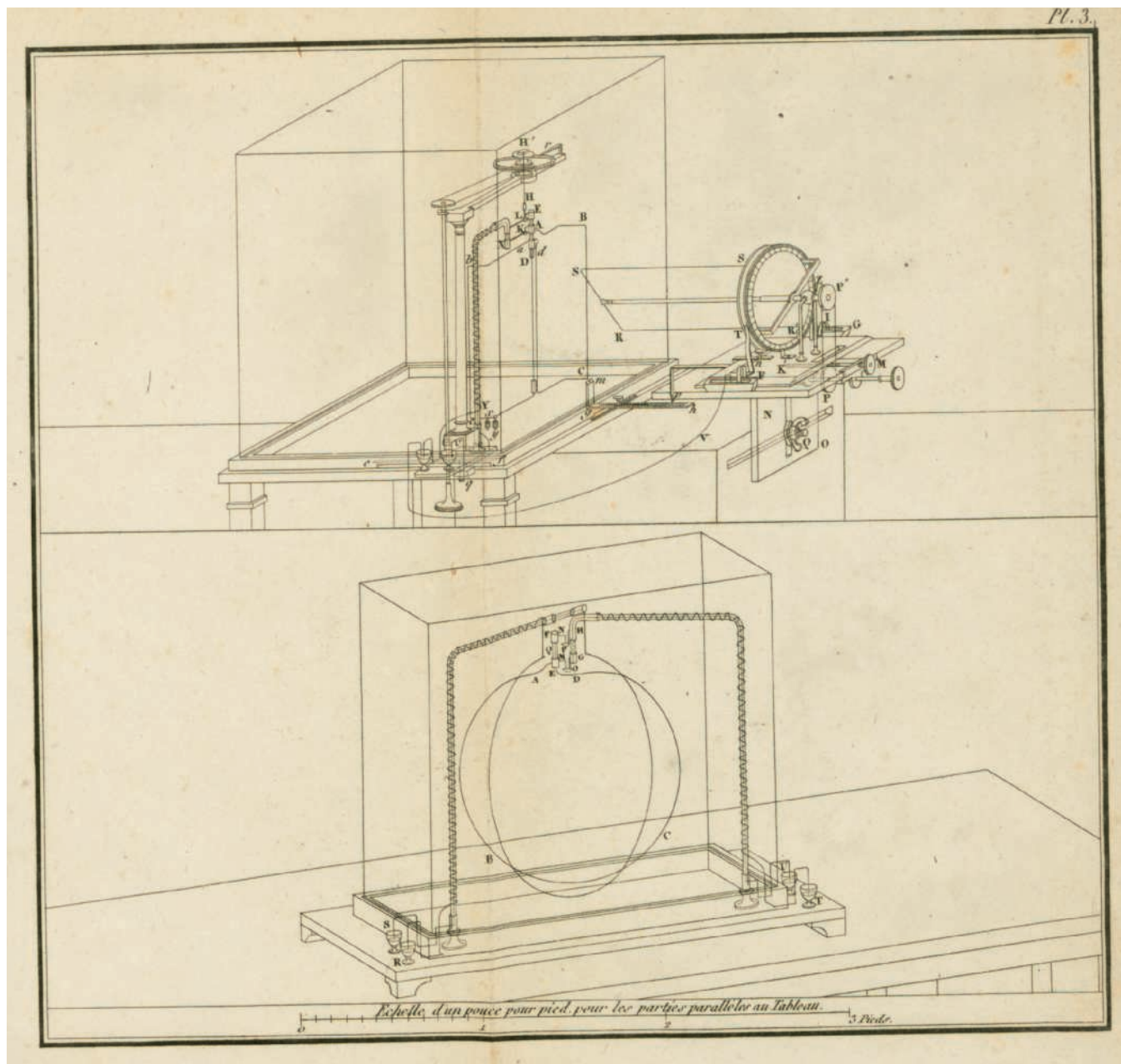
**A fine copy of the first edition of an important work on fluid mechanics.** *Traité de l'équilibre* was 'a companion volume to *Traité de dynamique* in which Alembert used his principle to describe fluid motion' (Norman), often arriving at the same conclusions as Bernoulli. Norman 33.

Quarto (218 x 163mm). Engraved printer's device on title, 10 engraved folding plates. Contemporary calf, gilt ruled borders, spine gilt, all edges gilt (minor chip at head of spine, a few unobtrusive stains, edges slightly rubbed). *Provenance*: contemporary inscription recording gift from 'F. L. de Senete [?]' – early shelfmarks on endpaper – Le Paige (bookplate dated 1918) – Philippe Bragard (bookplate dated 1986).

£1,500-2,000

US\$2,000-2,600  
€1,800-2,300





## 0207

AMPÈRE, André Marie (1775-1836). *Mémoires sur l'action mutuelle de deux courans électriques, sur celle qui existe entre un courant électrique et un aimant ou le globe terrestre, et celle de deux aimans l'un sur l'autre*. [Paris: Crochard, 1822?].

### Second (?) collected edition, presentation copy, of the first paper on the nature of electric current by the founder of electrodynamics.

The bibliography of Ampère's writings is extremely complex and remains to be studied: he published 'his researches in a bewildering array of journal articles, offprints, and revisions of earlier works [...] it often happened that he would publish a paper in a journal one week (usually the *Annales de chimie et de physique*), only to find the next week that he had thought of several new ideas that he felt ought to be incorporated into the paper. Since he could not change the original, he would add the revisions to the separately published reprints of the paper and even modify the revised versions later if he felt it necessary:

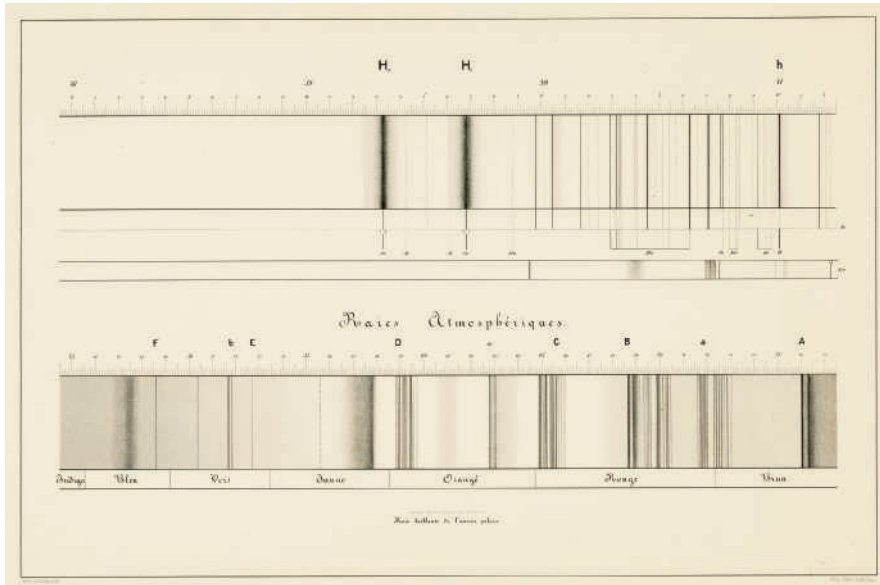
some "reprints" of Ampère's articles exist in as many as five different versions.' (Norman). From 1821 through 1823, Ampère apparently published several collections of his memoirs on electrodynamics under the same general title *Mémoires sur l'action mutuelle de deux courans électriques*, but with varying contents. The present work opens with the 'Premier Memoire' (from the same setting of type as the first edition), followed by Ampère's 'Additions au memoire precedent'. Cf. Norman 43 and 44.

Octavo (219 x 133mm). 5 engraved plates (a few faint scattered spots). Original pink wrappers, uncut (lacking backstrip, one cord partly broken with a few leaves just holding, slightly darkened, chip to corner of upper cover); modern cloth box. *Provenance*: Société Philotechnique d'Ostende (presentation inscription from the author).

£5,000-8,000

US\$6,400-10,000

€5,700-9,100



0208

ÅNGSTRÖM, Anders Jonas (1814-1874). *Recherches sur le spectre solaire* [Atlas contenant les longueurs d'onde des raies Fraunhoferiennes données en 1/10,000000 de millimètre]. Uppsala: W. Schultz, 1868.

A fine copy of the first edition of a classic work on the solar system in which Angstrom demonstrates the presence of hydrogen and a number of other elements in the sun. Solar spectroscopy provided the first scientific evidence (other than the occasional meteorite) that the elements known on earth are also present elsewhere in the universe. Angstrom also established a scale of wave-lengths for measuring spectral lines, replacing Kirchoff's arbitrary scale. Norman 56.

2 volumes, comprising one text volume, large quarto (308 x 240mm) and one atlas, oblong folio (325 x 511mm). Text with lithographic frontispiece showing Ångström's spectrometer, atlas with separate title and 6 lithographic plates after R. Thalén (1827-1905), Ångström's laboratory assistant, loose as issued. Original printed wrappers (very minor fading and a few tiny nicks).

(2)

£1,500-2,000

US\$2,000-2,500

€1,800-2,300

0209

APIANUS, Petrus (1495-1552). *Cosmographiae introductio cum quibusdam Geometriae ac Astronomiae principiis ed eam rem necessariis*. Venice: Nicolini de Sabio, 1535. [with:] GLAREANUS, Henricus [Loritus] (1488-1563). *De geographia liber unus ab ipso auctore iam tertio recognitus*. Venice: Nicolini de Sabio, 1534. [and:] SACROBOSCO, Johannes de (c.1195 - c.1256). *De sphaera. Addita est praefatio in eundem librum Philippi Mel. ad Simonem Grineum*. Venice: Nicolini de Sabio, 1534. [and:] PEURBACH, Georg von (1423-1461). *Novae Theoricae Planetarum*. Venice: Sessa, 1534. [and:] RINGELBERG, Joachim Fortius (c.1499-c.1536). *Institutiones astronomicae ternis libris contentae*. Venice: Sessa, 1535.

An attractive Sammelband in a strictly contemporary binding, containing small-format, portable editions of five important works of Renaissance astrology, all printed in Venice by the same printers between 1534 and 1535. This is a compendium of the major works of cosmology that would have been the object of study for contemporary scholars, the set of authorities which the new science of the Kepler and Galileo era would confront. 1. Harisse 202; see Karrow, p.53. 2. Palau 27542; Harisse 184 & Addenda 103; Sabin 27540; BL STC 393. 3. CNCE 32009; see Smith, *Rara arithmetica* 35. 4. Adams P2273. 5. Houzeau and Lancaster 2407.



5 works in one volume, octavo (150 x 97mm). All works with woodcuts in text, initials and (except for Sacrobosco) large printer's device on verso of last leaf. Glareanus: double-page table (initial and final quires somewhat browned or soiled, some minor browning and spotting in the rest of the quires). Contemporary limp vellum (soiled, ties perished). Provenance: occasional contemporary annotations and underlining - 17th-c. ink shelfmark from a monastic library - F.F.M. Graz (old stamp on title).

£1,500-2,000

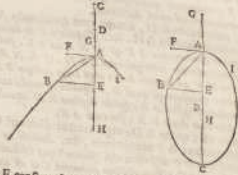
US\$2,000-2,500

€1,800-2,300

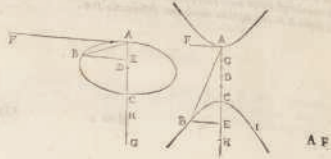
Apollonij Pergæi  
**SECTIO SECVNDA**  
 Contineus Proposit. II. III. IV. VI.  
 & VII. Apollonij.

PROPOSITIO II. & III.

**S**i in sectione A B à termino cõmuni A variislibet interceptis educatur linea recta A B vsq; ad sectionem, atq; ab eius termino B ad axim A E ducatur perpendicularis B E; erit quadratum A B ad rectangulum contentum à rectis lineis inter perpendicularis incidentiam, & terminos interceptæ, nempe A E in G E habebit eandem proportionem, quàm habet inclinatus, siue transversus A C ad prædictam C G.



Sic itaque A F erectus A C, & ponamus A E in E H æquale quadrato B E; igitur A E in E H ad A E in E C, nempe H E ad E C est vt



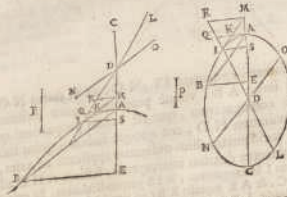
A E

Conicor. Lib. VII.

A F ad A C, & vt A G ad G C, ergo H E ad E C est vt A G ad G C; & componendo in hyperbolis, & diuidendo in ellipsis, deinde componendo homologorum differentias in duobus figuris prioribus, & summas homologorum in reliquis, fiet A H ad G E. vt C A ad C G; ergo A H in A E; nempe quadratum A B ad G E in A E est vt C A inclinatus, siue transversus ad C G prædictam. Quod fuerat propositum.

PROPOSITIO IV.

**S**i hyperbolen, aut ellipsin A B tangat recta linea I M in I, & occurrat axi A C in M; vtrique ipsius I M quadratum ad quadratum femidiametri N D coniungatur ipsi I L habebit eandem proportionem, quàm axis contenta M S ad eius inuerfam S D.



Educantur A Q, M R perpendicularæ ad axim vsque ad I L, ponaturque linea P, que ad I M eandem proportionem habeat, quàm K I ad Q I, seu eandem, quàm habeat M I ad I R; Ergo P est femidiametri N O diametri I L, ex 1. & itaque D N dimidium coniungatur diametri N O, poterit P in I D; atque I M poterit P in I R; & itaco I R ad I D, nempe M S contenta ad S D inuerfam eandem proportionem habeat, quàm quadratum tangenti I M ad quadratum N D femidiametri coniungatur ipsius I L. Ex hoc erat propositum.

PROP.

## 0210

APOLLONIUS PERGÆUS (fl. 2-3rd century BCE). *Conicorum lib. V. VI. VII.* Florence: Joseph Cocchini, 1661.

**First edition** of books V, VI and VII of Apollonius of Perga's work on conic sections. These books, one believed lost, were recovered from an Arabic paraphrase of Abalphanus Asphahanensis in a manuscript owned by Cosimo III de' Medici, Grand-Duke of Tuscany, to whom this edition is dedicated. The translation from Arabic into Latin is by Abraham Ecchellensis, edited by Giovanni Alfonso Borelli. 'Apollonius applied to conic sections the discipline that Euclid had given to geometry' (Dibner 101 [1566 ed.]). Book V is particularly important for containing the author's proof for the construction of the evolute curve. A Latin translation of Thebit Ben-Kora's Arabic version of

Archimedes' *Liber assumptorum* is included in this edition; two years earlier the Arabic text had been edited by Johannes Gravius. The first 4 books had appeared in 1566, and they were first printed in the original Greek in 1710. Norman 58; DSB I, p. 179; Brunet I, 348.

Folio (296 x 198mm). Half-title, errata leaf, title printed in red and black, woodcut diagrams in text, woodcut initials, typographic ornaments, small slips pasted on pp.300, 312, 352 (occasional light spotting, small dampstain at extreme lower gutter in first quires). Modern sheep, gilt spine, red edges.

£2,000-3,000

US\$2,600-3,800  
 €2,300-3,400



0211

[APPIER, Jan, dit Hanzelet, traditionally attributed to Jean LEURECHON (1591-1670)]. *Recreations mathématiques composées de plusieurs problèmes plaisans et facetieux d'arithmetique, geometrie*. Rouen: Charles Osmont, 1634.

**One of the earliest editions of the first book to refer to 'recreational mathematics' in the title:** an influential collection of arithmetical and combinatorial problems and questions and experiments in cosmology, optics, perspective and mechanics first published in 1624 (only 3 extant copies of the first edition). 'This work is pivotal in the history of science and mathematics. It brings together two sixteenth-century traditions, mercantile arithmetic and natural magic, and creates two new ones: recreational mathematics and popular science. [...] The book was influential on early seventeenth-century natural philosophers such as Descartes, Mersenne and Leibniz' (A. Heffer, *Récréations Mathématiques (1624): A Study on its Authorship, Sources and Influence*, in Gibeciere, 1, 2006). Dozens of editions and translations were

published during the seventeenth century (the first English translation appeared in 1633). As well as identifying the sources of all the problems presented in this work, Heffer also questions its traditional attribution to the Jesuit Leucheron and makes a strong case for assigning the authorship to the printer and engraver Jean Appier dit Hanzelet, 1596 - 1647. See Tomash & Williams E18; T. H. Hall, *Old conjuring books*, pp.83-119; S. De Renzi, *Instruments in Print: Books from the Whipple Collection* 8.

3 parts in one volume, octavo (162 x 95mm). With many woodcuts in the text (small hole in the titlepage, which has been gently washed, some faint waterstaining at the lower outer portion). Early 20th-century morocco, panelled spine filleted and lettered in gilt, gilt turn-ins. *Provenance:* Kenney Collection (printed label; sold Sotheby's 1966).

£1,500-2,000

US\$2,000-2,500

€1,800-2,300

0212

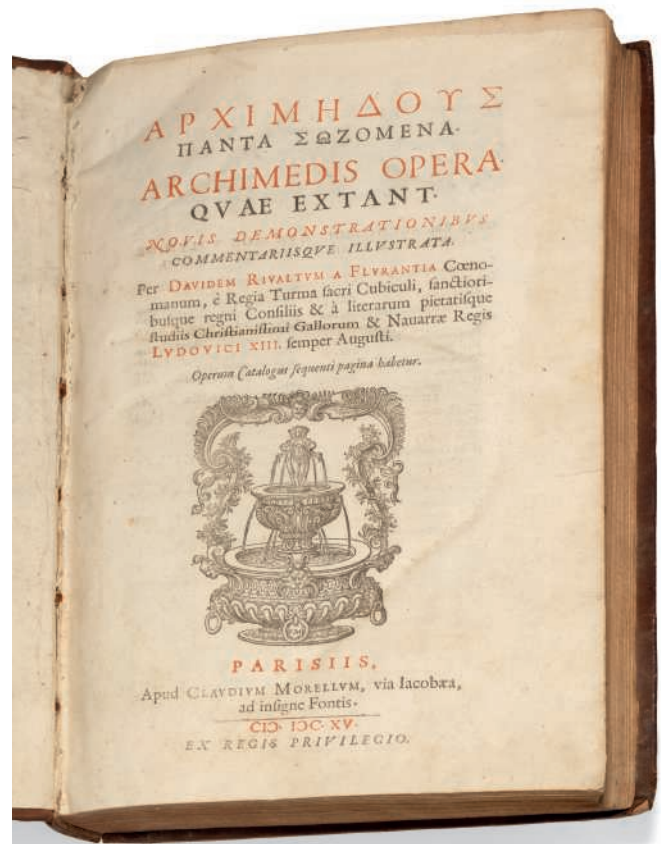
ARCHIMEDES (c.287-212 BCE). *Opera*, in Greek and Latin. Edited by David Rivault. Paris: Claude Morel, 1615.

**The complete works of Archimedes, one of the greatest mathematicians and physicists of all time.** Among his contributions to mathematics and science is his discovery of the principle of specific gravity, a method for calculating the centres of gravity, an approximation of the value of pi and a system for expressing very large numbers. Brunet I, 383.

Folio (350 x 223mm). Title printed in red and black, printer's device on title, numerous woodcut mathematical diagrams in text, ornamental headpieces and initials. Greek, roman and italic type (lightly uniformly browned) 17th-century polished calf, double-fillet gilt border to the sides (rebacked with the original spine laid down, some staining and abrasions to sides, corners bumped, extremities a little rubbed). *Provenance*: Simon Bouillot (French medical doctor and author; inscription at front dated 1632).

£2,000-3,000

US\$2,600-3,800  
€2,300-3,400



0213

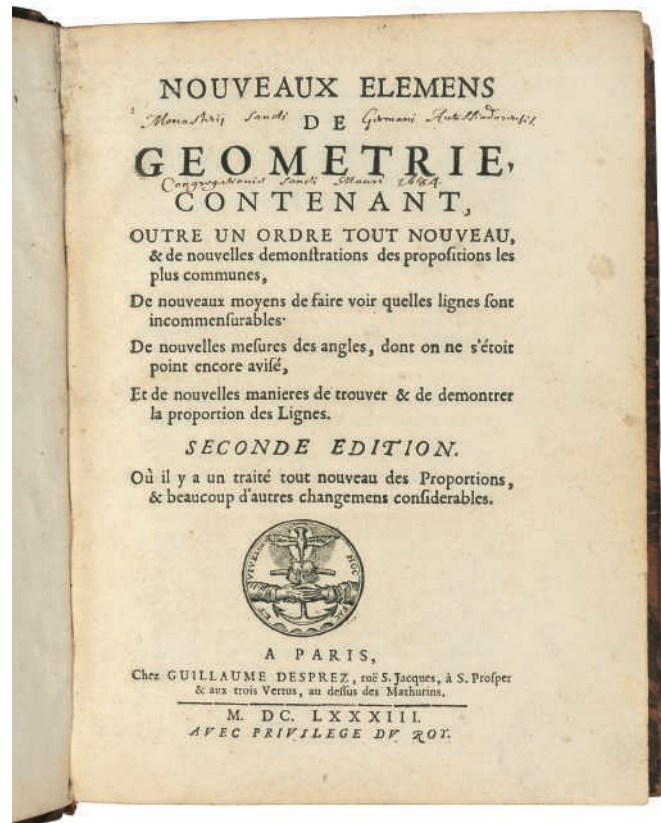
ARNAULD, Antoine (1612-1694). *Nouveaux élémens de géométrie*. Paris: Guillaume Desprez, 1683.

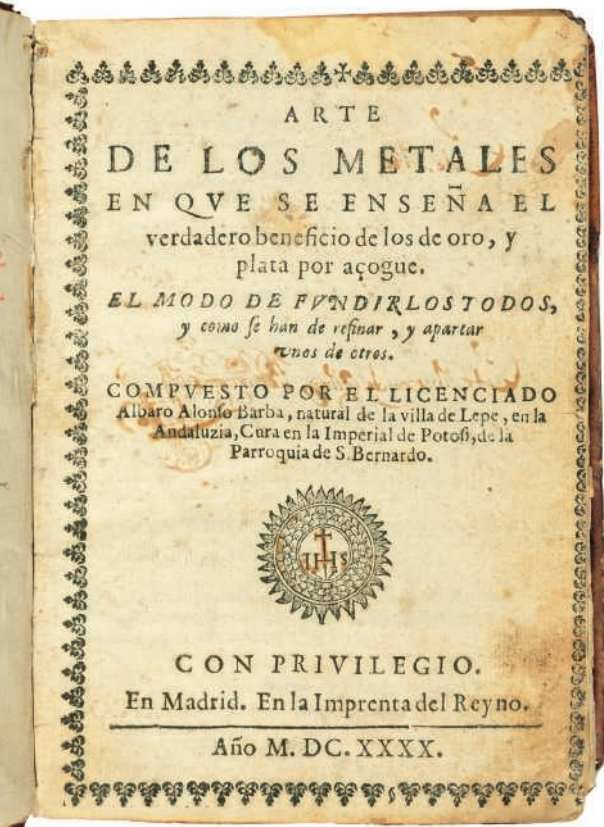
**Second edition of an important mathematical treatise, first published in 1667.** 'The *Éléments* (1667) undertakes a reworking and reordering of the Euclidean theorems in the light of the contemporary literature [...] and Pascal's influence' (DSB I, p.292). At the end of the text is a 15pp. 'Solution d'un des plus célèbres et des plus difficiles problèmes d'arithmétique', attributed to Pascal, which tackles the problem of the magic square. The missing engraved plates have in this copy been skillfully recreated in early manuscript.

Quarto (238 x 174mm). 4 full-page diagrams in early manuscript, woodcut headpiece incorporating mathematical instruments, initials, diagrams in the text (lacking the engraved plates, faint waterstain in quires V and X, occasional light browning). Contemporary speckled calf, spine gilt (lightly rubbed at extremities, headbands exposed). *Provenance*: Auxerre, Abbey of Saint-Germain, Congregation of Saint Maurus (inscription dated 1684) – Jules Riollot (author of *Les carrés magiques* (1907), a study of magic squares; bookplate).

£800-1,200

US\$1,100-1,500  
€920-1,400





0214

BARBA, Alvaro Alonso (1569-c.1640). *Arte de los metales, en que se enseña el verdadero beneficio de los de oro y plata por açogue: el modo de fundirlos todos, y como se han de refinar y apartar unos de otros.* Madrid: Imprenta del Reyno, 1640.

The earliest obtainable edition of the 'first significant treatise on metals to be written in Spanish, and the only 17th-century work on its subject that was largely original. [Barba] also provided an excellent description of his newly-invented process of treating silver ores by amalgamation, a process largely responsible for the fabulous riches that the Spaniards were able to export.' (Norman 115, first English edition). The sale of this work was prohibited by the Inquisition, which may account for its scarcity. The first edition of 1639 would appear to be unobtainable – we can only trace 3 copies: National Art Library, V, London; Red de Bibliotecas del Tecnológico de Monterrey, Mexico; and Biblioteca Nacional de Mexico. The present edition, although accounted for by approximately 20 libraries worldwide, is extremely rare on the market. ABPC/RBH records only 3 selling at auction (Honeyman copy, twice, at Sotheby's, 30 Oct 1978, lot 196, resold Christie's New York, 11 Nov 1994, lot 11; and the Freilich copy, Sotheby's New York 10 Jan 2001, lot 37); another, restored and with text loss to 7 leaves, failed to sell in Germany in 2004-2005. DSB I, 448; Goldsmiths'-Kress 701; Palau 23622 ('Primera edición muy rara'); Sabin 3253.

Quarto (193 x 130mm). Woodcuts in text depicting mining tools, smelters, etc. (lacking A1, but this replaced by 2 leaves of 19th-century manuscript, leaves A8, B1 and M5 loose, many leaves with short tears, a few more extensive, but generally without loss, excepting N1 which has loss to a number of lines, the last 2 leaves chipped at lower corner and repaired with substitute 19th-century manuscript text, browning and staining throughout). Contemporary calf (worn, ties lacking). *Provenance:* illegible 18th-century ownership inscription on verso of title).

£6,000-9,000

US\$7,700-11,000  
€6,900-10,000



0215

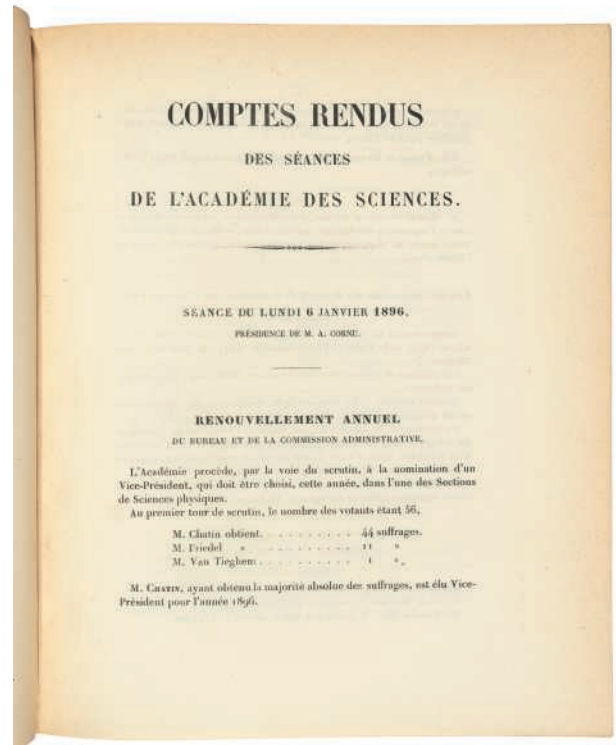
BECQUEREL, Henri (1852-1908). 'Sur les radiations émises par phosphorescence.' - 'Sur les radiations invisibles émises par les corps phosphorescents.' - 'Sur quelques propriétés nouvelles des radiations invisibles émises par divers corps phosphorescents.' - 'Sur les radiations invisibles émises par les sels d'uranium.' - 'Sur les propriétés différentes des radiations invisibles émises par les sels d'uranium, et du rayonnement de la paroi anticathodique d'un tube de Crookes.' - 'Emission de radiations nouvelles par l'uranium métallique.' In: *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences*, vol. 122, pp. 420-421, pp.501-503, pp.559-564, pp.689-694, pp.762-767, 1086-1088. Paris: Gauthier-Villars, 1896.

**First edition, journal issue, of the six articles documenting Becquerel's important research on uranium.** Inspired by Röntgen's discovery of x-rays in late 1895, Becquerel undertook his own investigations. In February 1896, he announced to the French Academy of Sciences that fluorescent crystals of potassium uranyl sulfate had exposed a photographic plate wrapped in black paper after both had lain for several hours in direct sunlight. His investigations suggested to the Curies the importance of further investigations of uranium ore, with the result that they discovered radium. The present volume of *Comptes rendus* contains well over 100 papers devoted to various aspects of x-rays and radioactivity. Garrison-Morton 2001; Norman 157.

Quarto (258 x 215mm). Half-title. Original grey half cloth over marbled paper boards, spine lettered in gilt (extremities lightly rubbed). *Provenance*: Institute of Physics, University of Würzburg (stamp).

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700



0216

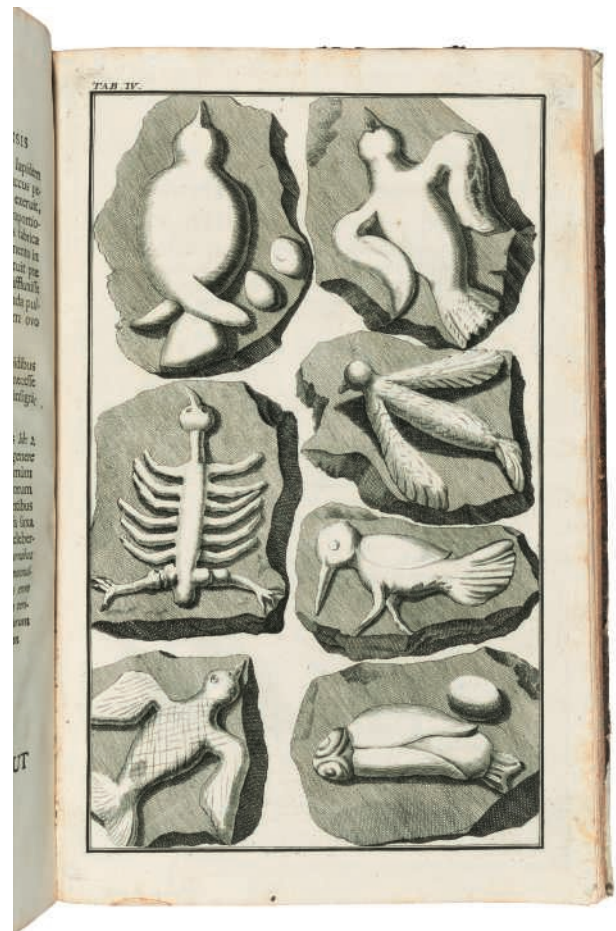
BERINGER, Johann Bartholomäus Adam (c.1667-1738). *Lithographiae Wirceburgensis, ducentis lapidum figuratorum, a potiori insectiformium, prodigiosis imaginibus exornatae specimen primum...* Würzburg: Mark Anton Engmann for Philipp Wilhelm Fuggart, 1726.

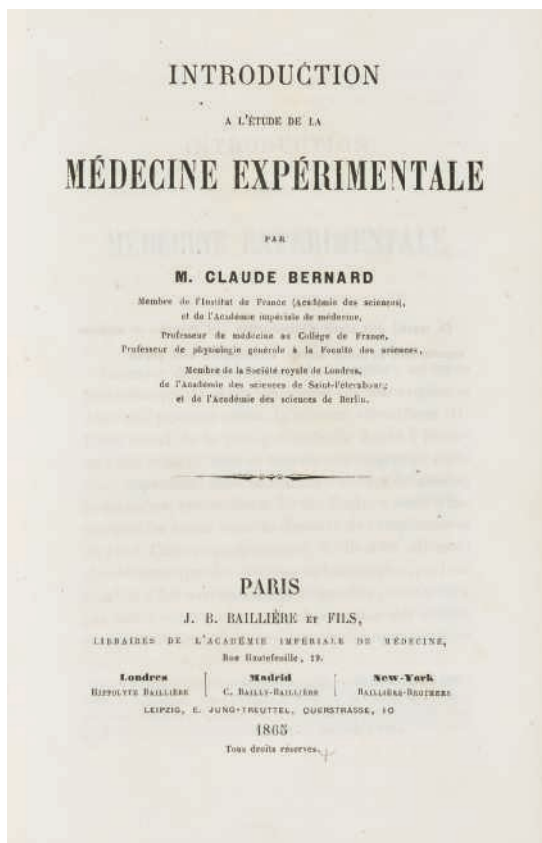
**First edition.** Beringer fell victim to an elaborate hoax, perpetrated by his colleagues at the university of Würzburg, geologist J. Iganz Roderick and librarian Johann Georg von Eckhart, who manufactured fossils (including those inscribed with the name of God in Hebrew, Latin or Arabic), planted them around Mount Eibelstadt in the neighbourhood of Würzburg, and left Beringer to discover them. Beringer published his findings and posited possible explanations for the formation of fossils, not then understood. The scandal and subsequent lawsuit on discovery of the hoax discredited all three men. Some of the 'lying stones' survive. **A large copy.** Nissen ZBI 330; Norman 195; VD-18 14869489.

Folio (325 x 205mm). Engraved frontispiece by Johann Georg Puschner and 21 engraved plates (lacking 3 leaves containing a 'Corollaria Medica' asquire Cc at end). ?19th-century speckled boards (rebacked and -cornered in vellum). *Provenance*: remains of an armorial label at spine foot - small monogram stamp on title.

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700





0217

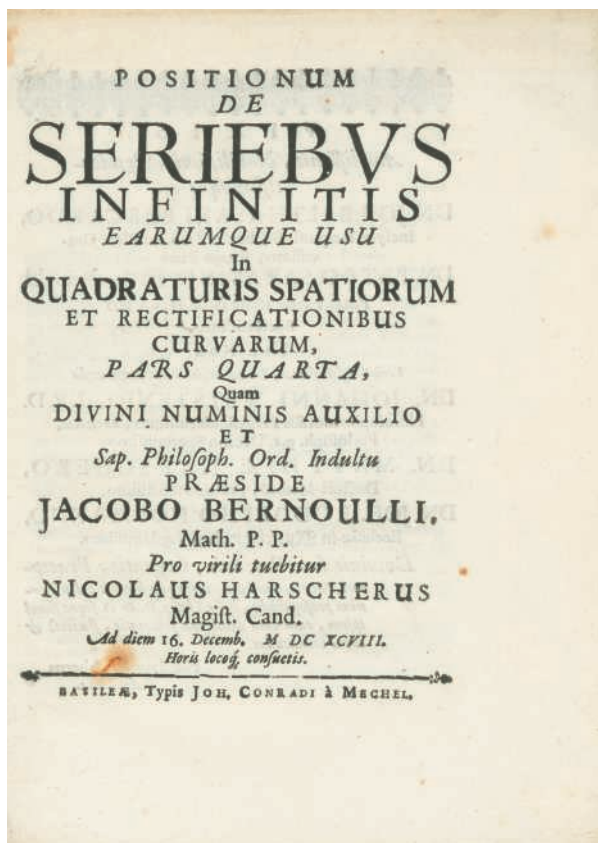
BERNARD, Claude (1813-1878). *Introduction à l'étude de la médecine expérimentale*. Paris: J.B. Baillièrre et fils, 1865.

**First edition, first issue** of 'probably the greatest classic on the principles of physiological investigation and of the scientific method as applied to the life sciences' (Garrison-Morton). Intended as the introduction to a multi-volume work that was never finished, this 'masterly justification and exposition of the use of the experimental method in studying life phenomena has remained a classic of both scientific and philosophical literature' (Norman). Garrison-Morton 1766.501; Norman 206-7; PMM 353.

Octavo (212 x 133mm). Half-title with 'Crété' imprint at foot of verso. Contemporary black boards, green paper spine label with manuscript title (extremities lightly rubbed). *Provenance*: Prof. Joseph Meyer (contemporary ink stamp).

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700



0218

BERNOULLI, Jacob (1654-1705). *Positionum de seriebus infinitis earumque usu in quadraturis spatiorum et rectificationibus curvarum. Pars Quarta ...* Basel: Mechel, 1698.

**First edition, rare on the market and very possibly unique in the present uncut and unopened state**, of the fourth dissertation outlining Bernoulli's theory of series. The author published five dissertations on the subject between 1682 and 1704, as outcomes of the academic disputations upon which he presided. 'The five dissertations in the Theory of Series contain sixty consecutively numbered propositions. These dissertations show how Bernoulli... had thoroughly familiarised himself with the appropriate formulations of questions to which he had been led by the conclusions of Leibnitz in 1682 (series  $\pi/4$  and  $\log 2$ ) and 1683 (questions dealing with compound interest)' (DSB II, p.49).

Small quarto (214 x 173mm). (A very few spots, edges a little dusty.) Uncut and unopened with deckle edges, stitched as issued, with paper spine.

£2,000-3,000

US\$2,600-3,800  
€2,300-3,400

Ad Clarissimū Paulum Sidlouitiū scholasticū  
Polonum Philippi Beroaldi Bononiēsis Epistola.



Schola  
fons ami  
corum  
Minus  
Roscius.

Claritas  
Sidlouit  
tiog.

**P** Ortū Catonē Tusculanū illum: qui opti  
mus orator/optimus senator/optimus im  
perator ē habitus Dicere solitū ferūt: Mē  
sam eē amiciciā parentē: & quādā q̄si conciliatricu  
lā. At quāto illi honestius/Verius/spetiosius: q̄ scho  
lā amicoꝝ seminariū: q̄ litteras beniuolētā glutinū  
dixere. Nimirū illae sūt uerā diuturnae: q̄ amicicia: q̄  
parant i gymnasiis litteratoriis: q̄ ex studioꝝ simili  
tudine pueniūt. Ex hoc fonte amici mihi sexcēti flu  
xerūt: Ex hoc amicoꝝ columen & gēma. Min⁹ Ro/  
scius deriuatus: quo nil elegātius: q̄ cum seria & ioca  
ut dicit: Qui eruditorū nobilissimus/nobilū erudi  
tissim⁹: Qui oīum horū instar Pollionis Asiniū di  
ci meritissimo pōt: Cui⁹ amicicia iucūditissima ut pe  
culiariter glorior ita maxime delector: quā spero si  
cut nūc oīb⁹ notissima ē: Ita cognitā quoq̄ posterita  
ti fore. Hic idē studioꝝ nexus: quo nihil tenacius:  
te mihi Paule uir clarissime copulationib⁹ necessitu  
dinis arctiorib⁹ deuinxit: q̄ iam sesquiannū degis  
Bononiā inter scholasticos transmontanos: ut nobi  
lissimus sic amabilissimus: q̄ non magis tui ordinis  
hoīb⁹ es gratus ob comitatē: q̄ nostratib⁹ ob moꝝ ho  
nestatē. In te oīa sunt affatim cōgruētā claritudi  
nis familiaria: quae apud Polemonios/uel ut a rectori  
bus corrigimur/apud Polonos nō minus honorata

ἄριστον ἡμῶν: id est oportet bonum regem clemētem  
esse & imitem ita plane inquit quatenus contemp  
tibilis nō fiat. Ex quo non pauci sūt qui magis sentē  
tiam Cleomenis probantq̄ Aristonis. Cleomenes  
enim olim interrogatus: Quid bonū principem face  
re oporteret respondit. Amicis benefacere: & malefa  
cere inimicis: tanq̄ bono principi & circūspecto cō  
ueniat inter amicos & inimicos facere discrimē. Hāc  
ueno Cleomenis sniam cum quispiā laudaret ut op  
timam. Dixit Ariston πρὸς κρισσον τοὺς με  
φιλοῦς εὐεργετῆν τοὺς δεχθροῦς φιλοῦς ποι  
εῖν: hoc est quanto melius fuerit amicis benefacere.  
Inimicos autem amicos efficere: ut cunq̄ censemus  
principem ad mansuetudinem & clementiam q̄ ad  
seueritatem & poenam propensioꝝ esse debere. Id  
quod olim Antigonus exemplo declarauit. Nam  
cum manipulares duo incumbentes ipsius taberna  
culo facerent qd hoīes & periculosissime & libētissi  
me faciūt / ut de rege suo male existimarēt atq̄ oblo  
querentur: audiuit omnia rex Antigonus: utpote cū  
inter dicentes & audientem parum interesset nec  
tū exandescēs imo leniter cōmonēs / λόγιος inq̄t δι  
σcedετε ne rex uos audiat. Quid hac mansuetudine  
mitius qd hac benignitate p̄stātius? non exarsit pri  
nceps in ultionem non exanduit: sed maluit re  
gia quadam lenitudine ignoscere quam uindicare.

Snia cleo  
menis

Snia Ari  
stonis de  
principe.

Antigoni  
mansue  
tudo.

οὐκ ἔστιν ἄλλο  
ἔργον ἢ τὸ  
ἰσχυρῶς

0219

BEROALDUS, Philippus (Filippo Beroaldo, 1453-1505). *Declamatio philosophi, medici, oratoris.* - *De optimo statu et principe.* Bologna: Benedictus Hectoris, 13 December 1497.

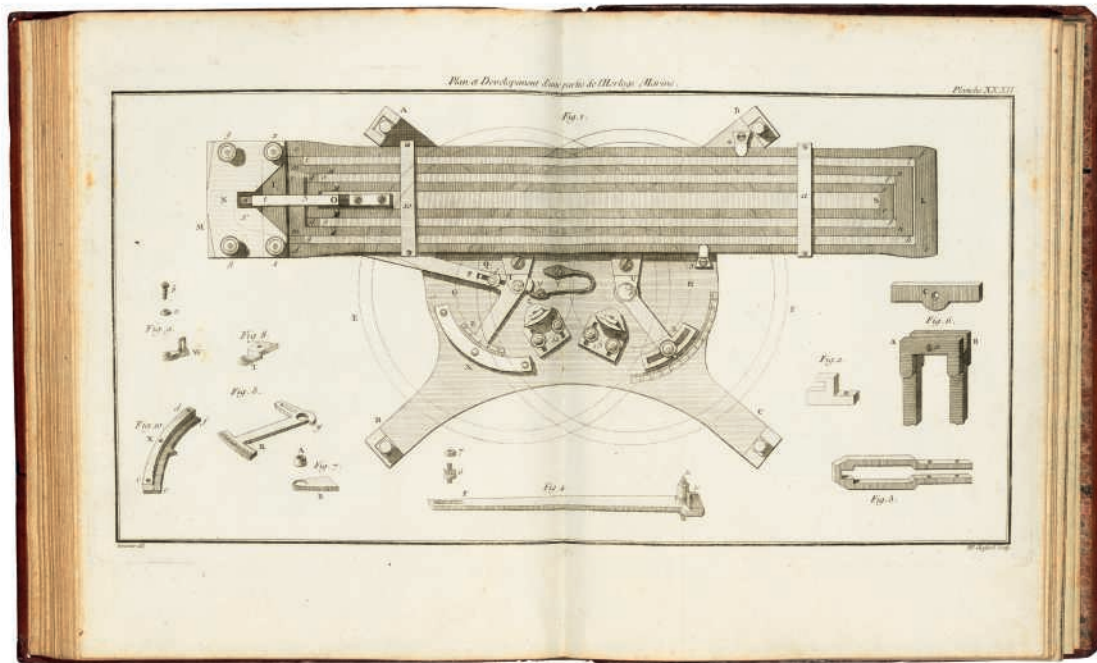
**A rare incunable on the fallacies of traditional sciences, particularly physics and medicine:** the first edition of these two essays by the preeminent scholar from Bologna. The first essay is a dispute between three brothers – a philosopher, a physician and an orator – about the worth of their respective professions. The orator wins the contest: what he does is less useful than his brothers’ occupations, but he is more able to defend his own position, exposing the philosopher’s and the physician’s fallacies by citing Pythagoras, Empedocles, Plato, Hippocrates, Galenus, Avicenna, etc. The second work addresses statecraft as the optimal form of government; having reviewed the

‘government of the many’, ‘of the few’ and ‘of a single person’, Beroaldus gives his preference to the latter, provided the ruler is bound by loyalty to public good as opposed to private gain. HC 2963\*; GW 4126; Klebs 182.1; BMC VI 844; BSB-Ink. B-371; Wellcome 810; ISTC ib00473000; Goff B-473.

Chancery quarto (195 x 140mm). 38 leaves, printed guides for initial, printed shoulder notes (one or two spots). Early 20th-century green morocco, paneled spine lettered in gilt, marbled end-papers, edges gilt (some rubbing to extremities). *Provenance:* contemporary scattered annotations and pointers.

£4,000-6,000

US\$5,100-7,600  
€4,600-6,800



0220

BERTHOUD, Ferdinand (1727-1807). *Essai sur l'horlogerie; dans lequel on traite de cet art, relativement à l'usage civil, à l'astronomie et à la navigation* [...]. Paris J. Cl. Jombert, Musier, Ch.J. Panckoucke 1763

**First edition of this outstanding work on horology** by the famous Swiss watchmaker Berthoud. He moved to Paris early in his life and gained fame as a watchmaker. His *Essai* is the most important basic work among his other authoritative publications. He is one of the several horologists to whom the invention of the so-called 'Spring detent' escapement has been attributed. Tardy 51; Brunet I, 819.

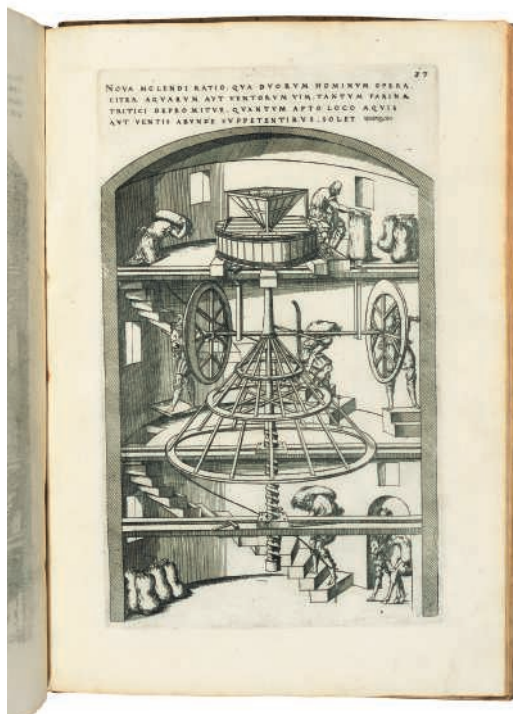
2 vols. of text plus one of plates, quarto (258 x 195mm). With 38 engraved plates (some marginal staining to a few leaves in vol 2 and to the margins of a few plates). Contemporary tree calf, flat spines decorated in gilt, contrasting morocco lettering-pieces (rebacked with the original spines laid down). *Provenance*: G. Cuffier (inscriptions at front, dated 1865).

(3)

£1,000-1,500

US\$1,300-1,900

€1,200-1,700



0221

BESSON, Jacques (d.1569). *Théâtre des instrumens mathématiques et mécaniques*. Lyon: B. Vincent, 1578.

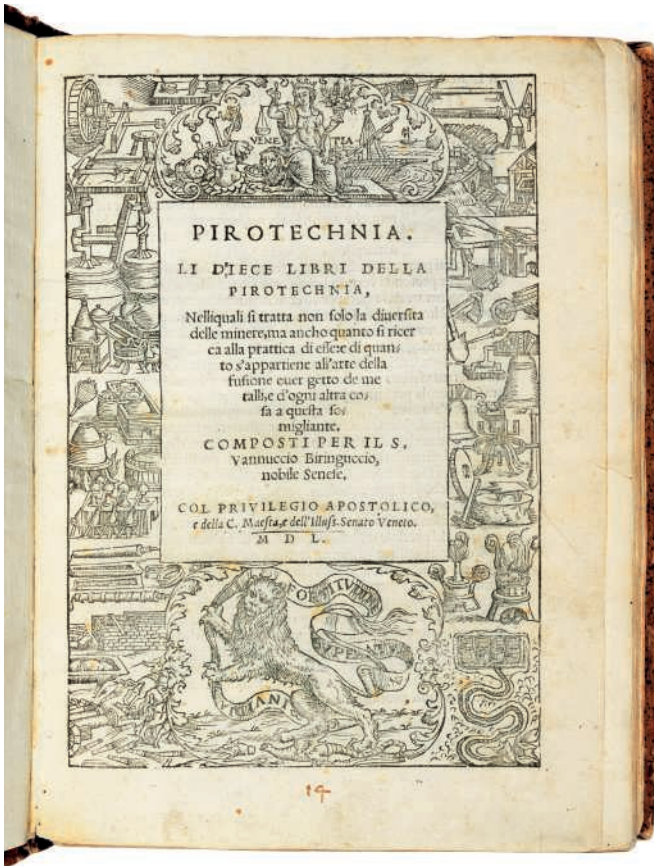
**An early edition of Besson's great machine and instrument book, one of the first French books on mechanical engineering.** The *Théâtre* 'illustrates an amazing variety of inventions, ranging from war machines to musical instruments to fire-fighting apparatus' (Norman). The first edition, probably published in Orléans c.1569, was followed by three editions by Vincent in 1578 – one in Latin, one with the title in Latin and French, and the present edition, in French – each of which is augmented with notes by Francois Bérolalde de Verville. The priority between the 1578 editions is unknown. Adams B-838; Brunet I, 829-830; cf. Mortimer *French*, 57-58; cf. Norman 227 and 228.

Folio (390 x 262mm). Title within woodcut border, 60 engraved plates, woodcut head-and tail pieces, initials (some mostly marginal faint waterstaining). Later vellum, titled in manuscript on spine (tear and small chip on spine). *Provenance*: erased library stamp on endpaper.

£3,000-5,000

US\$3,900-6,400

€3,500-5,700



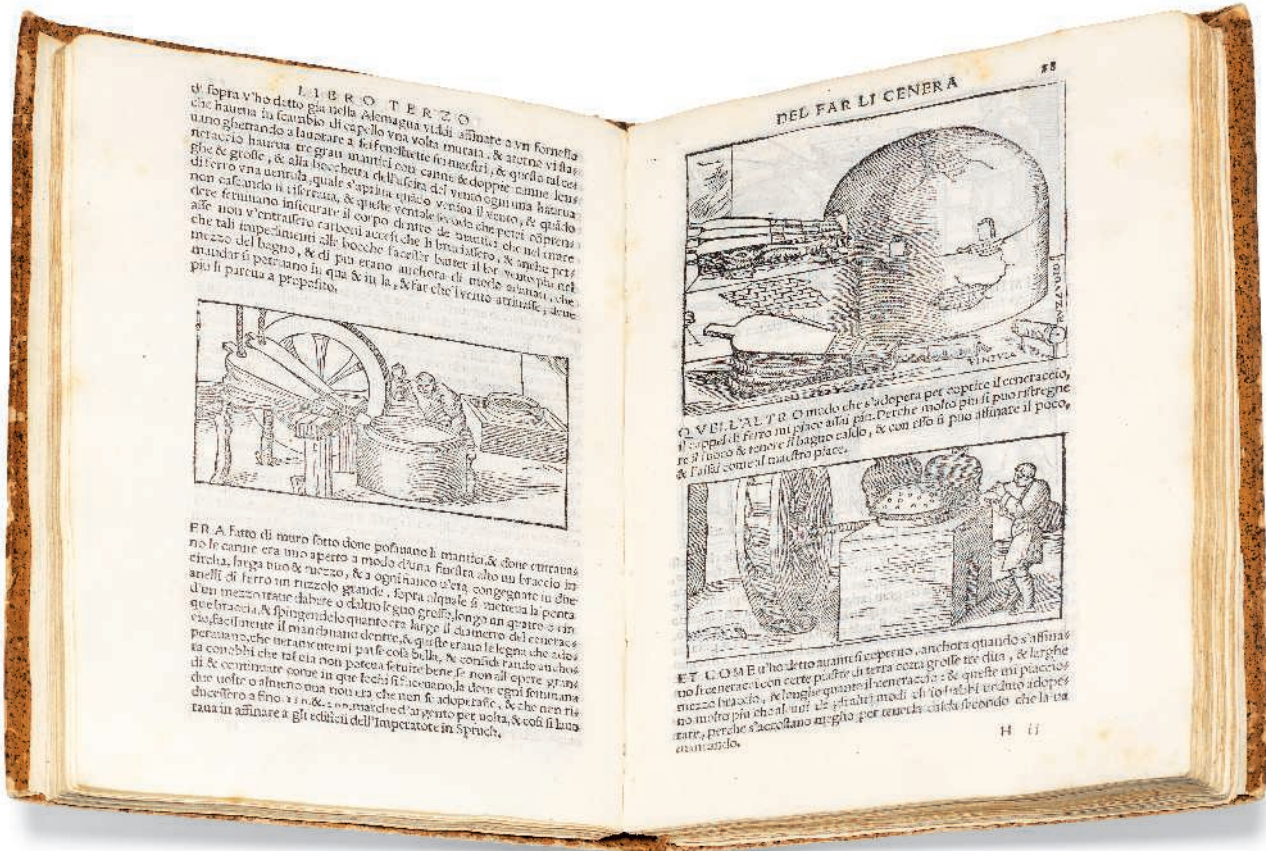
0222  
 BIRINGUCCIO, Vannuccio (1480-1539?). *Pirotechnia*. Venice: Giouan Padoano, 1550.

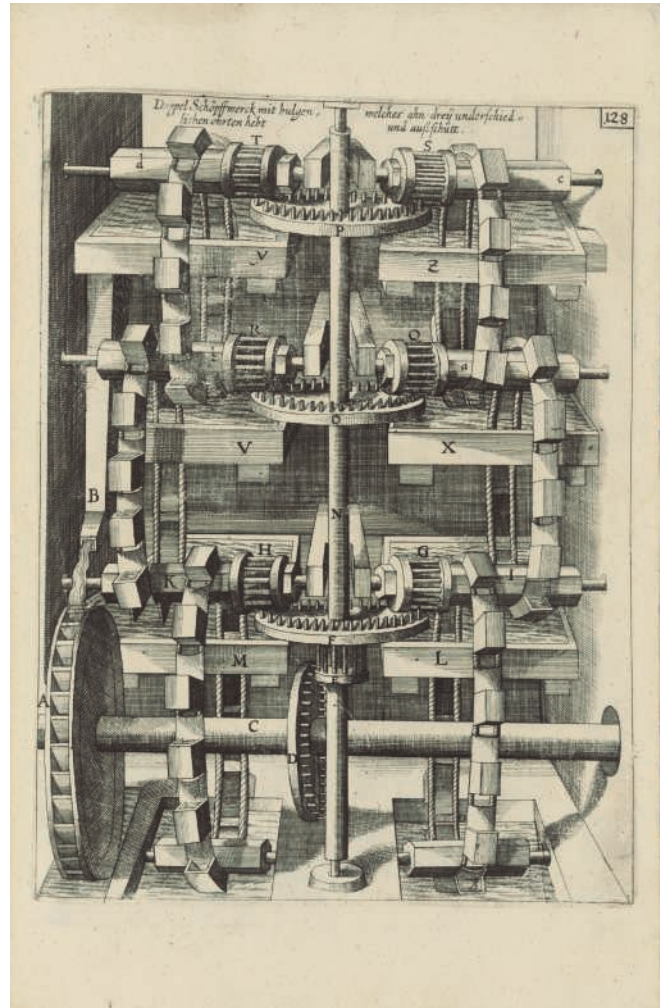
**Second edition of an early and finely illustrated book on metallurgy, including chapters on mining and obscure alchemy.** This work was intended to be of use for masters of a wide range of crafts: of the first edition, Dibner states that it 'was written for the practicing metallurgist, foundryman, dyer, type-founder, glass-maker, and maker of gunpowder, fireworks and chemicals used in warfare.' Adams B-2081.

Quarto (213 x 152mm). Title within woodcut border incorporating pyrotechnic instruments, numerous woodcut illustrations in the text, printer's device on final leaf, initials (tiny marginal wormtrack in one quire, a few minor spots or stains). 19th-century brown speckled boards, pink spine label lettered in manuscript (extremities rubbed). *Provenance:* 19th-century bibliographic note in Italian on front pastedown.

£2,000-3,000

US\$2,600-3,800  
 €2,300-3,400





0223

BÖCKLER, Georg Andreas (1664-1698). *Theatrum machinarum novum*. Cologne and Nuremberg: Paul Fürst, 662.

**First edition in Latin of Böckler's important work on windmills, intricate machinery, pumps and other hydraulic machines, illustrated with 154 fine engraved plates.** The original edition, issued in German at Nuremberg the year before, also appeared under the Latin title *Theatrum machinarum novum*, but with a German subtitle, *Schauplatz der mechanischen Kunsten*. The engraved title retains the imprint of Paul Fürst, Nuremberg. VD-17 23:296774F.

Folio (320 x 212mm). Additional engraved title and 154 engraved plates (textleaves A2-3 and C2-3 misbound, plates 146-147 misbound, some faint waterstains to plates). Contemporary speckled calf, spine gilt (lightly rubbed, restored at spine ends). *Provenance*: Kenney Collection (label on pastedown) - 'Minto' (label on pastedown).

£1,500-2,500

US\$2,000-3,200  
€1,800-2,800

0224

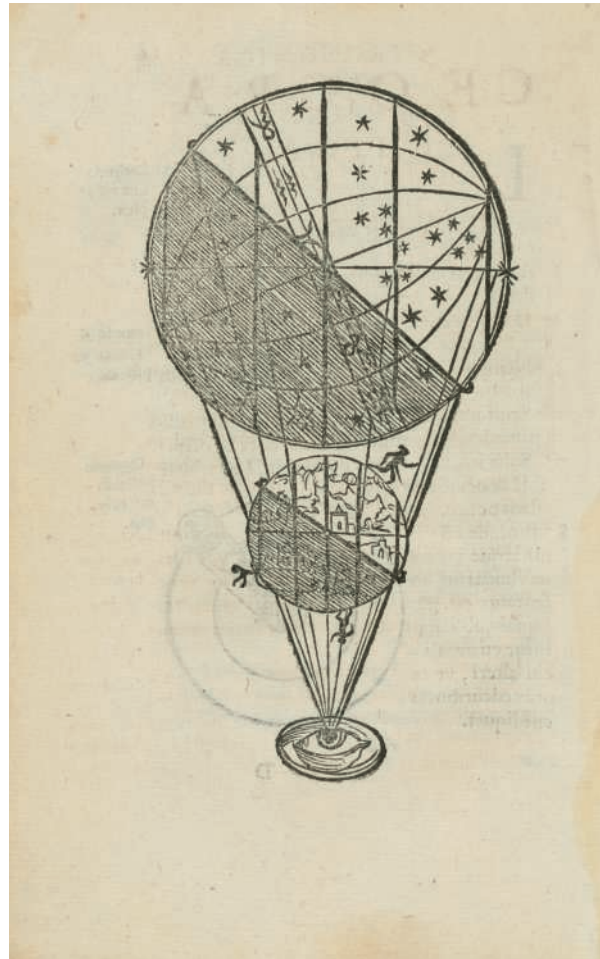
BORRHAUS, Martin (1499-1564). *Elementale cosmographicum, quo totius et astronomiae et geographiae rudimenta, certissimis brevissimisque docentur apodixibus*. Paris: Guillaume Cavellat, 1551.

Rare second edition of an illustrated cosmographic handbook with sections on astronomy and geography. The first edition was published in Strasbourg in 1539. *BM French*, p.76.

Octavo (170 x 107mm). Woodcut device on title, 3 full-page woodcuts, others in the text (a few small marginal stains). Disbound (first quire detached); housed in a modern cloth case. *Provenance*: a few early annotations.

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700



0225

BOYLE, Robert (1627-1691). *Opera Varia*. Geneva: Samuel de Tournes, 1680-1682.

Second collected edition of Boyle's works, first published in 1677. This copy is bound together with Boyle's separately published *Experimentum novorum* of 1682. *Fulton* 247 and 17a.

13 parts in one volume, quarto (210 x 166mm). Engraved frontispiece portrait of the author, title in red and black, 10 engraved plates, of which 9 folding (a few corners restored, one tiny rust hole in text). Contemporary calf, spine gilt (somewhat rubbed, some tiny holes to spine). *Provenance*: traces of erased stamp on verso of portrait.

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700





**0226**

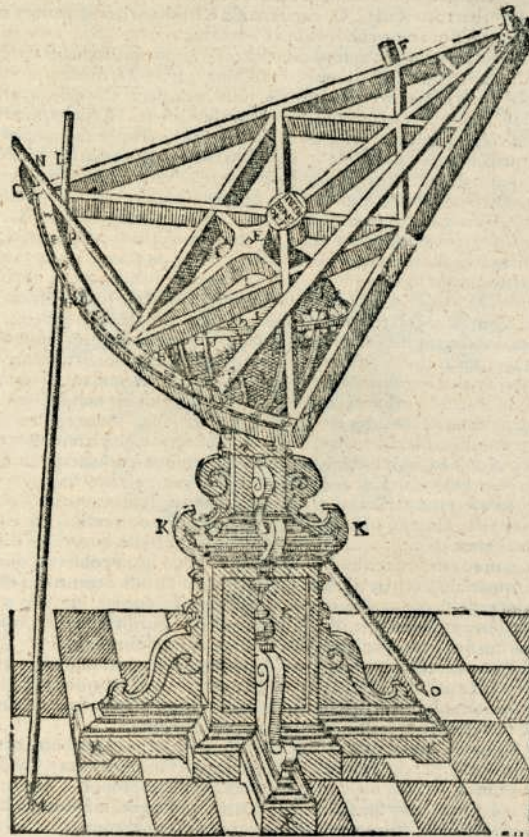
BRABE, Tycho (1546-1601). *Astronomiæ instauratæ mechanica*. Nuremberg: Levinus Hulsius, 1602.

**Second edition** (first trade edition) of one of Brahe's most important works, a description of his astronomical instruments and of the observatory at Hven. The 1598 edition was printed by Philip de Ohr on Brahe's own press at Heinrich Rantzov's castle at Wandbeck, near Hamburg, in forty copies, which Brahe distributed privately. With the exception of the portrait, which is new, and the engraving of an armillary sphere on C6 verso, replacing a woodcut, the illustrations of this published edition were printed from the blocks and plates of the first edition, sold by the author's heirs to Levinus Hulsius.

In 1576, King Frederick II conferred upon Brahe the lifelong use of the island of Hven in the Danish Sound. There the astronomer constructed the most advanced astronomical observatory of his time, which he christened Uraniborg (Heavenly castle); in 1584 he added a second observatory, Stjerneborg, with additional instruments in 5 subterranean rooms and a study with only the vaulted roof and the tops of the walls above ground. Brahe's brass-encased globe was housed in the library of the main building: 'On this globe, over the years, Tycho marked the exact positions, referred to the year 1600, of the fixed stars that he observed... In the southwest room on the ground floor at Uraniborg... was Tycho's most famous instrument, the mural quadrant [for measuring the altitude at which celestial bodies crossed the meridian], with a radius of about six feet... Inside the quadrant's arc, for ornamental purposes, was painted a life-size portrait of Tycho seated at a table, with arm outstretched as though pointing to a cylinder...' (DSB). The two observatories and principal instruments, including the great globe, now preserved in Copenhagen, are illustrated and fully described in the present catalogue, which also contains a short autobiography and a summary of the principal results of Brahe's observations. Dreyer, *Tycho Brahe*, pp. 260-264 and 370; Houzeau and Lancaster 2703; Norman 320; Sparrow *Milestones* 29.



SEXTANS ASTRONOMICVS  
TRIGONICVS PRO DISTANTIIS  
rimandis.

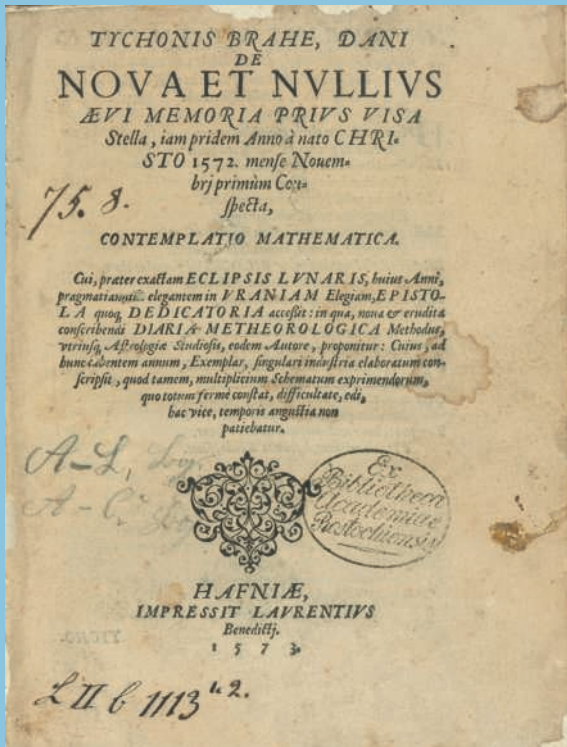


EXPLI-

Folio (310 x 201mm). Title with large engraved portrait of the author standing beneath an arch hung with the arms of the families of Brahe and Bille, 6 large engravings (five of astronomical instruments, one of the observatory at Hven, Uraniborg), 19 large woodcuts (mostly of instruments and one of Uraniborg and one of Stellborg), and several smaller woodcuts (including a map of the island of Hven), decorative woodcut head- and tailpieces and initials (a couple of small stains on f. d, one touching the facing engraving, f. lrecto lightly soiled, some occasional marginal spots, but a very good copy). Contemporary limp vellum (wanting ties, a little stained). *Provenance*: a few numbers in a near-contemporary hand in brown ink to the front free end-paper, possibly a price – Alexander Guthree, possibly Town Clerk of Edinburgh (active 1630s) who graduated from Edinburgh University in 1609 (inscription on title) – Trotter family of Mortonhall (late 18th-century armorial bookplate; the Trotter family had a remarkable library, formed in the 17th century and sold in 1947).

£15,000-25,000

US\$20,000-32,000  
€18,000-28,000



0227

BRAHE, Tycho (1546-1601). *Tychonis Brahe, Dani De nova et nullius aevi memoria prius visa stella*, iam pridem anno à nato Christo 1572, mense Novembri primum conspecta, contemplatio mathematica: cui, praeter exactam Eclipsis lunaris, huius anni, pragmatian, et elegantem In Vraniam elegiam, Epistola quoq[ue] Dedicatoria accessit: in qua, nova & erudita conscribendi diaria meteorologica methodus, utriusq[ue] astrologiae studiosis, eodem autore, proponitur... Copenhagen: Laurentius Benedictus, 1573.

**First edition of one of the rarest and most important pamphlets in the history of science: Tycho Brahe's discovery of a new star, the emphatic first-ever use of the term 'nova' in relation to a star, and the incontrovertible refutation of the Aristotelian model of an unchanging celestial realm.** The *De nova...stella* is 'Tycho Brahe's earliest work. By his discovery and proof of the existence of a new star in outer space, the assumptions of the infallibility of the ancients and of the immutability of the heavens were upset' (Horblit). Tycho's remarkably precise measurements showed that 'new stars', specifically that of 1572, did not present the parallax expected in sublunar phenomena, and so could not simply be comets within the atmosphere as previously thought: they had to be placed above the atmosphere and beyond the moon. Comets also, he concluded, must pass through the supposedly immutable celestial spheres. The central parts of this work were later reprinted in Tycho's larger work, *Astronomia Instauratae Progymnasmata* (1602). Only 2 copies have been recorded at auction since the 1930s, the last record having been that of the Honeyman collection (pt 1, 486) which lacked 6 leaves and had a defective title. See J.L.E. Dreyer, *Tycho Brahe*, 1963, p. 44-57. Grolier 16; Houzeau & Lancaster 2698 ('excessivement rare. L'edition a été détruite presque entièrement').

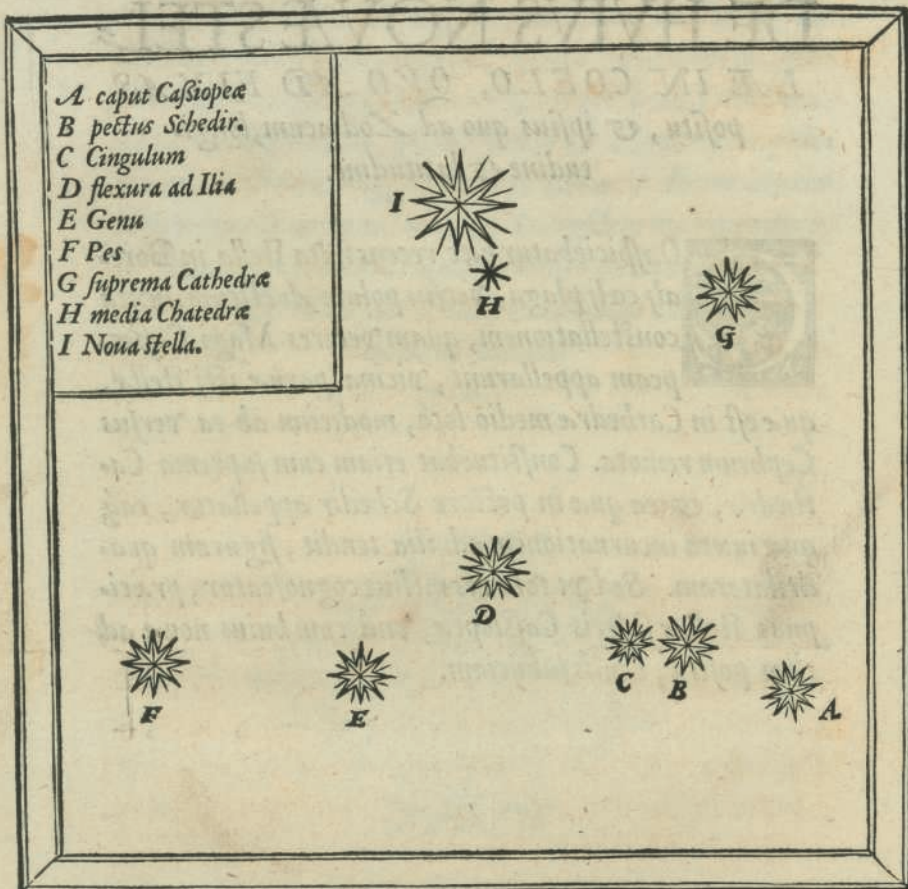
Quarto (190 x 142mm). 6 large woodcut astronomical diagrams in the text (lacking 2 preliminary leaves containing Johannes Pratensis' address to Brahe, f. (:):4 misbound just before A1, title and f. (:):4 reinforced at gutter and with small paper repairs to the upper margin and lower outer corner, a few minute holes touching a couple of letters and some soiling to the title, some unobtrusive waterstaining to the outer margin throughout). *Bound with*: D. Chytraeus, *De Stella inusitata et nova, quae 1572 conspici coepit et de Comato Sidere, quod hoc Mense Novembri Anno 1577 videmus*, Rostock, 1577. Ff. 10 (of 12), lacking C1 and C4: first and only edition of a report on comet sighting by a Rostock theologian; no copies located in the UK or US. Late 19th-century library cloth-backed boards, paper label on the spine (a little rubbed). *Provenance*: Rostock University (19th-century stamp on the title and on title verso of second work) - 'F. Reppien' (early 20th-century small typed paper label on rear pastedown).

£70,000-100,000

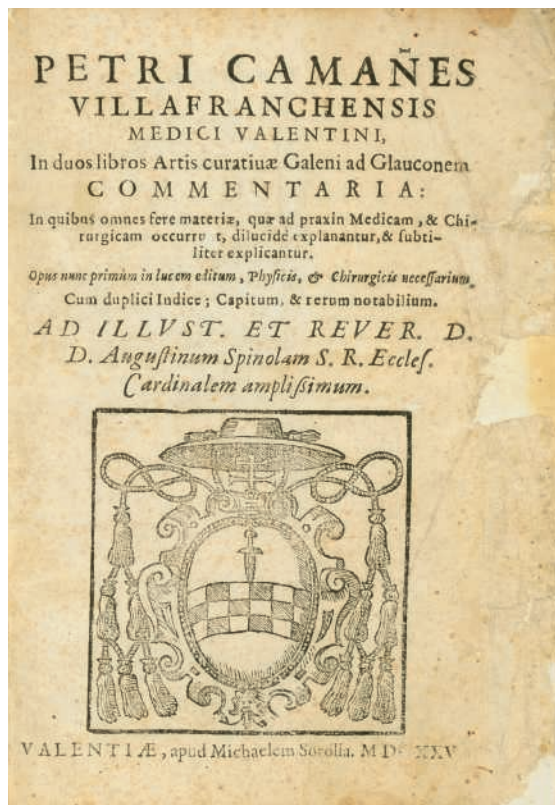
US\$89,000-130,000  
€80,000-110,000



*A* caput Cassiopeæ  
*B* pectus Schedir.  
*C* Cingulum  
*D* flexura ad Iliā  
*E* Genu  
*F* Pes  
*G* suprema Cathedræ  
*H* media Chatedræ  
*I* Noua stella.



Distantiam verò huius stellæ à fixis aliquibus  
 in hac Cassiopeiæ constellatione, exquisito instrumento,  
 & omnium minorum capacj, aliquoties obseruauī. In-  
 ueni autem eam distare ab ea, quæ est in pectore, Schedir  
 appellata *B*, 7. partibus & 55. minutis : à superiori  
 verò



0228

CAMAÑES, Pedro (fl. 17th cent.). *In duos libros Artis curatiuæ Galeni ad Glauconem commentaria in quibus omnes fere materiae quae ad praxin medicam & chirurgicam occurrunt dilucide explanantur & subtiliter explicantur.* Valencia: Miguel Sorolla, 1625.

**Exceptionally rare first edition** of a commentary on Galen by a Catalan physician (from Villafranca de Tortosa, hence the dedication) who, writing after completing his studies in Valencia, adopts the ancient authority as a platform specifically to expound his own classification of the nature, causes and cures of fevers – visually complemented by two folding charts. The second part, sometimes absent in Spanish library records, deals with ailments relating to growths, including cancer. No records on RBH or ABPC, OCLC finds 3 copies outside Spain (BL, BNF, Lyon), none in the US. See A. H. Morejon, *Historia bibliografica de la medicina espanola*, 5, pp. 83-4.

2parts in one volume, separate pagination, octavo (200 x 141mm). With two folding plates, woodcut initials and tail-pieces, woodcut Cardinal arms (Spinola of Tortosa) on the title (initial 6 ff. remargined, title repaired and soiled, plates a little stained, the second one with 3 clean tears, some scattered foxing or spotting). Early 20th-century vellum, spine lettered in ink.

£2,000-3,000

US\$2,600-3,800

€2,300-3,400



0229

CARDANO, Girolamo (1501-1576). *De rerum varietate libri xvii.* Basel: Henricus Petrus, 1557

**Rare first edition** of Cardano's second great encyclopedia of natural sciences: a continuation of his *De Rerum Subtilitate*. 'The two works ... contain a little of everything: from cosmology to the construction of machines; from the usefulness of natural sciences to the evil influence of demons; from the laws of mechanics to cryptology' (DSB). In this work Cardano tackles issues of mechanics, hydrodynamics in particular, and geology, with contributions on botany, zoology, chemistry, metallurgy, etc. 'Of special chemical interest is Book X, comprising one chapter on fire, a chapter on distillation with woodcuts of apparatus, and a chapter on chemistry. It finishes by a chapter on glass' (Duveen). Editions published after 1557 underwent censorship, with passages excluded from print (Graesse II, p. 45). Duveen, p. 117; Caillet, 2022; Durling, 844; Wheeler Gift 45; Adams C-662

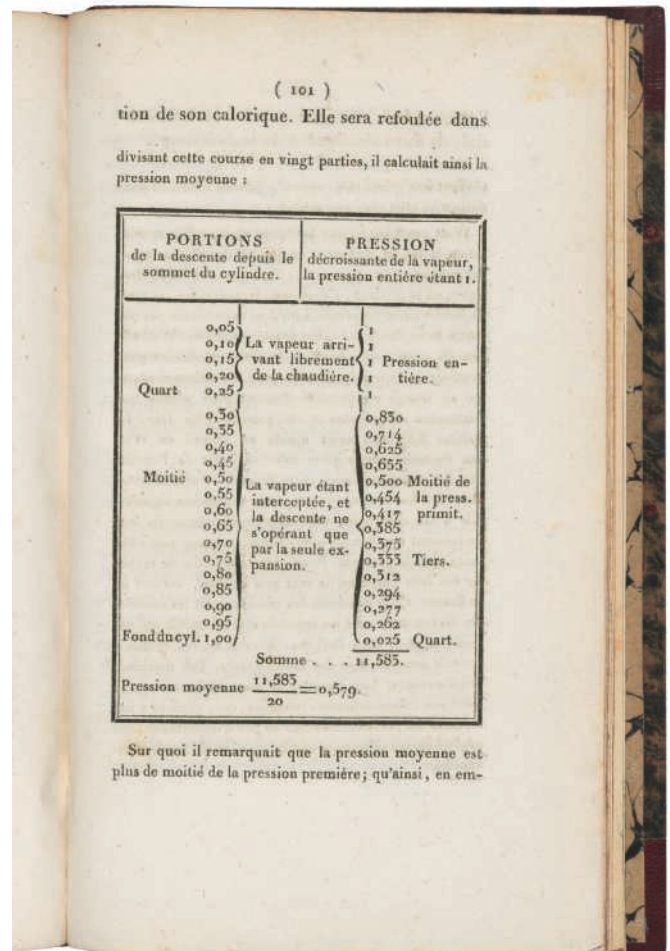
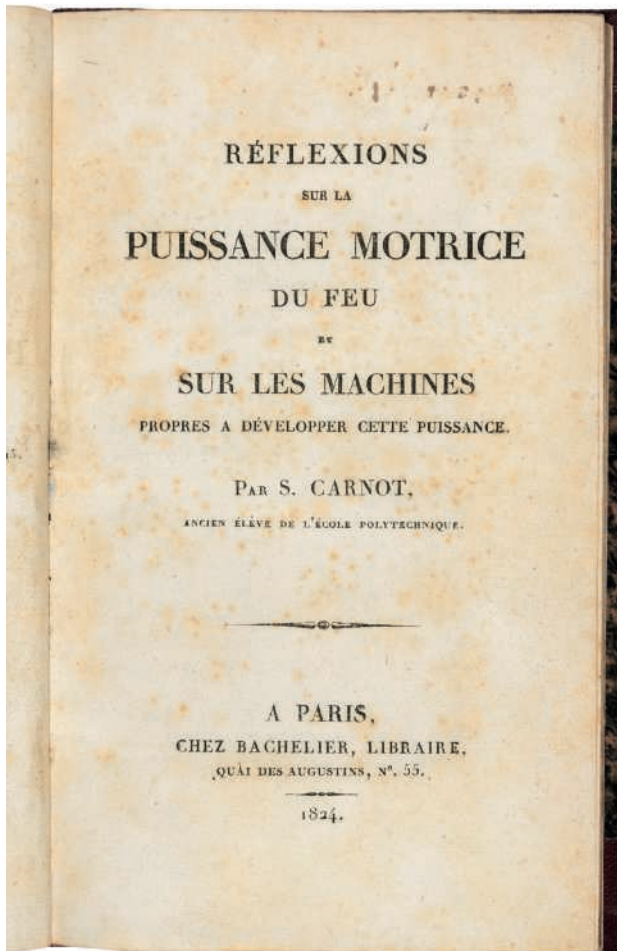
Folio (325 x 211mm). Woodcut portrait medallion of the author on titlepage (faint dampstaining at upper margin of a couple of central quires).

Contemporary limp vellum, unlined, spine reinforced with vellum guard strip from a ?15th century chronicle in French (ties perished, some soiling). *Provenance*: Augsburg, Jesuit College (contemporary inscription on the title) - Augsburg, Katholische Studienfonds (19th-century circular stamp on the title).

£2,000-3,000

US\$2,600-3,800

€2,300-3,400



0230

CARNOT, Nicolas Léonard Sadi (1796-1832). *Réflexions sur la puissance motrice du feu et sur les machines propres à développer cette puissance*. Paris: Giraudet pour Bachelier, 1824.

**Henri Victor Regnault's copy of the first edition of Carnot's only published work, which led directly to the first and second laws of thermodynamics.**

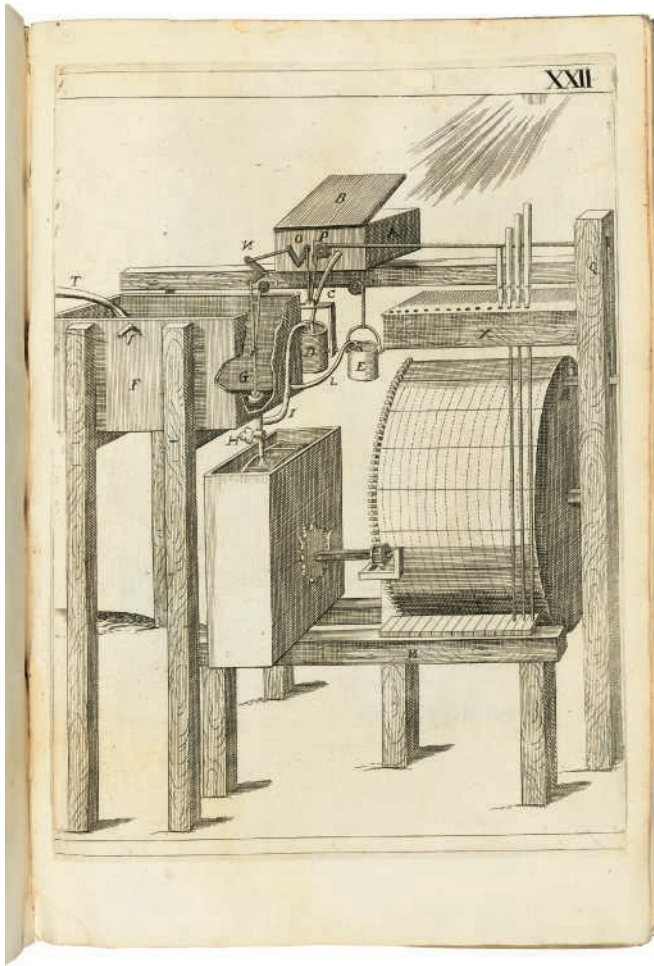
'Carnot, one of the most original thinkers among physical scientists, applied himself to the analysis of the cyclical operation of [heat] engines' (Dibner). His main contribution to this science 'lay in his recognition that the motive power of a heat engine was independent of the nature of the substance generating it - that it was a function, instead, of the transfer of heat from a warmer to a colder body. He also introduced the fundamental thermodynamic concept of completeness of cycle, in which the engine and working substance return to their original conditions' (Norman). His achievements in the *Réflexions* were

largely ignored by his contemporaries and the work did not gain its proper recognition until it was discovered by Lord Kelvin in the 1840s. Six hundred copies of this first edition were printed, but the book has now become one of the great rarities in 19th-century science. *Bibliotheca Mechanica* p.63; DSB III, pp. 79-83 ('the first edition of *Réflexions*... is very rare'); Dibner 155; Norman 404; PMM 285.

Octavo (230 x 123mm). Half-title, folding engraved plate (some spotting). Modern red half morocco over marbled boards. *Provenance*: Henri Victor Regnault (French chemist, physicist and early thermodynamicist, 1810-1878; inscription with faded ink overwriting) - early 20th-century bibliographic note loosely inserted.

£12,000-18,000

US\$16,000-23,000  
 €14,000-20,000



**0231**

CAUS, Isaac de. (1590-1648). *Nouvelle invention de lever l'eau plus hault que sa source avec quelques machines mouvantes par le moyen de l'eau, et un discours de la conduite d'ycelle*. London: [no publisher], 1644.

**First edition of an illustrated work on hydraulics**, adapted from Salomon de Caus's *Les raisons des forces mouvantes avec diverses machines* (Frankfurt 1615). Architect and engineer to the Elector Palatine in Heidelberg, Caus was a pioneer in the construction of life-sized automata, several of which are illustrated here. The present treatise includes descriptions of a fire engine, various pumps, several types of musical organs, and a sluice. ESTC R35943.

Folio (355 x 235mm). Engraved title, 26 engraved plates of which one folding, woodcut diagrams, head- and tailpieces (lacking letterpress title as often, minor marginal wormtrack in first few leaves, some waterstaining). Contemporary vellum (minor stains). *Provenance*: shelfmark on pastedown – paper shelf label on spine – (?) Landesbibliothek Mecklenburg-Vorpommern (library stamp).

£3,000-5,000

US\$3,900-6,400  
€3,500-5,700

**0232**

CAUS, Salomon de (1576-1626). *Les raisons des forces mouvantes avec diverses machines tant utiles que plaisantes*. Paris: Hierosme Droüart, 1624.

**Second edition, augmented from the first edition of 1615, of this famous work in the history of the invention of the steam engine.** The first book deals with moving forces, describing the first machines to be operated by solar power and one of the earliest uses of steam power. The second book discusses grottos and fountains for palaces and gardens, and the third deals with the construction of organs.

3 parts in one, folio (396 x 270mm). Titles of parts 1 and 2 within engraved architectural border, 63 engraved illustrations, most full-page, one large folding woodcut and several smaller woodcut illustrations (scattered marginal waterstaining with a few associated repairs, one repaired tear into plate). Modern vellum. *Provenance*: Jesuit inscription, dated 1709 or 1769, recording entry into library catalogue at Lyon.

£2,000-3,000

US\$2,600-3,800  
€2,300-3,400



**0233**

CHÉRUBIN D'ORLÉANS (1613-1697; né François Lasseré). *La dioptrique oculaire, ou la théorie, la positive, et la mécanique, de l'oculaire dioptrique et toutes ses espèces*. Paris: Thomas Jolly and Simon Bernard, 1671.

**First edition of this early and extensive work on optics and optical instruments.** Chérubin d'Orléans was the inventor of opera glasses, and in this practical work on optics, he systematically describes the grinding of lenses and illustrates every aspect of a lens maker's workshop in detailed engraved plates (Duncan). According to Albert, *La dioptrique oculaire* is 'the most exhaustive treatise on lens making in the seventeenth century. It is a six-hundred folio page long, comprehensive, cogently-argued treatise on telescope making. Chérubin d'Orléans includes detailed accounts of the effects that different lenses have on the eye and observations of the stars and the moon made through the telescopes of his own invention. D.M. Albert et al., *Source Book of Ophthalmology* (1995), 412; Duncan 2360; Krivatsy-NLM, 2427; Poggendorff I, 430; Wellcome II, 335.

Folio (349 x 233mm). Engraved allegorical title page by Gerard Edelinck after Jean le Pautre, 57 engraved plates (numbered 3-60), of which 1 folding and 5 double-page, two engraved illustrations in text, dedication with engraved headpiece incorporating the arms of Colbert and initial, woodcut title device, head- and tailpieces (without the final blank leaf, c.5 plates with light marginal dampstain, short neat tear at fold of 3 plates, folding plate with repaired neat tear, 2 plates with light printing ink stain, a few leaves faintly browned, very occasional spotting). Contemporary calf, gilt spine (lightly worn, repairs at spine and corners, spine darkened).

£2,500-3,500                      US\$3,200-4,400  
 €2,900-4,000



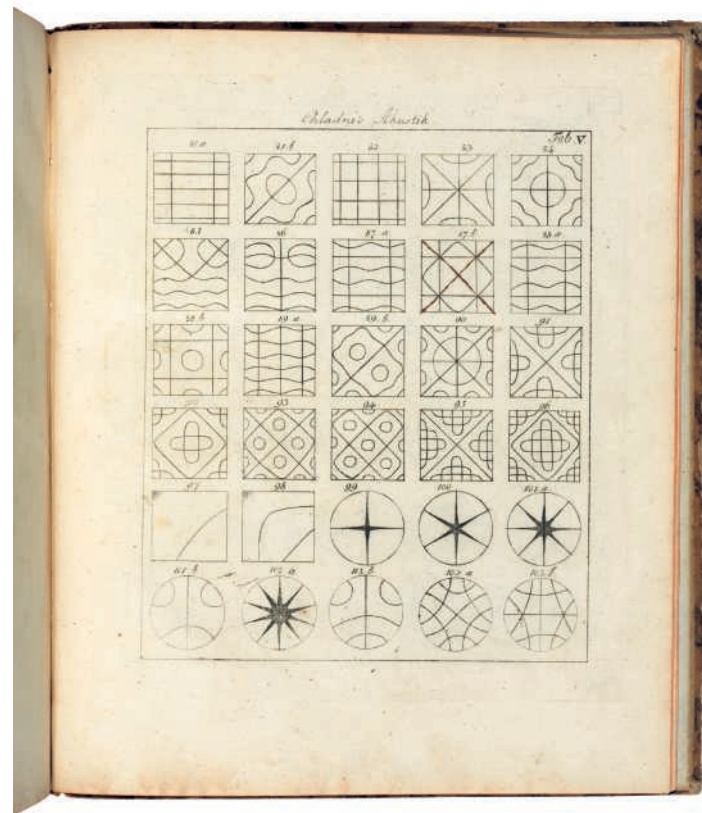
**0234**

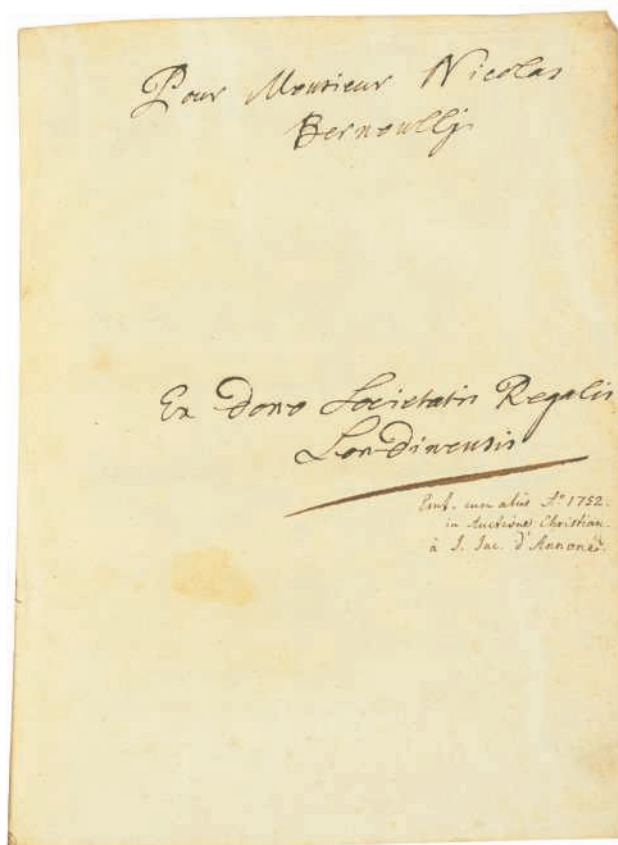
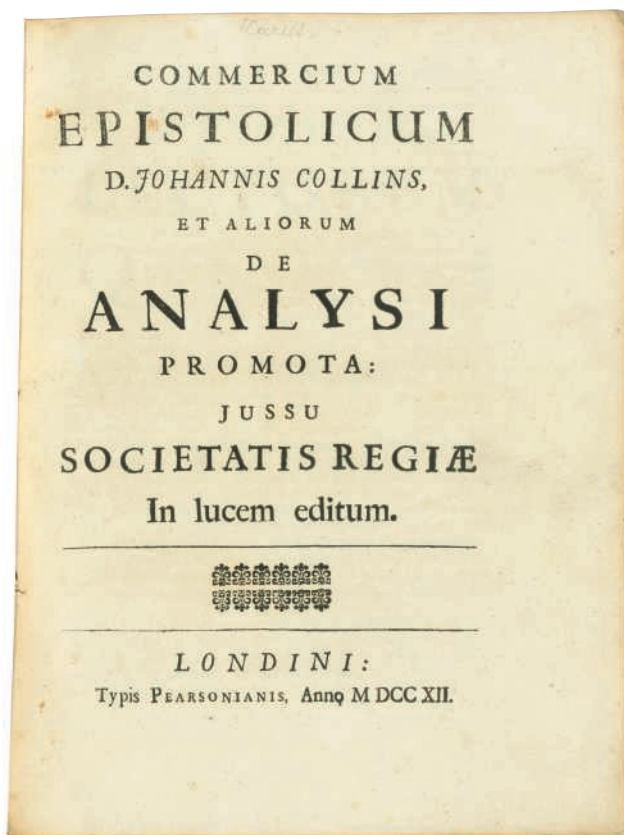
CHLADNI, Ernst Florens Friedrich (1756-1827). *Die Akustik*. Leipzig: Breitkopf & Härtel, 1802.

**First edition of the 'foundation of the modern science of acoustics' (PMM).** A musician and scientist, Chladni devised a method for visualizing the patterns of vibrations. By applying sand to fixed metal plates and drawing a violin bow across the edge, he recorded the patterns in the sand. His work 'prompted Napoleon to remark that "Chladni has made sound visible"' (Dibner). 'Chladni plates' and study of vibration continue today. His results were first reported in 'New Discoveries in the Theory of Sound,' 1787 and greatly expanded in the present work. **From the library of Marcel Bekus (1888-1939).** Born at Warsaw, Bekus was an anarchist, participant in the 1905 Russian revolution, and historian. He emigrated to Paris in 1919 and his collection was dispersed by his grandson in 1985. Norman 481; PMM 223(b); Bib. *Mechanica* p.70; Sparrow 38.

Quarto (236 x 198mm). Engraved portrait of the author by F.W. Bollinger on title, 11 engraved plates (lightly browned as usual, occasional spotting). Contemporary mottled paper boards, paper spine label (light wear at extremities); modern morocco-backed box. *Provenance:* Salomon, bookshop at Strasbourg (ticket) - Marcel Bekus (1888-1939; small oval stamp).

£2,000-3,000                      US\$2,600-3,800  
 €2,300-3,400





### 0235

COLLINS, John (1625-1683). *Commercium epistolicum D. Johannis Collins, et aliorum de analysi promota*. London: Pearson, for the Royal Society, 1712.

**First edition, presentation copy to Nicolas Bernoulli, of the work which established Newton's priority over Leibnitz as the inventor of the infinitesimal calculus.** The controversy over which man could lay claim to have first discovered calculus began in the late 17th century and gathered pace in the years leading up to the publication of the *Commercium*. John Collins, an English mathematician, maintained a prodigious correspondence with all the major scientists of his day including Leibnitz and Newton, a selection from which forms the basis of the present publication. Published by order of the Royal Society using materials apparently supplied by Newton himself, the *Commercium* reaches a conclusion which is thought to be 'greatly biased in Newton's favour' (DNB).

The Bernoulli family of Swiss mathematicians played a significant role in the controversy. Johann – the uncle of Nicolaus, the recipient of this copy – was a strong advocate for Leibnitz in the priority debate, and subsequently maintained a strained relationship with Newton. Nicolaus himself visited London in 1712 where he was introduced to Newton and Halley by the mathematician Abraham De Moivre, a French mathematician and fellow of

the Royal Society who had been appointed to the commission responsible for settling the controversy. It was apparently through De Moivre that Nicolaus received the present copy: 'As promised, De Moivre did send Johann Bernoulli a copy of the *Commercium Epistolicum*, as well as another one to Bernoulli's nephew, Nicolaus. It took a typical De Moivre route. He initially sent the books through Paul Vaillant, the Huguenot bookseller in London. From Vaillant's operation in The Hague, it went via the chaplain of the duc d'Aumont to Remond de Montmort and then on to Bernoulli. De Moivre informed only Nicolaus Bernoulli that the books were on their way. By the time the books arrived, they had received some damage from the rigors of eighteenth-century transport (Bellhouse). David Bellhouse. *Abraham De Moivre: Setting the Stage for Classical Probability and Its Applications* (2011); Babson 187; ESTC T18481.

Quarto (235 x 178mm). With the correct catchword on p.34 (small marginal chip to inner top corner of errata leaf, very faint browning). Contemporary marbled wrappers (lightly rubbed, lacking backstrip). *Provenance*: Nicolaus Bernoulli (1687-1759; presentation inscription from the Royal Society) – 'J. Jac. D'annone' (inscription recording purchase at auction in 1752) – paper label to corner of upper wrapper.

£10,000-15,000

US\$13,000-19,000  
€12,000-17,000



0236

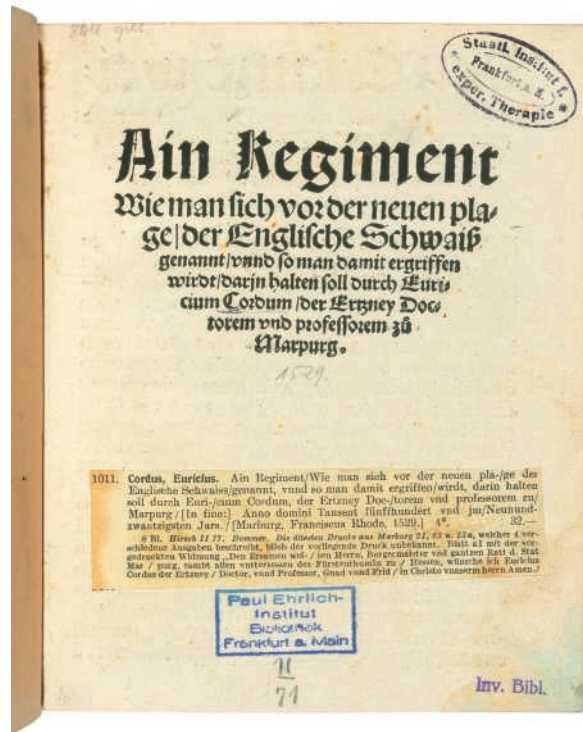
CORDUS, Euricius (1486-1535). *Ain Regiment Wie man sich vor der neuen plage.* Marburg: 1529.

A rare edition of a German medical professor's account of the *sudor anglicus*, or English sweating sickness. First appearing in England in 1485, the previously unknown disease caused panic in the population after rapidly killing thousands. Further outbreaks occurred in 1507 and 1517, before reaching continental Europe in 1528. The last recorded outbreak was in England in 1551, since when it has not been seen. Cf. Garrison-Morton 5520; cf. VD16 C 5097-5104 (this edition not recorded); cf. Wellcome I, 1588-1589.

Quarto (175 x 141mm). (Faint stains into text at outer bottom corner.) 20th-century cloth-backed boards, spine label (removed label leaving faint traces of adhesive); housed in a modern cloth case. *Provenance:* Frankfurt, Paul Ehrlich Institute (later the Royal Institute for Experimental Therapy; stamps) – bookseller's description pasted in blank space on title.

£1,200-1,800

US\$1,600-2,300  
€1,400-2,000



0237

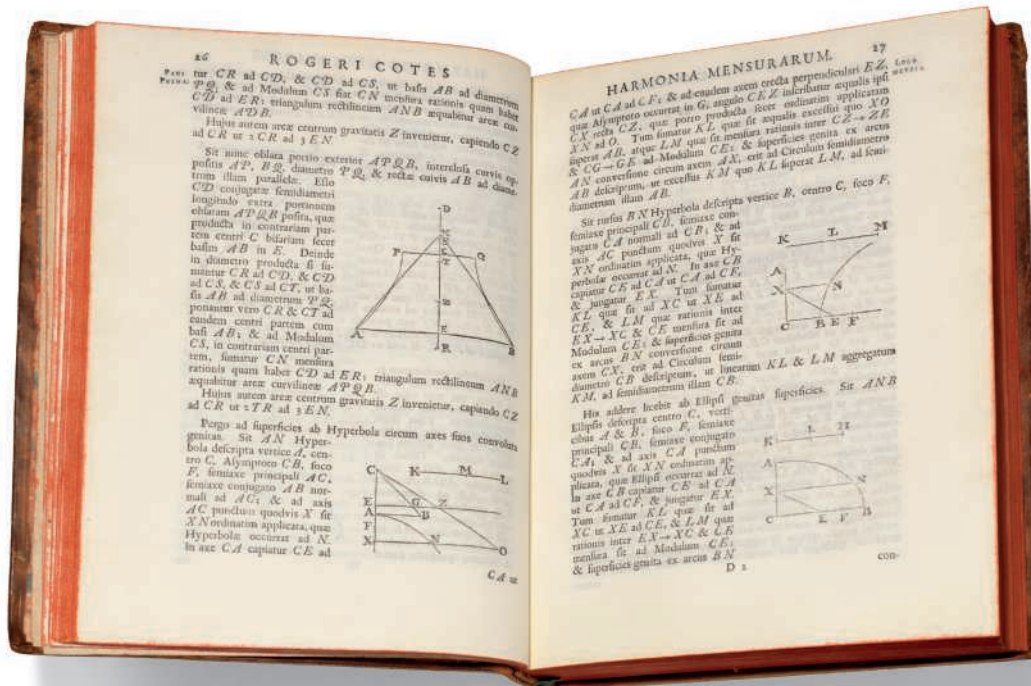
COTES, Roger (1682-1716). *Harmonia mensurarum.* Edited by Robert Smith. Cambridge: 1722.

First edition of a posthumously published collection of Cotes's mathematical papers. It contains "Logometria," the only one of Cotes' works published during his lifetime ... The work also contains "Cotes's theorem," [...] as well as the first version of the Newton-Cotes formula for evaluating the area under a curve of nth degree and a method for evaluating the most probable result of a set of operations that closely approaches that of least squares' (Norman). Norman 519.

Quarto (244 x 179mm). Half-title, one folding engraved plate, woodcut diagrams in the text (occasional spotting or browning, short tear in y2). Contemporary mottled calf, red morocco lettering piece, spine gilt (tiny chip at head of spine, extremities slightly rubbed).

£2,000-3,000

US\$2,600-3,800  
€2,300-3,400





0238

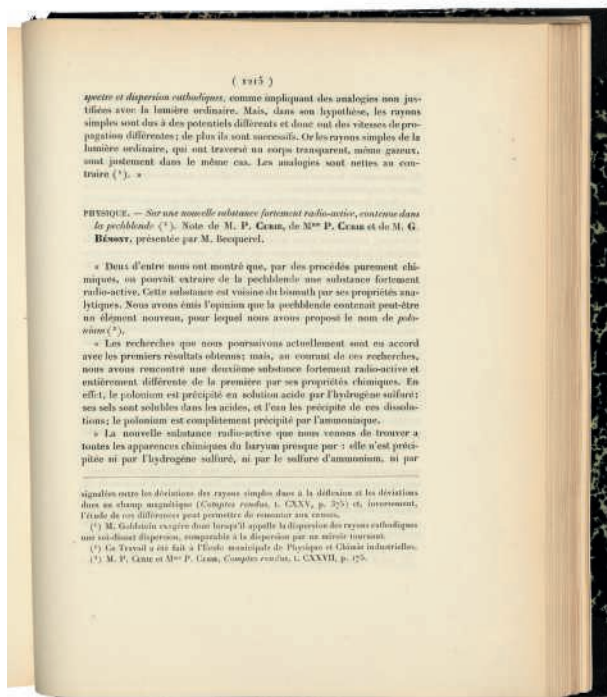
CROCE, Flaminio della (fl. 1610s-1620s). *Teatro militare*. Milan: Bernardino Lantoni, 1613.

**First edition of an illustrated work on military architecture, equipment and weaponry.** Flaminio della Croce had fought in the Low Countries under the command of Alessandro Farnese, Duke of Parma, the dedicatee of the present work. The 5 half-page engravings depict fortifications and other defensive structures as well as ballistic weaponry. RBH/ABPC record one copy at auction. BL/STC *17th-century Italian Books I*, p.243.

2 parts in one volume, quarto (229 x 170mm). Engraved title device incorporating arms of Ranuccio I Farnese, Duke of Parma, 5 engraved illustrations in the text, woodcut headpieces and initials (title lightly soiled, some waterstains heavier in part 2). Modern boards. *Provenance*: ? P Lebani (contemporary inscription on title).

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700



0239

CURIE, Marie Sklodowska (1867-1934) and Pierre CURIE (1859-1906). 'Sur une nouvelle substance fortement radio-active, contenue dans la pechblende', vol. 127, no. 3, pp 175-178, [continued with co-author Gustave BEMONT (1857-1937) in:] no. 26, pp.1215-1217. [And:] DEMARCAEY, Eugene (1852-1903). 'Sur le spectre d'une substance radio-active'. In: *Comptes rendus hebdomadaires des séances de l'Académie des Sciences*, vol. 127, no. 26, p.1218. Paris: Gauthier-Villars, 1898.

**First edition, journal issue, of the announcement of the discoveries of polonium and radium.** Becquerel's discovery of the radioactive properties of uranium inspired Marie Curie to investigate the phenomenon of radiation. 'In 1898, [Marie and Pierre] discovered two new radioactive elements, polonium and radium; both of these elements are present in pitchblende (uranium ore), but in such minute quantities that the Curies were unable to isolate either one, and had to rely on spectroscopic evidence to prove their existence' (Grolier Medicine). On April 12, 1898, Marie presented a preliminary note to the Academy, and in July 1898 she and Pierre published their first joint report in which they announced the discovery of polonium. In December 1898 they announced, in a paper signed also by Pierre's assistant G. Bemont, their discovery of radium, a far more radioactive element than uranium or thorium. The existence of radium - and the validity of the Curies' technique of analysis - was immediately confirmed by the spectroscopist Eugene Demarcay, whose report follows the Curies'. Garrison-Morton 2003; Grolier Medicine 84B; Norman 545.

Quarto (258 x 212mm). Contemporary black half cloth over marbled boards, spine ruled and lettered in gilt. *Provenance*: Institute of Physics, University of Würzburg (stamp).

£1,500-2,000

US\$2,000-2,500  
€1,800-2,300

0240

CURIE, Marie Sklodowska (1867-1934). *Thèses présentées à la Faculté des Sciences de Paris pour obtenir le grade de docteur ès sciences physiques. 1re thèse - Recherches sur les substances radioactives. 2e thèse - Propositions données par la Faculté.* Paris: Gauthier-Villars, 1903.

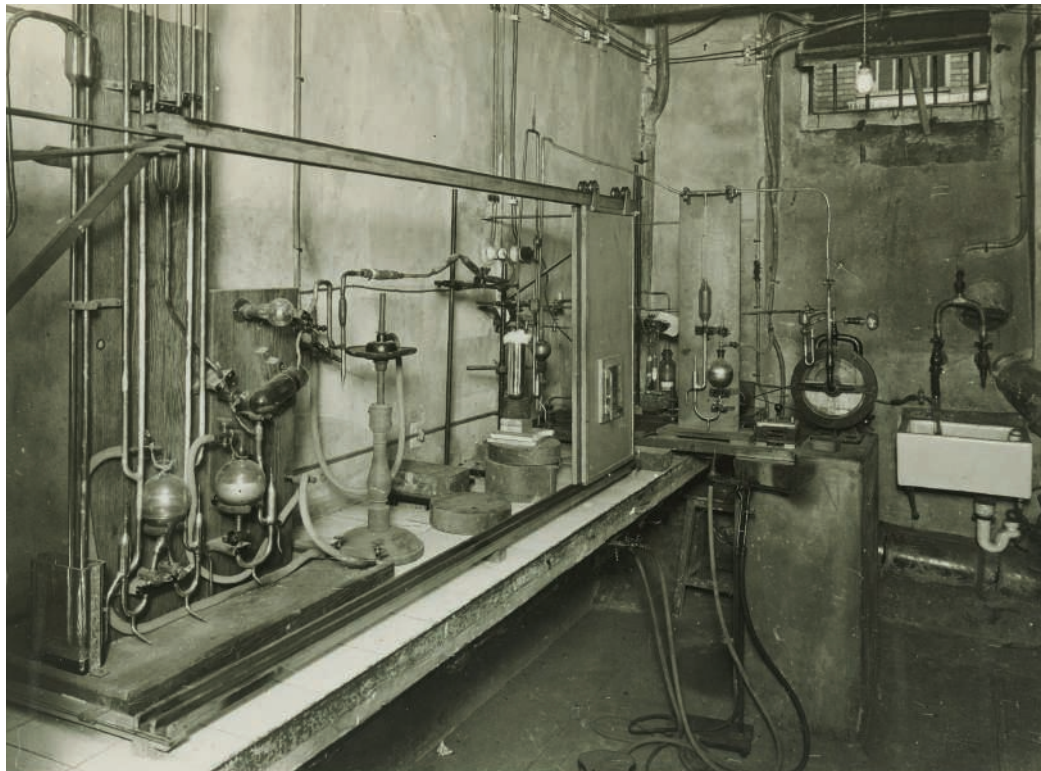
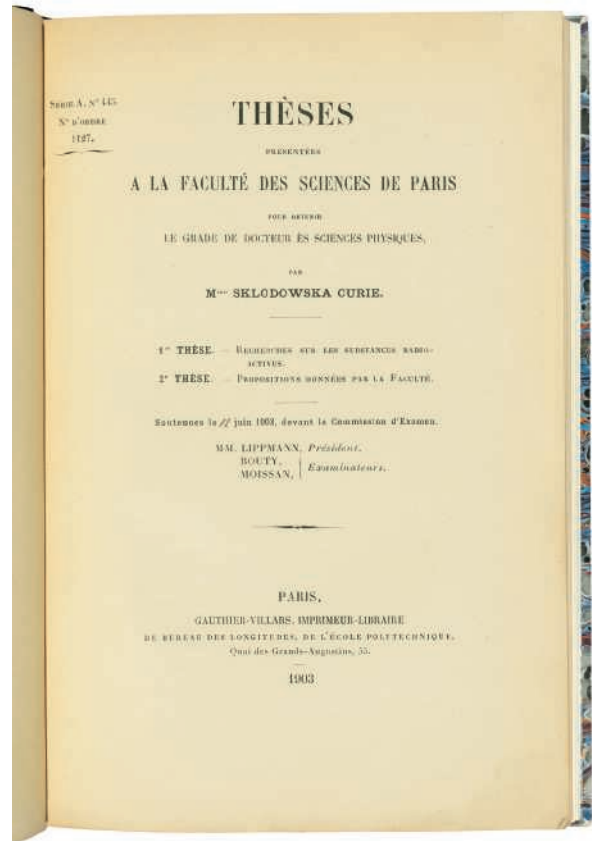
**First edition of Marie Curie's most significant publication - extra-illustrated with 6 photographs, including depictions of the Curies at work.**

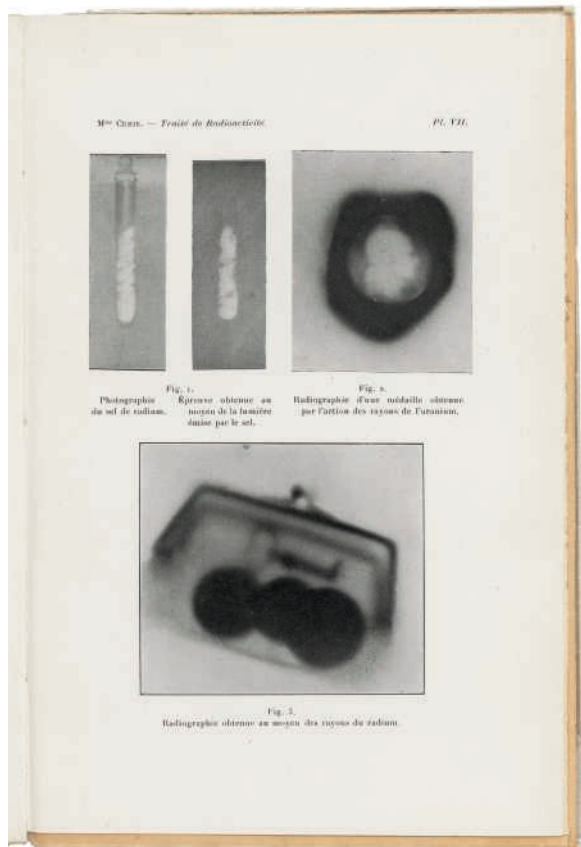
Curie's thesis contains a critical analysis of her extraordinarily productive researches into the phenomenon of radioactivity during the years 1897 to 1903, carried out in collaboration with her husband and with great practical difficulties. During this period, Curie had 'made the first measurement of radioactive radiation, demonstrated the radioactive properties of thorium, discovered polonium and radium, described the atomic nature of radioactivity, prepared pure radium chloride, determined the atomic weight of radium, observed induced radioactivity [...] and developed the chemical aspects of radioactivity' (Norman). Six months after the presentation of her thesis, the Nobel Prize for physics was awarded jointly to Marie and Pierre Curie and Henri Becquerel for their discovery of radioactivity. Marie, the first woman to be so honoured, was to become in 1911 the first person to be awarded the Nobel Prize twice. Norman 543; PMM 394.

Octavo (237 x 154mm). Illustrations in the text; 6 photographs tipped in after the text, additional leaf mounted on guard with contemporary manuscript description of the photographs in French (one leaf slightly browned, a few tiny marginal stains). Modern black quarter morocco over marbled boards, original printed wrappers bound in (small repairs to upper wrapper).

£8,000-12,000

US\$11,000-15,000  
€9,200-14,000





0241

CURIE, Marie Skłodowska (1867-1934). *Traité de radioactivité*. Paris: Gauthier-Villars, 1910.

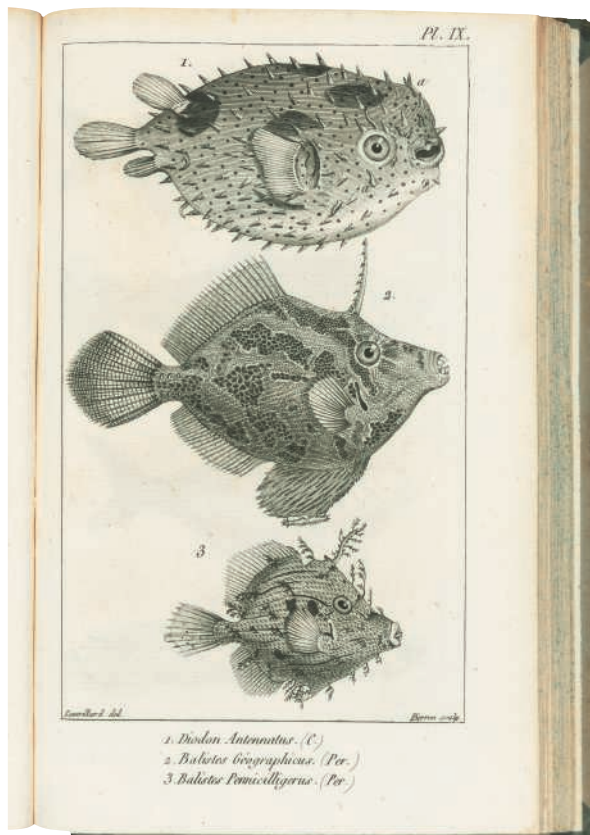
**First edition, in the original wrappers, of a milestone of 20th-century science.** 'After the early death of her husband, Marie Curie continued research in radioactivity. In 1910, she isolated radium in a pure state. Her classic *Traité de radioactivité* [...] is an account of her work through collected papers' (Sparrow). Honeyman II: 789; Sparrow, *Milestones of Science* 41.

2 volumes, octavo (254 x 162mm). Half-titles, heliogravure portrait of Pierre Curie, 7 plates, diagrams in text (a few leaves in vol.2 browned). Original printed wrappers (a few faint marks, restored at spines with some loss of wrapper at foot of vol.1 and head of vol.2). *Provenance*: pencil inscription on first half-title, annotations in margins of first quire - 'Majoration 20%' stamp on opening blanks. (2)

£1,000-1,500

US\$1,300-1,900

€1,200-1,700



0242

CUVIER, Georges L.C., Baron (1769-1832). *Le règne animal distribué d'après son organisation, pour servir de base à l'histoire naturelle des animaux et d'introduction à l'anatomie comparée*. Paris: A. Belin for Deterville, 1817. [With:] - *Rapport historique sur les progrès des sciences naturelles depuis 1789... nouvelle édition*. Paris: 1828.

**First edition of the work that laid the foundations of comparative anatomy.**

'The most influential exposition of the typological approach to animal classification, representing the greatest body of zoological facts that had yet been assembled; it served as the standard zoological manual for most of Europe during the first half of the nineteenth century (Norman). Norman 567; PMM 276.

5 volumes, octavo (195 x 128mm). Half-titles, 15 engraved plates after Laurillard (without the blanks III.iii/8, II.i/8, III.ii/8, III.41/8, IV.12/8, some variable scattered spotting). Uniform set in contemporary cloth-backed boards (extremities lightly rubbed). *Provenance*: J. Moureman (inscriptions on half-titles) - G.C. Ubaghs (inscription on title, perhaps relative of:) - J.A. Ubaghs (inscription with date and place of '1854 Louvain' on flyleaf). (5)

£1,500-2,000

US\$2,000-2,500

€1,800-2,300

0243

DAGUERRE, Louis Jacques Mand (1787-1851). *Historique et description des procédés du daguerréotype et du diorama*. Paris: Bèthune and Plon for Lerebours and Susse frères, 1839.

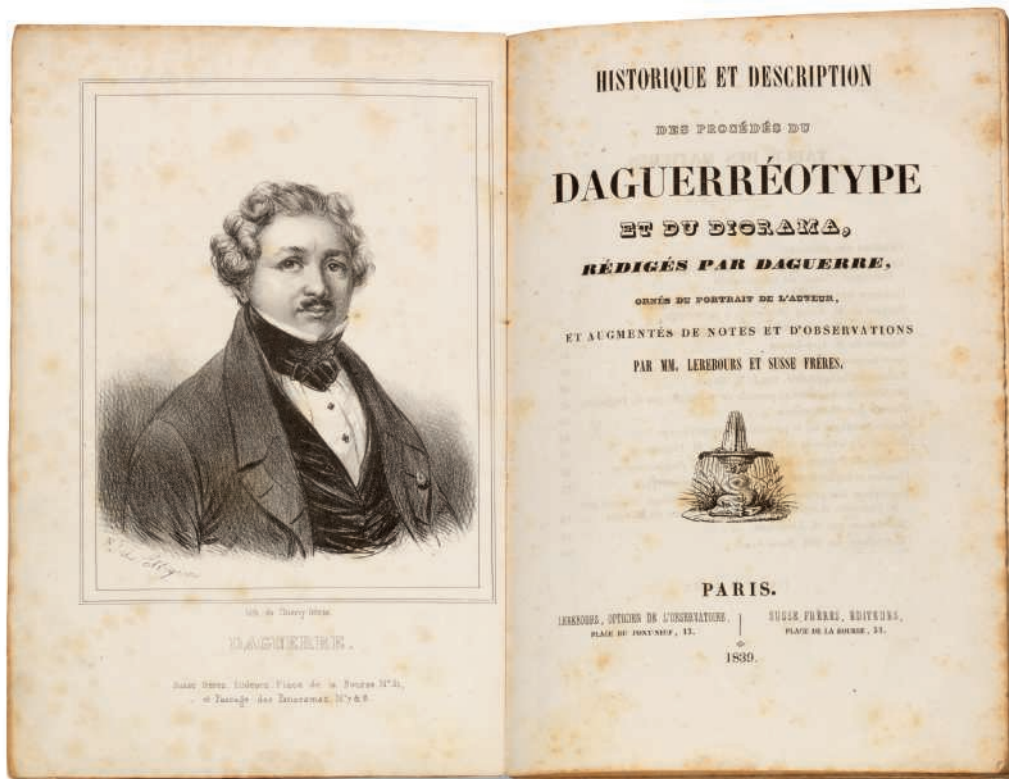
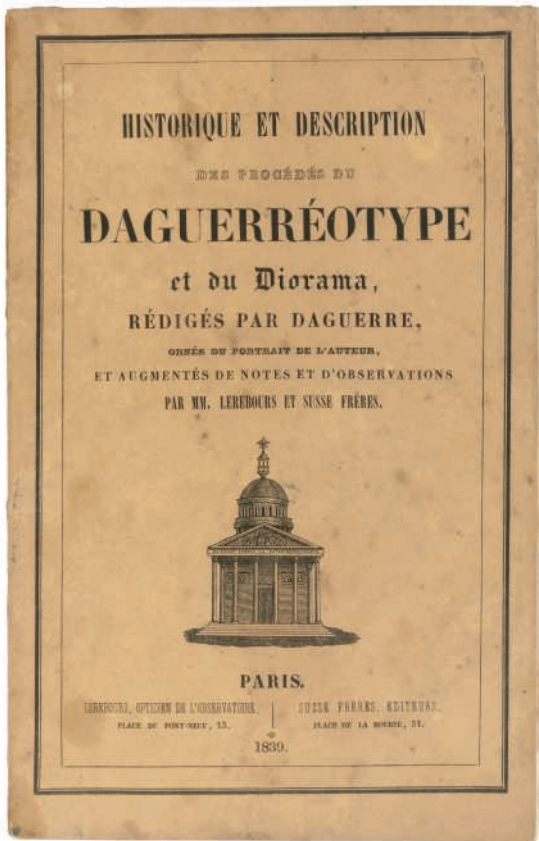
**First edition**, 7th issue, of Daguerre's exposition of his photographic process. Daguerre began experimenting in the 1820s with fixing the images of the camera obscura on silver chloride paper but turned his attention to the heliographic method invented by Nicphore Niépce, whose first successful photographic image was produced in 1826 or 1827 on a pewter plate coated with bitumen of Judea dissolved in oil of lavender. In 1829 Daguerre persuaded Niépce to become his partner, but it was after Niépce's death that Daguerre accidentally discovered a quicker method of exposing and developing the Niépcean image through the application of mercury vapor. Using this method, with common table salt as the fixative, he produced his first successful permanent photographic image in 1837. He was able to buy Niépce's son Isidore out of the partnership, thus allowing Daguerre to name the invention after himself alone.

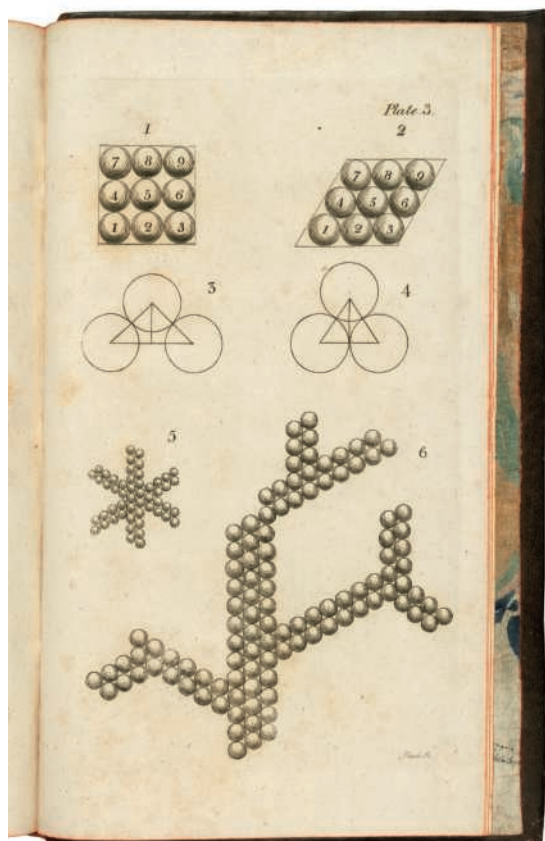
News of the development was electric: 'perhaps no other invention ever captured the imagination of the public to such a degree and conquered the world with such lightening rapidity as the daguerreotype' (Gernsheim, p. 71). Along with the official documents relating to the government's review of the procedure, Daguerre's manual includes details of its genesis, a transcription of Niépce's own description of his heliographic process, and a full illustrated description of the daguerreotype process. The work, published by order of the government, was quickly sold out. A total of 39 reprints, new editions, and translations appeared in the following 18 months. The great demand accounts for the profusion of issues of the first edition: 7 are recorded, all from the same basic setting of type, differing only in the title-page and advertising leaves. The Braune copy is of the 7th issue, but with plates from the 6th issue with the publisher's imprint, with 4 leaves of 'Observations' etc. and 5 advert. leaves, including a final leaf of a catalogue of sculptures. All issues of the first edition are rare. Dibner, *Heralds*, 183; *En français dans le texte* 255; Gernsheim, *The history of photography*, chapter 6; Grolier/Horblit 21a; PMM 318b.

Octavo (211 x 135mm). Lithographic portrait frontispiece and 6 plates, half-title (some spotting). Original printed yellow wrappers (somewhat soiled, some loss of wrapper at spine); modern cloth case.

£3,000-5,000

US\$3,900-6,400  
€3,500-5,700





0244

DALTON, John (1766-1844). *A new system of chemical philosophy*. Manchester: R. Bickerstaff, 1808-1810.

**First edition of Dalton's classic work on the atomic theory of matter.**

'Dalton reconstructed Newton's speculations on the structure of matter, and, applying them in a new form to chemistry, gave Lavoisier's reformation of that science a deeper significance' (PMM). He maintained that all matter was composed of indestructible and indivisible atoms of various weights, each weight corresponding to one of the chemical elements. These atoms remained unchanged during chemical processes, and their particular weight determined their identity. Grolier/Horblit 22; Norman 575; PMM 261.

2 volumes, octavo (207 x 120mm). 8 engraved plates. Modern speckled calf, red and black morocco lettering-pieces. *Provenance*: '? Farrends' (inscription on vol.1 title). (2)

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700

0245

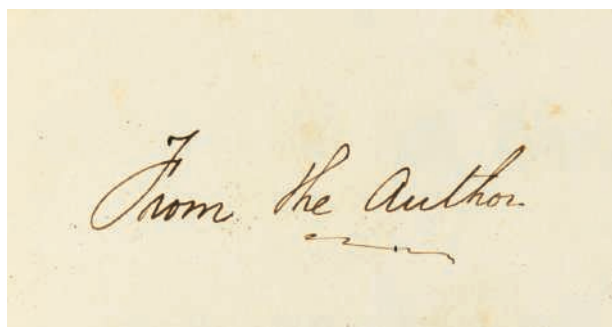
DARWIN, Charles Robert (1809-1882). *The Expression of the Emotions in Man and Animals*. London: John Murray, 1872.

**First edition, first issue, presentation copy of this sequel to the *Descent of Man*.** 'This is an important member of the evolutionary set, and it was written, in part at least, as a confutation of the idea that the facial muscles of expression in man were a special endowment' (Freeman p.141). The critical target of the book was Charles Bell's pious *Anatomy and Physiology of Expression*. 'With this book Darwin founded the study of ethology (animal behaviour) and conveyance of information (communication theory) and made a major contribution to psychology' (DSB). This copy is inscribed by the publisher's clerk, and although the textblock has not been shaved to open the gatherings as per Darwin's wishes, as Freeman notes, 'Mr Murray seems to have honoured Darwin's dislike [of unopened folds] more in the breach than in the observance' (p.12). Freeman 1142; Garrison-Morton 4975; Norman 600.

Octavo (188 x 123mm). 7 heliotype plates with roman numerals, 3 folding, numerous illustrations in text, 2 integral advertisement leaves at end, dated November 1872. Original green cloth, boards with blind frame, lettered in gilt on spine, blue-black endpapers, uncut (extremities faintly rubbed). *Provenance*: presentation inscription in clerk's hand on flyleaf.

£15,000-20,000

US\$20,000-25,000  
€18,000-23,000



LAWSON TAIT, F. R. C. S.,  
BIRMINGHAM. 1882 ON

*Edinburgh*  
1859

# THE ORIGIN OF SPECIES

BY MEANS OF NATURAL SELECTION,

OR THE

PRESERVATION OF FAVOURED RACES IN THE STRUGGLE  
FOR LIFE.

By CHARLES DARWIN, M.A.,

FELLOW OF THE ROYAL, GEOLOGICAL, LINNEAN, ETC., SOCIETIES;  
AUTHOR OF 'JOURNAL OF RESEARCHES DURING H. M. S. BEAGLE'S VOYAGE  
ROUND THE WORLD.'

LONDON:

JOHN MURRAY, ALBEMARLE STREET.

1859.

*The right of Translation is reserved.*

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about not by  
each particular

*Treatise.*

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ook of God's  
sophy; but  
ce in both."

*Learning.*

## 0246

DARWIN, Charles Robert (1809-1882). *On the Origin of Species by Means of Natural Selection*. London: John Murray, 1859.

**First edition of 'the most important single work in science' (Dibner), owned and read by two contemporaries of Darwin.** 'A turning point, not only in the history of science, but in the history of ideas in general' (DSB). Although some key observations and findings from the voyage of the *Beagle* acted as his initial inspiration, Darwin's ideas about the beneficial mutation of species did not cohere into the theory of evolution until his reading of Thomas Malthus's *Essay on the Principle of Population* in the latter half of 1838. The gestation of the theory was slow, but in 1856, following a conversation with Sir Charles Lyell about his hypothesis, Darwin was determined to bring it to a conclusion. Two years later he had composed an extended treatise entitled 'Natural Selection', some two thirds complete at 250,000 words. Then in June 1858, Darwin received a letter about evolution from Alfred Russel Wallace, who had independently arrived at similar conclusions. The two scientists issued a joint paper on the subject at the Linnean Society on 1 July. Darwin was now forced to publish, and urged on by Hooker, he condensed his big book into an 'abstract' of some 155,000 words. 'The book, stripped of references and academic paraphernalia, was aimed not at the specialists, but directly at the reading public'. Finally published as *On the Origin of Species* on 24 November 1859 in a print run of 1250 copies, it expounded a theory of evolution that was recognisably superior and of infinitely greater impact than all previous hypotheses explaining biological diversity.

The first owner of the book, Edward Turner Boyd Twisleton (1809-1874), was a British civil servant who moved in the same social circles as Charles Lyell, and both men knew the American scholar, George Ticknor. In a letter to Ticknor dated 9 January 1860, Lyell comments: 'To return to Darwin's book, Twisleton ... told me he had been much taken with the new theory, and stated some objections' (*Life, Letters and Journals of Sir Charles Lyell, Bart*, p.331). The second owner, Lawson Tait (1845-1899), was one of the world's leading gynaecological surgeons of the 19th century. However, the ODNB notes: 'While seeking the status of a gentleman surgeon and scientist, Tait was adept at making himself unpopular. In religion, he abandoned his parents' Catholicism and in Birmingham aligned with the nonconformist sects. In politics he adopted radical-Liberalism. His vigorous anti-vivisectionism infuriated associates of the Royal College of Surgeons and the British Association for the Advancement of Science. Tait's ardent ambition was to gain Charles Darwin's respect, and he had published a pamphlet entitled *Has the Law of Natural Selection by Survival of the Fittest Failed in the Case of Man?* (1869). In 1871 Tait initiated a substantial sycophantic correspondence with Darwin. Darwin, however, was unimpressed with Tait's work as a natural historian and became annoyed when he realized that Tait was unwittingly replicating some of the work of the botanist Joseph Dalton Hooker. Tait hoped to be elected a fellow of the Royal Society, but in 1876 Darwin informed him of his rejection.' Dibner *Heralds* (1980) 199; Eimas *Heirs* 1724; Freeman 373; Garrison-Morton (1991) 220; Grolier *Science* 23b; Norman 593; PMM 344b; Sparrow *Milestones* 49; Waller 10786.

Octavo-in-12s (197 x 123mm). Half-tile, folding lithographic diagram. 32-page list of John Murray's books at end, dated June 1859 [Freeman's variant 2] (half-title and title with marginal vertical crease running approx. 25mm in from the fore-edge, 60mm tear into text but without loss on pp.7-8, pp.92-116 faintly creased at foot, very short marginal tear to first contents leaf, the first four leaves lightly frayed with tiny chipping at fore-edge, pp.321-2 with tiny marginal nick, a couple of leaves with faint insignificant marginal staining or finger-soiling). Uncut in original green cloth, with the ticket of Edmonds & Remnants, covers stamped in blind, spine lettered and decorated in gilt, brown coated endpapers [Freeman's variant 'a' binding], a few leaves of the index unopened (inner hinges expertly repaired, tiny insignificant splits to tailcap, corners lightly bumped); housed in a modern green cloth box with morocco backstrip. *Provenance*: Edward Turner Boyd Twisleton (1809-1874, civil servant; ownership inscription on title dated 1859) - Lawson Tait (1845-1899, gynaecological surgeon; ownership stamp and ms date of 1882 on title).

£140,000-200,000

US\$180,000-250,000

€160,000-230,000



ON THE  
ORIGIN  
OF  
SPECIES  
—  
DARWIN.



LONDON  
JOHN MURRAY



**0247**

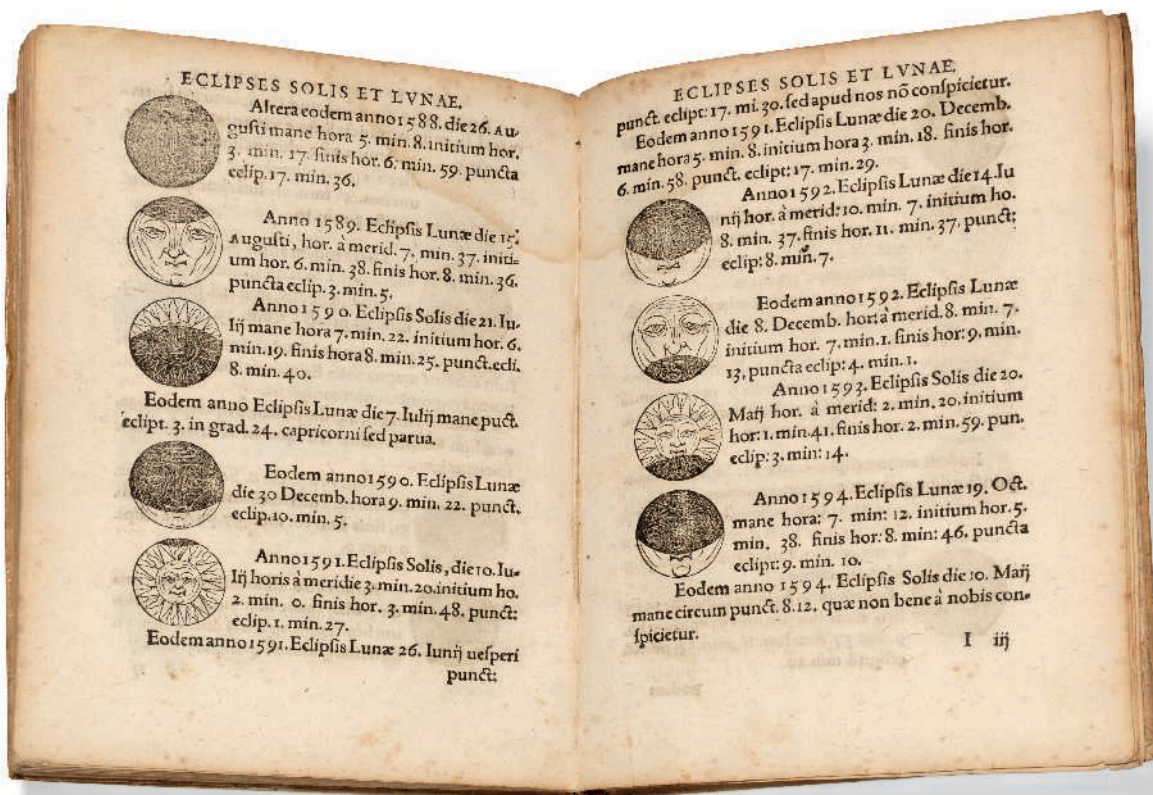
DASYPODIUS, Conrad (1530-1600). *Heron mechanicus*. Strasbourg: Nicolaus Wyriot, 1580.

**First edition in Latin of a description of the famous astronomical clock in the cathedral at Strasbourg.** Designed by the mathematician Christian Herlin, it was finished after his death by Dasypodius, his pupil and successor, who resumed construction of the clock with the help of Isaac and Josia Habrecht in 1571 and finished it in 1574. The clock featured a representation of the planets and marked the celestial movements including the occurrence of eclipses. *BL STC German*, p.236.

Quarto (195 x 143mm). Large woodcut of the Strasbourg clock on title within border of type ornaments, 35 small woodcuts of solar and lunar eclipses, historiated woodcut initials (faint waterstain in inner top corner). Contemporary vellum. *Provenance:* 'Franc. Functini[?]' (inscription on title) - Fernand Heitz (1891-1963; bookplate).

£4,000-6,000

US\$5,100-7,600  
€4,600-6,800



0248

DELLA PORTA, Giovanni Battista (c.1538-1615). *Magiae naturalis libri XX*. Naples, Salviani, 1589.

**First edition of the complete text** in twenty books, which was almost immediately forbidden, 'essential to an understanding of Della Porta and the science of his day' (Mortimer). Della Porta's *Natural Magic*, immediately and durably popular, dealt with mathematics, meteorology, astrology and natural philosophy, but also occult philosophy and alchemy. In 1592 his philosophical works were prohibited from further publication by the Church. Mortimer, *Harvard Italian* 400; Riccardi I(ii).

Folio (301 x 203mm). Woodcut border to title, author's portrait on the verso, woodcut initials, woodcut headpieces (a few leaves with frayed edges, upper outer corner of last leaf repaired, some browning, a little heavier in places). Modern vellum, sides and spine decorated in gilt, morocco lettering-piece. *Provenance*: Ragonier Francesco de Molina (contemporary inscription on title) – unidentified 17th-century inscription on title.

£1,500-2,000

US\$2,000-2,500  
€1,800-2,300



0249

DELLA PORTA, Giovanni Battista (c.1538-1615). *Magiae naturalis libri XX*. Frankfurt: Wechel, 1597.

**Second edition** of the complete text in twenty books, first published in Naples in 1589 and then soon forbidden for a decade. This edition precedes the lifting of the ban, granted in 1598. Perhaps the most remarkable part of the book is 'De Catoptrici', a treatise on optics and lens-making which established the technical and practical pre-conditions to Galileo's observations. See Mortimer, *Harvard Italian* 400 and Riccardi I(ii) 307 (both the 1589 edition).

Octavo (169 x 103mm). Woodcut initials, illustrations and diagrams in text, woodcut head- and tailpieces (leaf 2.2 repaired in lower outer corner, some light browning, one marginal paper flaw). Contemporary vellum, yapp edges with green silk ties, sides with black-stamped borders, corner-pieces and supralibros, paneled spine stamped in black, with ink lettering to the head (one tie perished and one detached, surface a little rubbed). *Provenance*: Nuremberg, Paulus Bernhardus (supralibros dated 1599).

£1,000-2,000

US\$1,300-2,500  
€1,200-2,300





**0250**

DELLA PORTA, Giovanni Battista (c.1538-1615). *De distillatione lib. IX*. Rome: Camera Apostolica, 1608.

**First edition.** Della Porta's treatise gives the most comprehensive view of the applications of distillation in the sixteenth century. The work is an expansion of the section on distillation in Book X of the enlarged edition of his *Magia naturalis* (1589). The nine parts of *De distillatione* deal with the various kinds of distillation, including methods of extraction, the preparation of scented distilled waters, oils distilled from resins, oils distilled from woods, the distillation of corrosive mineral acids, the properties of these acids, distillation of alcohol from wine, and the preparation of various ointments. 'Among the many fine woodcuts contained in the book, the most curious are those depicting pieces of apparatus likened to different animals' (Duveen). Duveen, p. 481; Ferguson II, 216 (Strasbourg edition of 1609, 'The Roman edition is a much finer book'); Norman 1725; Riccardi I(ii), 312.

Quarto (203 x 143mm). Woodcut portrait of the author by I. Laurus, laudatory epigrams in Hebrew, Greek, Chaldean, Arabic, Slavonic, and Armenian, each with their Latin translations, 35 woodcut illustrations in text, woodcut initials and printer's device (some stains to the title, fore-edge of portrait just trimmed, lightly browned, some leaves spotted). Contemporary vellum, spine lettered in ink (a little stained, a few chips to extremities). *Provenance:* Vincentius Sergius (contemporary inscription to front endleaf).

£4,000-6,000

US\$5,100-7,600  
€4,600-6,800

**0251**

DELLA TORRE, Giovanni Maria (1710-1782). *Storia e fenomeni del Vesuvio*. Naples: Giuseppe Raimondi, 1755.

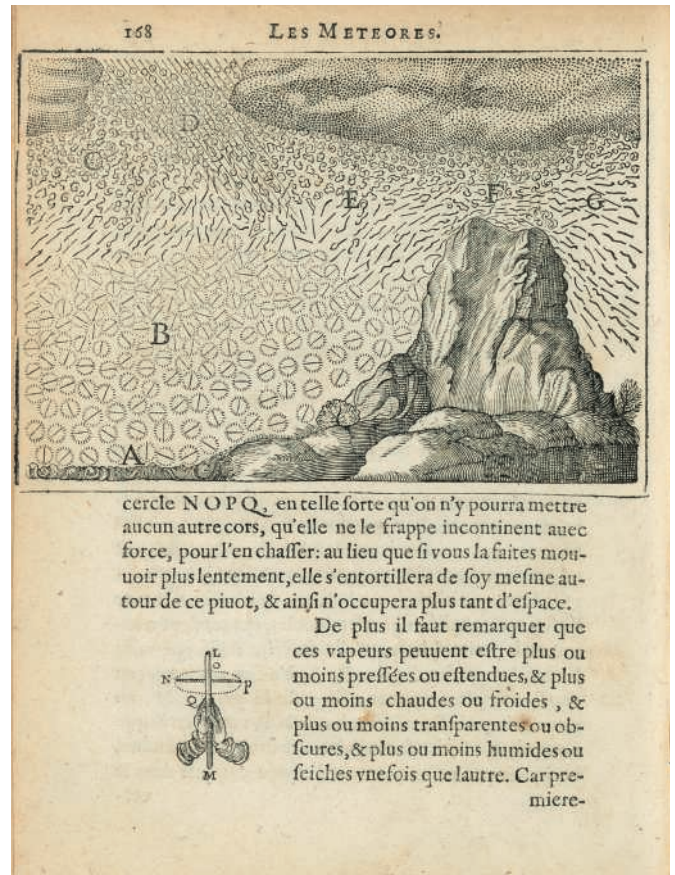
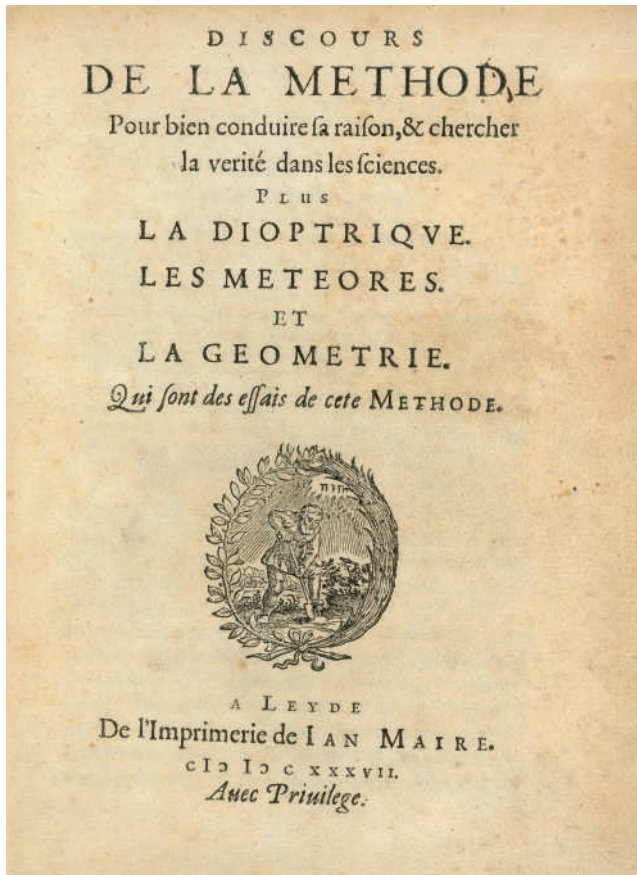
**First edition** of a beautifully illustrated study of the volcanic activity of Mount Vesuvius by the Italian naturalist and philosopher Della Torre who, beside achieving important progress in the construction of microscopes, served as librarian to the King of Sicily and was one of the founding members of the Royal Society for the Study of Herculaneum. His monograph was the result of over twenty years of direct field observations and published studies (many international scientists, such as Nollet, Lalande, Ferber, would regularly perform the 'ascent to Vesuvius' with him as a guide - indeed Lalande's account of Vesuvius in his *Voyage* is wholly indebted to Della Torre's writings). Here not only does Della Torre present an analysis of eruptive material and eruption mechanics: he also defines, perhaps for the first time explicitly, the history of a volcano not as a sequence of exterior phenomena but as an internal 'building' process facilitated by such phenomena. Furchheim, *Bibliografia del Vesuvio*, pp.194-5.

Quarto (268 x 199mm). With 9 folding engraved plates (very light occasional spotting). Contemporary sheep, sides with gilt double-rule, upper side with direct-gilt titling and small gilt armorial stamp, flat spine gilt (joints cracked but holding, mild soiling, a few abrasions).

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700





0252

DESCARTES, René (1596-1650). *Discours de la methode pour bien conduire sa raison, & chercher la verité dans les sciences. Plus La Dioptrique. Les meteoros. Et la geometrie. Qui sont des essais de cete Methode.* Leiden: Jan Maire, 1637.

**First edition of Descartes' first published work, the opening essay containing one of the fundamental statements of modern philosophy and science: 'I think, therefore I am'** (p. 33). In the first part Descartes sets out his method of inquiry, and then illustrates it in three essays on particular sciences. 'Descartes's purpose is to find the simple indestructible proposition which gives to the universe and thought their order and system. Three points are made: the truth of thought, when thought is true to itself (thus, cogito, ergo sum), the inevitable elevation of its partial state in our finite consciousness to its full state in the infinite existence of God, and the ultimate reduction of the material universe to extension and local movement' (PMM). Descartes's discussion of Harvey's discovery of the circulation of blood was the first mention made of it by a prominent foreign scholar. Dibner, *Heralds of Science*, 81; Grolier/Horblit 24; Guibert, *Bib. Descartes*, 1; Norman 62; NLM/Krivatsky 3114; PMM 129; Tchemezine IV, 286.

Quarto (190 x 142mm), pp. 78, [2], 294: bound without the *Geometrie* section at the end (woodcut printer's device on title, numerous text illustrations and diagrams (occasional light browning, the odd spot). Late 18th-century boards covered in marbled papers, flat spine with gilt lettering-piece and ink lettering (edges worn, cover to corners and spine partly perished); preserved in a custom-made box. *Provenance*: late 18th-century French owner (inscription on front flyleaf).

£4,000-6,000

US\$5,100-7,600

€4,600-6,800



**0253**

DIDEROT, Denis (1713-1784) and Jean D'ALEMBERT (1717-1783), editors. *Encyclopédie, ou Dictionnaire raisonné des sciences, des arts et des métiers*. Paris: Briasson, David, Le Breton, Durand, 1751 [1752]-1757 [Vols I-VII] and Neuchâtel [i.e. Paris]: S. Faulche & Compagnie, 1765 [vols VIII-XVII]. 17 volumes. — *Recueil de planches, sur les sciences, les arts libéraux, et les arts mécaniques*. Vols I-XI: Paris: Briasson, David, Le Breton, Durand, 1762-1772; vol. XII Paris: Panckouke, Stoupe, Brunet, and Amsterdam: M.M. Rey, 1777. 12 volumes. — *Supplément à l'Encyclopédie*. Edited by Jean Baptiste René Robinet. Amsterdam: M.M. Rey, 1776-1777. 4 volumes [I-IV] — *Table analytique et raisonné des matières contenues*. Edited by Pierre Mouchon. Paris: Panckoucke & Amsterdam: Marc-Michel Rey, 1780. 2 volumes [I-II].

**First edition, one of the most splendid products of the Enlightenment, and one of the great landmarks of western intellectual history in a contemporary binding.** 'A monument in the history of European thought; the acme of the age of reason; a prime motive force in undermining the Ancien régime and in heralding the French Revolution; a permanent source for all aspects of eighteenth-century civilization' (PMM). 'The greatest encyclopedia of science, which had widespread effect in establishing

uniformity of terminology, concept, and procedure in all fields of science and technology' (Grolier/Horblit). The majority of entries were written by Diderot and D'Alembert; other collaborators included Baron d'Holbach, Rousseau, Voltaire, Montesquieu, Buffon, Marmontel, Condorcet, Necker and Turgot. The first seven volumes of the *Encyclopédie* were published in Paris under a royal privilege; when this was withdrawn in 1759 printing continued clandestinely, and the last ten volumes were issued under the false imprint of Samuel Faulche, Neuchâtel. Grolier/Horblit 25b; John Lough, *Essays on the Encyclopédie* (London 1968); PMM 200; Schwab, Rex, and Lough, *Inventory of Diderot's Encyclopédie*, I (1971), VII (1984) [*Studies on Voltaire and the Eighteenth Century* 80, 223].

35 volumes, folio (401 x 248mm). Uniform contemporary French tree calf, covers with narrow gilt roll-tooled border, gilt spines with red morocco labels, marbled edges and endpapers (extremities faintly rubbed).

Collation, contents and condition report available on request from the department.

(35)

£25,000-35,000

US\$32,000-44,000  
€29,000-40,000



**0254**

[DIDEROT - D'ALEMBERT] - *Encyclopédie Méthodique, ou par ordre des matières, par une société de gens de lettres... Mathématiques. Physique.* Paris: Panckoucke, 1784-1785 and Panckoucke-Agasse, 1793-1822.

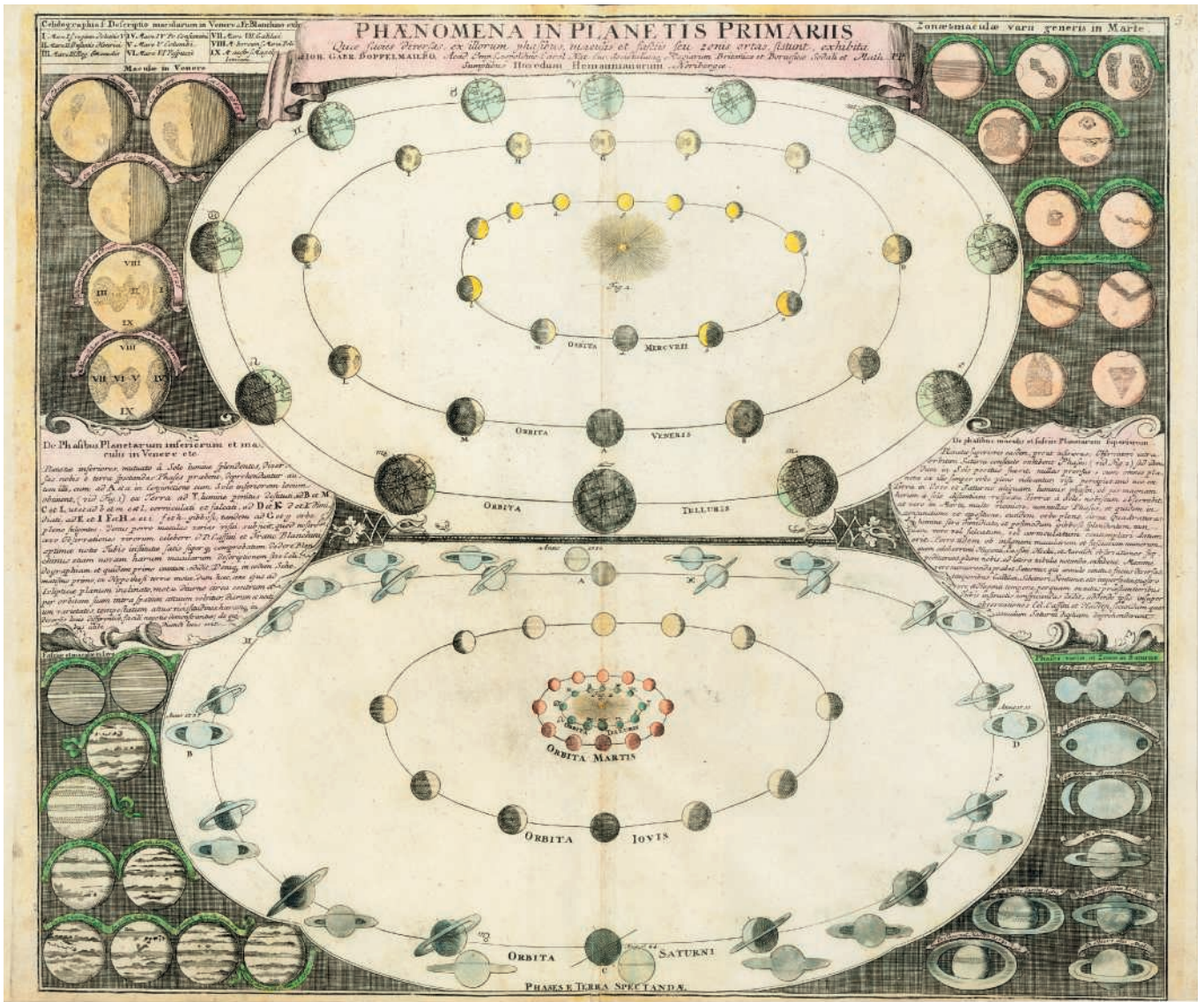
**First edition** of the two 'divisions' which Diderot and D'Alembert had placed at the head of their monumental architecture of knowledge: mathematics and physics. The *Encyclopédie Méthodique* remains a uniquely grand, intellectually and materially ambitious undertaking in editorial history and in the history of the printing press. 'C'est à coup sûr la collection la plus vaste qu'ait jamais produit la librairie française, et nous pouvons même ajouter celle d'aucun pays. Cet ouvrage est le résultat de l'effort gigantesque, entrepris par les meilleurs scientifiques et savants de l'époque' (Brunet II, 973). The publication, initiated by Panckoucke in 1782, was continued by Henri Agasse, Panckoucke's son-in-law, from 1794 to 1813, and then by the latter's widow until completion in 1832.

8 volumes, quarto (295 x 215mm), including 2 vols of text and 1 of plates for mathematics and 4 vols of text and 1 of plates for physics (both series complete). (Occasional foxing or spotting, a few quires mildly browned, plates in excellent condition.) Bound uniformly (except for the volume of plates for mathematics, in modern quarter calf and marbled boards) in 19th-century tree-calf, flat spines decorated and lettered in gilt (extremities rubbed, some surface abrasions; wormtrack to front cover of first vol., spine of 19th-c plate vol. defective at head and foot, with joints cracked but holding). *Provenance*: contemporary paper slip glued to the first leaf of the Physics first vol. with manuscript notes on *livraisons*.

(8)

£1,500-2,000

US\$2,000-2,500  
€1,800-2,300



0255

DOPPELMAYR, Johann Gabriel (1671-1750). *Atlas novus coelestis in quo Mundus Spectabilis*. Nuremberg: Homann's Heirs, 1742.

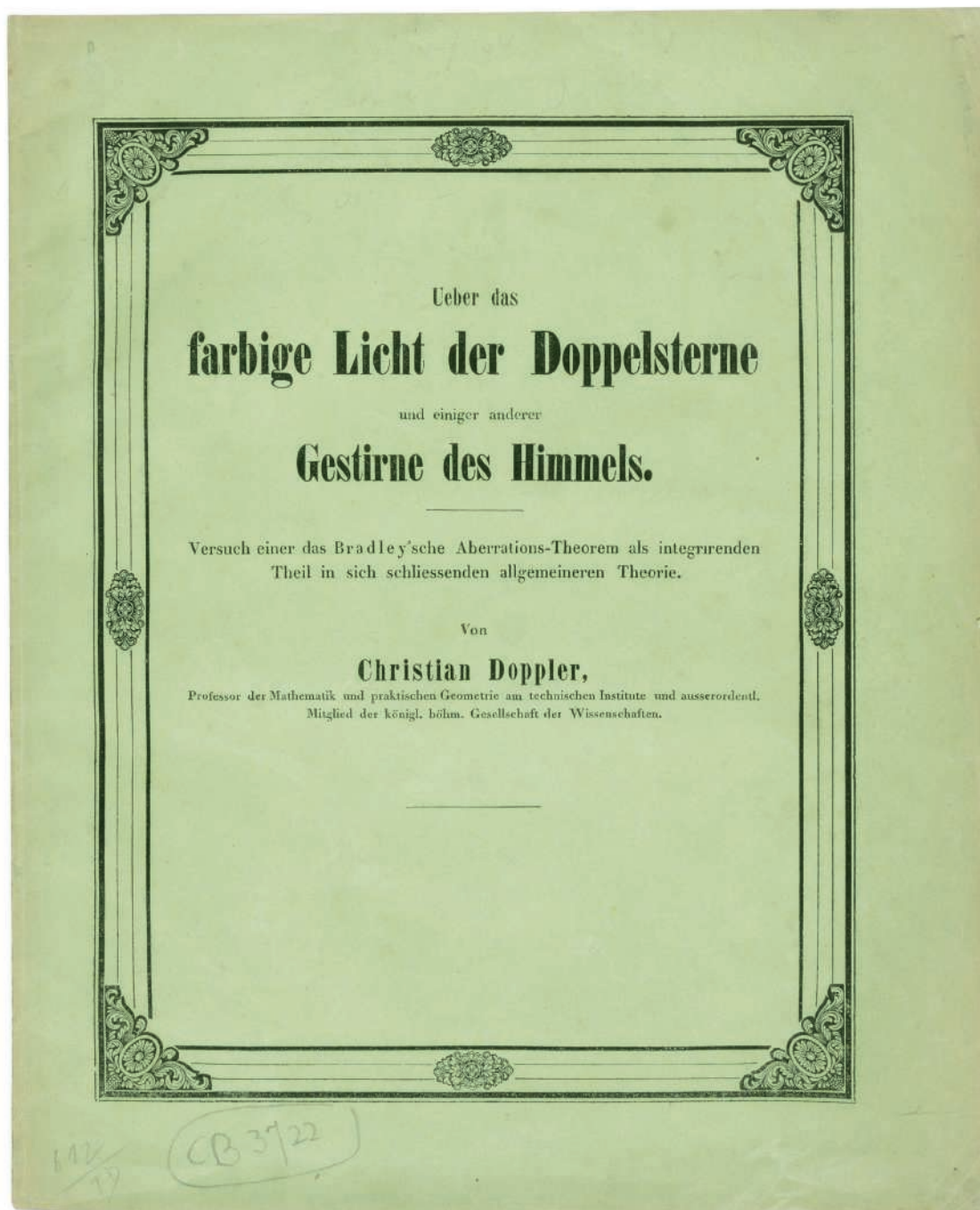
**Doppelmayr's important astronomical work, extra-illustrated.** 'Besides being a star chart and a selenographic map, the *Atlas* includes diagrams illustrating the planetary systems of Copernicus, Tycho, and Riccioli; the elliptic theories of Kepler, Boulliau, Seth Ward, and Mercator; the lunar theories of Tycho, Horrocks, and Newton; and Halley's cometary theory.' (DSB IV, p.166). The additional plate depicts and describes a clock with a map, one step in the search for longitude. Shirley, BL C.Dop.-1c.

Folio (500 x 321mm). Engraved allegorical additional title by J.C. Reinsperger after J.J. Preisler, title printed in red and black with engraved vignette, letterpress index, 30 double-page engraved plates, partially hand-coloured, **extra-illustrated** with double-page engraving of Homann's 'Geographische Universal - Zeig und Schlag-Uhr' mounted on guards throughout (engraved title repaired at lower edge with a little loss, title mounted, map 18 torn with slight loss repaired, Homann plate lightly repaired at fore-edges, a few other marginal repairs, occasional light stain). Modern calf tooled in blind and gilt. *Provenance*: unlocalised Capuchin convent (inscription on title).

£8,000-12,000

US\$11,000-15,000  
€9,200-14,000





**0256**

DOPPLER, Johann Christian (1803-1853). *Ueber das farbige Licht der Doppelsterne und einiger anderer Gestirne des Himmels*. Offprint from: *Abhandlungen der k. böhm. Gesellschaft der Wissenschaften*, 5th series, vol. 2 (1842). Prague: Borrosch & Andra, 1842.

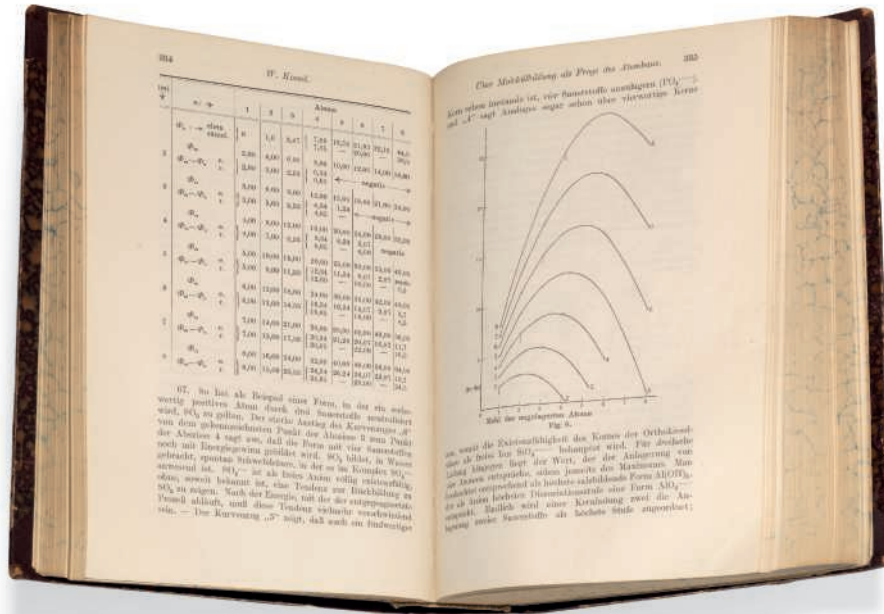
**First edition, offprint issue, containing the first statement of the Doppler principle, a fundamental tool of modern astronomy.** The principle 'relates the observed frequency of a wave to the motion of the source or the observer relative to the medium in which the wave is propagated' (*DSB*). In his paper, read to the Prague Gesellschaft für Wissenschaft on 25 May 1842, Doppler noted the application of the principle to both acoustics and optics, specifically to the coloured appearance of double stars and to the fluctuation of novae.

Although Doppler, 'the earliest important physicist in Austria in the nineteenth century', made some incorrect assumptions about the nature of stellar light, due largely to the isolation in which he worked, his theory was soon borne out through experimentation. 'Since then the technique has provided the science of astrophysics with one of its most important tools for measuring the size and the structure of the universe' (*ibid.*) Norman 651.

Quarto (267 x 215mm). 18pp. Lithographed plate (faint browning at margin extremes). Original green printed wrappers (insignificant creasing to the whole). *Provenance*: a few pencil inscriptions to wrappers and title.

£15,000-20,000

US\$20,000-25,000  
 €18,000-23,000



0257

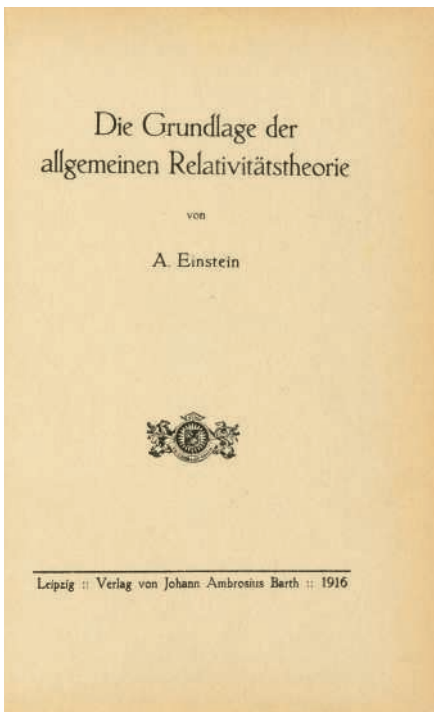
EINSTEIN, Albert (1879-1955). 'Die Grundlage der allgemeinen Relativitätstheorie', in: *Annalen der Physik*, IV. Folge, volume 49, pp.[769]-822. Leipzig: J.A. Barth, 1916.

**First printing of Einstein's general theory of relativity.** 'For his 'special' theory Einstein was awarded a fellowship (fourth class) of the Kaiser-Wilhelm-Institut in Berlin. In 1921 he was awarded the Nobel Prize. The Committee referred with caution to the relativity theory and cited the greatest physicist of the century for his discovery of the law of the photo-electric effect', PMM 408; Norman 695; Weil 80.

Octavo (213 x 140mm). Contemporary half-cloth (extremities rubbed). *Provenance:* AEG Forschungs Institut Bücherei (stamps on title).

£2,500-3,500

US\$3,200-4,400  
€2,900-4,000



0258

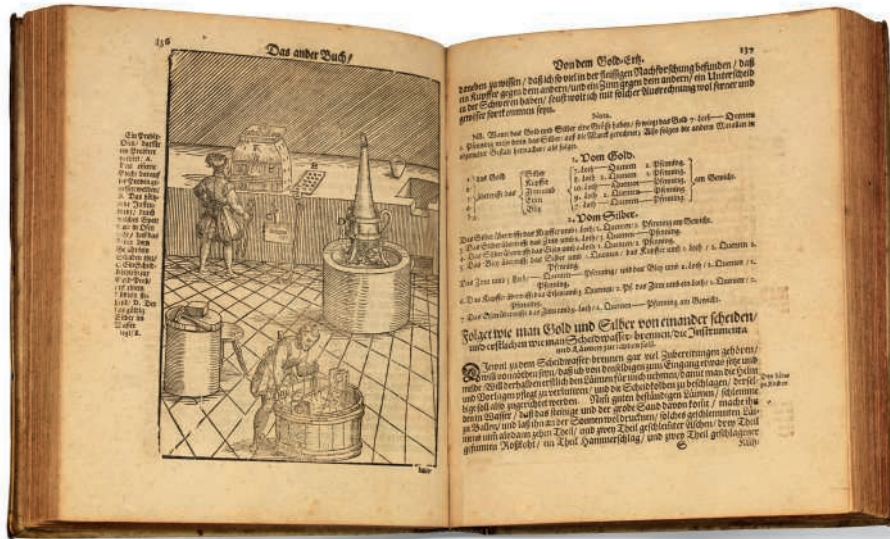
EINSTEIN, Albert (1879-1955). *Die Grundlage der allgemeinen Relativitätstheorie*. Leipzig: J. A. Barth, 1916.

**First separate printing of Einstein's fundamental theory of relativity**, an offprint from *Annalen der Physik*, 4th series, 49 (1916). It differs from the journal issue by the incorporation of textual revisions, the addition of a table of contents on pp. 3-5 and Einstein's introduction on pp. 5-6. 'There were several reprints and facsimiles. The first edition may be identified by the presence of the printer's imprint "Druck von Metzger & Wittig in Leipzig" on the verso of the title and the shorter imprint "Metzger & Wittig, Leipzig" on the back wrapper', Norman 696. PMM 408; Weil 80a.

Octavo (244 x 161mm). Modern half cloth preserving front original printed wrapper.

£2,500-3,500

US\$3,200-4,400  
€2,900-4,000



0259

ERCKER, Lazarus (c.1530- c.1594). *Aula subterranea ... das ist: Untererdische Hofhaltung ... oder gründliche Beschreibung derjenigen Sachen, so in der Tiefe der Erden wachsen, als aller ertzen der Königlichen und gemeinen Metallen, auch fürnehmster Mineralien...* Frankfurt: Johann David Zunner, 1684.

**Enlarged edition** of Ercker's major work and the only one to be well illustrated. '... it presents a systematic review of the methods of testing alloys and minerals of silver, gold, copper, antimony, mercury, bismuth, and lead; of obtaining and refining these metals, as well as of obtaining acids, salts, and other compounds. The last chapter is devoted to saltpeter. Ercker described laboratory procedures and equipment, gave an account of preparing the cupel, of constructing furnaces, and of the assaying balance and the method of operating it' (DSB). The final part of the work contains Christian Berwardus' *Interpres phraseologiae metallurgicae. Oder Erklärung der fürnehmsten Terminorum und Redearten welche bey den Bergleuten, Puchern, Schmelzern ... gebräuchlich sind* (dated 1684). VD-17 39:123441K. See Ferguson I, 243; Hoover 283; Wellcome II, p. 527.

4 books plus appendix in one volume, quarto (233 x 190mm). With engraved title, 40 woodcut illustrations (lightly uniformly browned, occasional spots, engraved title trimmed closely). Contemporary vellum (somewhat soiled).

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700

0260

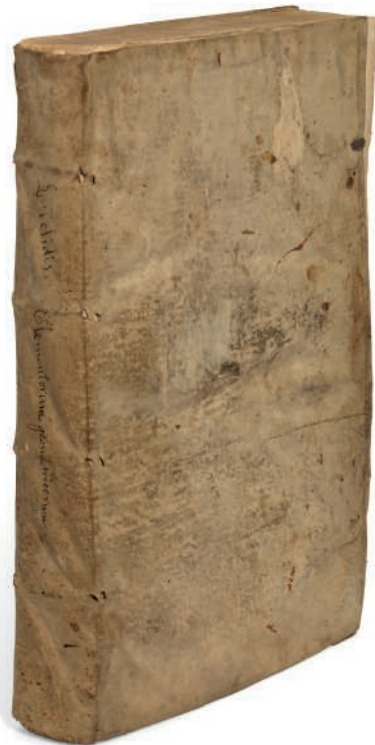
EUCLIDES (fl. c.300 BCE). *Elementorum geometricorum libri XV ... His adiectis sunt Phaenomena, Catoptrica & optica, deinde Protheoria Marini, & Data... Opusculum de levi & ponderosa* [translated by Bartolommeo Zamberti]. Basel: J. Hervagius & B. Brand, 1558.

**An unsophisticated, attractive copy** of the third Basel edition in Latin with valuable commentaries by Theon, Campanus of Novara and Hypsicles of Alexandria. 'The oldest mathematical textbook in the world still in common use today ... The "Elements" remained the common school text-book of geometry for hundreds of years and about one thousand editions and translations have been published', cf. PMM 25 (describing the 1482 edition). Adams E-976; Stanford 15.

Folio (300 x 201mm). Woodcut device on title, a larger version on last page, numerous woodcut initials and diagrams (light waterstaining to the title, marginal wormtrack to the gutter of a few quires, occasional light foxing). Contemporary limp vellum, spine internally reinforced with a strip from a contemporary ?Dutch manuscript (soiled, cockled, ties missing).

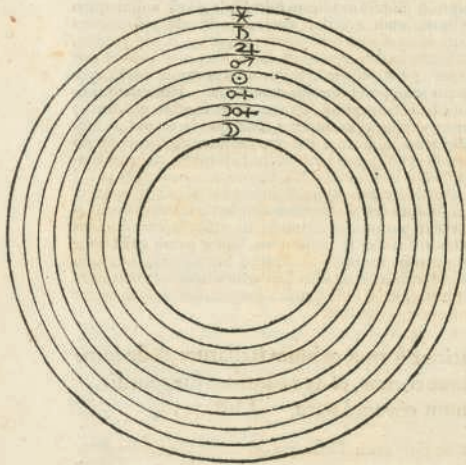
£2,000-3,000

US\$2,600-3,800  
€2,300-3,400



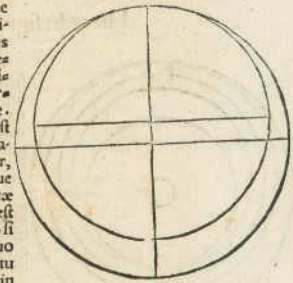
ratione diuisionis climatum, et quod accidit in eis de diuersitate notis atq; diei unius, incipimus narrare de stellis fixis. Et præcedant memorie figure circularum et ordinis eorum. Sequamurq; in hoc tentias antiquorum in quibus conuenerunt. Dicamusq; quod numerus circularum circumdantium uniuersos motus planetarū atq; stellarum sit 8. ex quibus 7 sunt 7 planetis erraticis attributi, et octauus, q̄ est superior uniuersis stellis fixis, qui est circulus signorum. Et figura horum circularum, est ut figura infra se positurum inuicem. Et itaq; minor omnib; & propior terræ, sphaera Lunæ, et secunda Mercurij, Tertia est Venus. Quarta Solis. Quinta Martis. Sexta Iouis. Septima Saturni. Octaua stellarum fixarum.

Hic cadit figura infra posita.



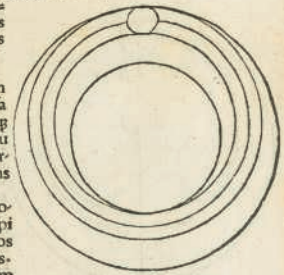
Cuspis autem circuli signorū, qui est circulus stellarum fixarum, est cuspis terræ. Cuspides uero cæterarū stellarum 7, q̄ sunt sphaeræ planetarum erraticorū, sunt remotæ à cuspide terræ in partibus diuersis. Et in unaquaq; harū sphaerarū est circulus abscindens sphaerā per duas medi

etates ab oriente in occidentem, & circulus qui abscindit sphaerā stellarum fixarum, est circulus circuli, cuius mentio præcessit, & ad hunc referitur motus diuersus æquatus, qui uidetur omnibus planetis ab oriente in orientem. Vnūquiq; autem egressæ circularum cuspidis uocatur circulus egressæ cuspidis. Et hi sunt i quibus mouetur planeta medio cursu æquali ab oriente in orientem. Fictq; ex hoc, quod diximus necessario, ut sint in unaquaq; sphaerarum harum loca duo, unus scilicet ceteri longitudine ultima sphaeræ à terra, & alius in propiori longitudine. Vnus autem istorum locorū, qui est longitudo longior, uocatur aux planetæ. Et alter, qui est longitudo minor, uocatur oppositio augis. Tunc cū fuerit planeta in medietate sphaeræ suæ longiori, in medietate, scilicet in qua est aux, uidetur motus eius in circulo signorū tardior, minus scilicet motu suo medio in suo circulo, propter longitudinem eius à terra. Si autē fuerit in medietate terræ propiori in sphaera sua, uidetur motus eius in circulo signorum uelocior, scilicet plus eius medio. Cursus igitur est medius, qui semper est idem per quem uideatur moueri planeta in sphaera sua egressæ cuspidis æqualiter. Cursus uero eius æquatus est, qui uidetur, de transitu eius in circulo signorum.



Corpus uero Solis est compositum super sphaeram suā, cuius cuspis egressæ est à cuspide circuli signorū, uolunturq; in eo, uoluntate æquali. Et superficies huius circuli egressæ cuspidis est, in superficie circuli signorum, non declinans ab eo.

Planetarum autē residuorum corpora, non sunt super circulos egressæ cuspidis. Sed sunt composita super circulos modicos, qui uocantur circuli breues. Cuspides autem horum circularum



breuium

0261

FARGHANI, Ahmad Ibn Muhammad al- (c.800-870) [ALFRAGANUS]. *Breuis ac perutilis compilatio*. Nuremberg: Johann Petreius, 1537.

**Extremely rare second appearance in print** (first 1493, full of lacunae and misprints). Al-Farghani's work was enormously influential and largely responsible for spreading knowledge of Ptolemaic astronomy throughout medieval Europe, 'at least until this role was taken over by Sacrobosco's *Sphere*. But even then ... [it] continued to be used, and Sacrobosco's *Sphere* was clearly indebted to it' (DSB). Written by Alfraganus about 833, the work was first translated into Latin by John of Seville in 1137 under the title of *Differentia scientie astrorum*. It had far reaching influence: it was the main source of astronomical knowledge for Dante's cosmology in *Il convivio* and the *Divina Commedia* and even Columbus used Alfraganus' value of the measurement of the earth. The *Breuis ac perutilis compilatio* was published by Petreius as the first part of the collection entitled *Continentur in hoc libro*

*Rudimenta...*: the 26 leaves of this work were preceded by Melanchthon's introduction and followed by a 90-leaf second part. Adams A-740; Zenker *Bibliotheca orientalis* 1050.

Small quarto (179 x 139mm). Woodcut white-on-black initial, many woodcut diagrams to text, running titles (short tear in aa3 repaired with near-contemporary paper strip superimposed supplying text in manuscript, upper margin cropped close in the last few leaves, not touching text, very faint waterstaining from the gutter to the upper portion). Wrapped in a sheet of modern paper and preserved in a custom-made portfolio. *Provenance*: multiple contemporary and near-contemporary inscriptions to the text, cropped.

£4,000-6,000

US\$5,100-7,600

€4,600-6,800

0262

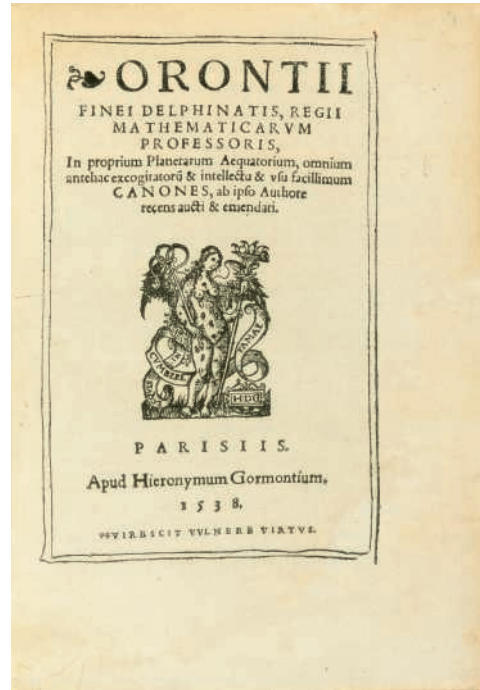
FINÉ, Oronce (1494-1555). *Orontii...In proprium Planetarum aequatorium*. Paris: Gourmont, 1538

Rare second, enlarged edition (one record at auction, and no record for the first, which is a rarissimum). 'Fine was considered as well versed in art as in sciences. His work as a designer is closely related to his major fields of mathematics, astronomy and geography, and his contribution to book production is particularly interesting in extending beyond the illustration to the ornamentation of scientific texts' (Mortimer). It is in this very rare edition (f.2v) that the author presents his invention of a new astronomical instrument as an offering to the 'republic of mathematics', as he called it - a remarkable extension of the notion of super-national community thus far applied to men of letters, which he extends to men of science. BMC 9, col. 209; Graesse, II, 580.

Octavo (200 x 139mm). Woodcut folding plate, woodcut device to title, woodcut initial, and large woodcut device on the last verso (some marginal repairs to all pages, two clean short tears to the plate repaired). Modern quarter morocco.

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700



0263

FLUDD, Robert (1547-1637). *Utriusque cosmi maioris scilicet et minoris metaphysica, physica atque technica historia*. - *Tractatus secundus de naturae simia seu technica macrocosmi historia*. Oppenheim: Hieronymus Gallerus for Johann Theodorus de Bry, 1617-1618.

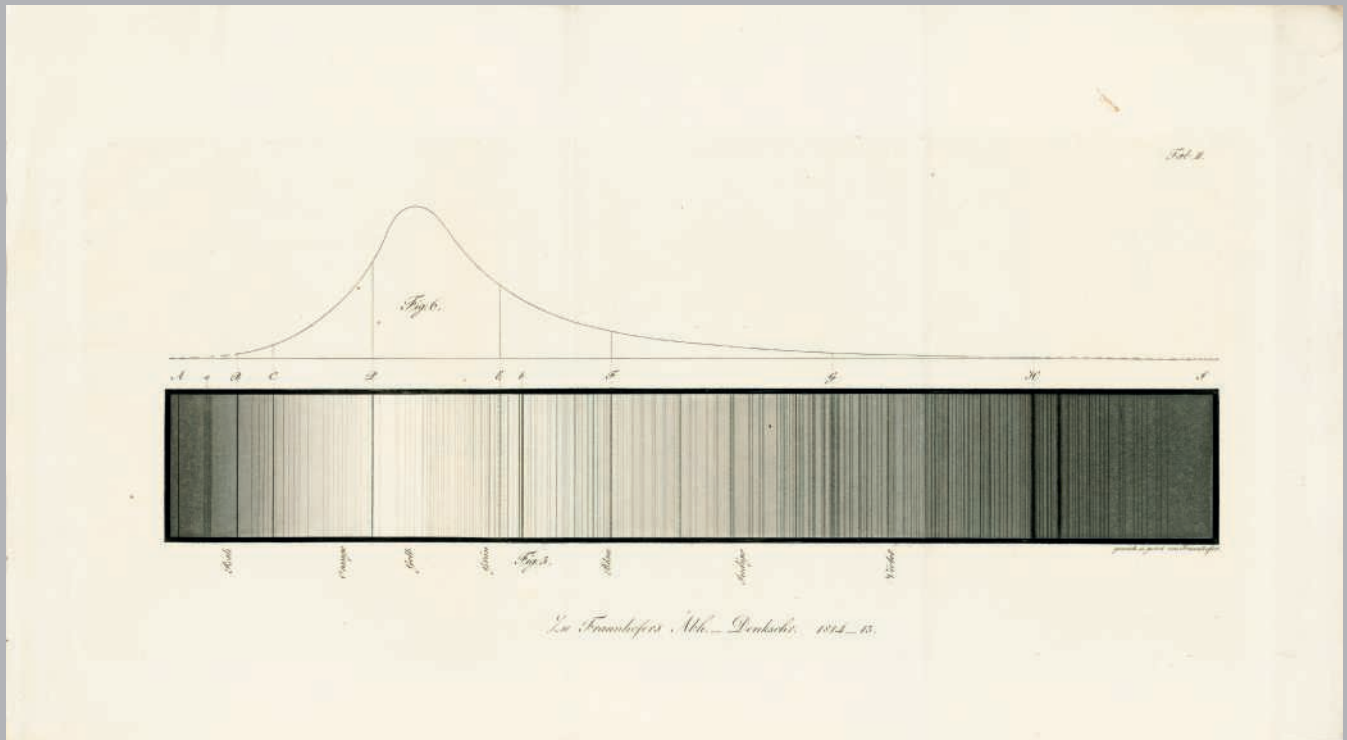
First edition of Fludd's mystic masterpiece, richly illustrated with designs attributed to de Bry, Merian and Fludd. The *Cosmi maioris* is 'an encyclopedia of all things regarded from an occult Rosicrucian point of view. The first part presents an illustrated history of creation, from the void (represented by an engraving from an entirely blackened plate) through the process of distillation by which Fludd believes the world to have been created. The second tractate takes up, in turn, occult mathematics, occult harmonics and music theory, occult theories of vision and optics, and even, at great length and with numerous plates, the occult theory of fortification and military strategy' (*Alchemy: A Comprehensive Bibliography of The Manly P. Hall Collection*, p. 80). Wellcome I, 2324.

2 parts in one volume, folio (300 x 185mm). Part 1: engraved title, double-page engraved folding illustration, 2 full-page engraved folding illustrations, 9pp. of index at end; part 2: engraved title, 11 fly-titles with engraved or xylographic vignettes, large folding engraved plate, 6 full-page folding illustrations, 4 double-page engraved illustrations; numerous engraved and woodcut illustrations in the text (first 3 leaves of part 1 with faint staining and associated nicks at fore-edge, small marginal chip to one full-page illustration in part 1, short tear without loss to large folding engraved illustration and one double-page illustration in part 2, 2 leaves just cropped into text or image, 8pp. heavily browned, lacking final blank). 18th-century speckled calf, spine gilt (joints splitting, extremities rubbed). *Provenance*: stamp erased on verso of engraved title in part 1 - shelfmark on front pastedown.

£2,000-3,000

US\$2,600-3,800  
€2,300-3,400





**0264**

FRAUNHOFER, Joseph (1787-1826). 'Bestimmung des Brechungs- und Farbenzerstreuungs-Vermögens verschiedener Glasarten'. In: *Denkschriften der koeniglichen Academie der Wissenschaften zu München*, vol.5, pp.193-226. Munich: 1817.

**First edition, journal issue, of a fundamental paper in astrophysics, containing the first illustration of the solar spectrum.** Fraunhofer, a skilled optician and designer of precision instruments, described in this paper, read before the Bavarian Academy in 1815, his accidental discovery of the absorption lines of the solar spectrum. 'He plotted 576 such lines, noted the constancy of relative position irrespective of light source – sun, moon, stars,

flame. He thus created the science of solar and stellar chemistry' (Dibner). Although his research was conducted with the purely practical aim of producing the finest possible optical instruments, Fraunhofer's achievements 'justify describing him as the founder of astrophysics' (PMM). Dibner 153; Norman 836; PMM 278a.

Quarto (270 x 220mm). 3 engraved plates relating to this article, of which 2 folding, and a further 9 plates. Original wrappers, paper spine label, uncut (2 tiny holes in upper cover).

£3,000-5,000

US\$3,900-6,400  
€3,500-5,700

0265

FURTENBACH, Joseph (1591-1667). *Mannhaffter Kunst-Spiegel oder Continuatio, und Fortsetzung allerhand Mathematisch- und Mechanisch-hochnützlich- ... freyen Künsten*. Augsburg: J. Schultes for the author, 1663.

A very fine, presentation copy of the first edition of Furtenbach's compendium of mathematical and mechanical arts. Among the topics he treats are geometry, geography, astronomy, navigation, fireworks, water, and perspective. An active practicing architect at Ulm (it was thanks to his fortification designs that Ulm was never conquered in the Thirty Years' War), Furtenbach also devotes chapters to military, civil, naval and island architecture. VD-17 calls for a final leaf but the final quire is complete as B<sup>2</sup>, ending with p.292, as also in the digitized copies at Dresden and Heidelberg. Berlin Kat. 1779; Wellcome III, 77; Houzeau/Lanc. 9312 (misdated 1633); Lotz 30 und 130; VD-17 3:312568C.

Folio (310 x 200mm). First quire printed in red and black, engraved portrait after A. Schuch by M. Kuesell, and 33 folding or double-page plates numbered 1-11, 11½, 12-32, **two leaves of autograph manuscript bound in, one an explanation of symbols used in the chapter on artillery, the other the author's presentation leaf**. Contemporary gilt-tooled vellum, flat spine with German imperial arms supralibros, green ribbon fore-edge ties, blue edges (gilt oxidized). *Provenance*: presentation inscription from Furtenbach to the Protestant library at Leutkirch, his birthplace (Leutkirch arms as an imperial city on spine); very occasional contemporary manuscript text correction.

£3,000-5,000

US\$3,900-6,400  
€3,500-5,700





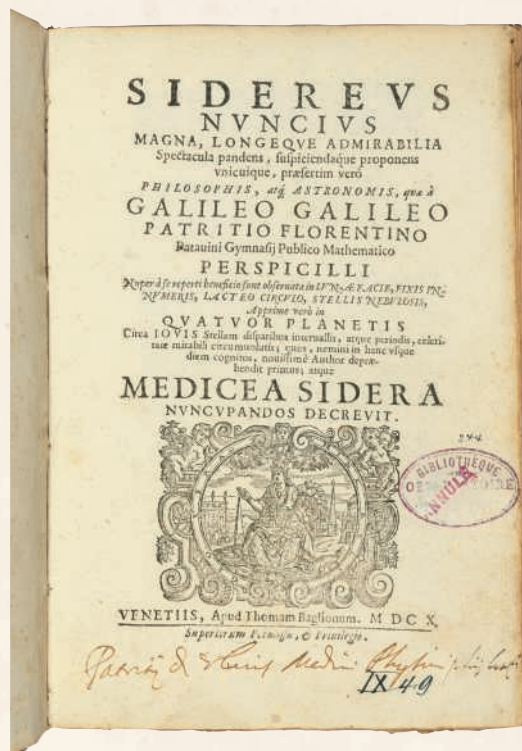
0266

GALILEI, Galileo (1564-1642). *Sidereus Nuncius*. Venice: Tommaso Baglioni, [March] 1610.

**First edition, announcing the first astronomical discoveries made with the telescope.** In 1609 Galileo learned of an instrument developed by a Dutchman, Hans Lipperhey, that made distant objects appear closer. After attempting unsuccessfully to see an example of the new instrument when it was brought to Padua and then Venice, Galileo constructed his own telescope. He continued working on and improving it and by late August of that year was able to demonstrate

a model of a nine-power telescope; further improvements resulted in a telescope about 30-power by the end of 1609. The importance of such an instrument for a sea-faring republic such as Venice was obvious and Galileo was amply rewarded. In January 1610 Galileo turned the telescope to astronomical observation to discover for the first time that the surface of the moon was mountainous and that the Milky Way was composed of separate stars; he also discovered new stars and – most significantly – sighted the four moons orbiting Jupiter. Although evidence of bodies orbiting planets other than Earth met with disbelief in some camps, Galileo's remarkable observations won immediate renown. With the *Sidereus Nuncius* Galileo achieved one of his aims, to overturn Aristotelian physics. While nowhere in the *Sidereus nuncius* did Galileo explicitly express support of heliocentrism, the work re-ignited the debate on Copernicanism and served as the opening salvo of the assault of modern astronomy on the medieval view of the cosmos. Cinti 26; Dibner *Heralds of Science* 7; Grolier/Horblit 35; Norman 855; PMM 113.

Quarto (231 x 158mm). Baglioni's woodcut device on title, 5 half-page copper-engravings in the text, 3 woodcut star maps, one extending to 1/2 pages, 3 text diagrams, and 65 one-line woodcuts on 25 leaves showing the varying positions of Jupiter and its moons, ornamental initials and headpieces. Without the cancellation slip on B1r altering 'Cosmica Sydera' to 'Medicea Sydera' occasionally found (slight loss of diagram edge on B3r and one star on D5v due to light page-trimming as often, small marginal dampstain or spotting in a few leaves). Early limp vellum, flyleaf with watermark similar but not identical to Piccard Kronen II: 106 localised to Venice: 1566-68. *Provenance*: early manuscript emendations on B2v-3r – Patricius de Ulixis (contemporary inscription as a medical doctor on title) – an unlocalised French observatory (stamp partly removed from title).



£300,000-500,000

US\$390,000-640,000

€350,000-570,000





0267

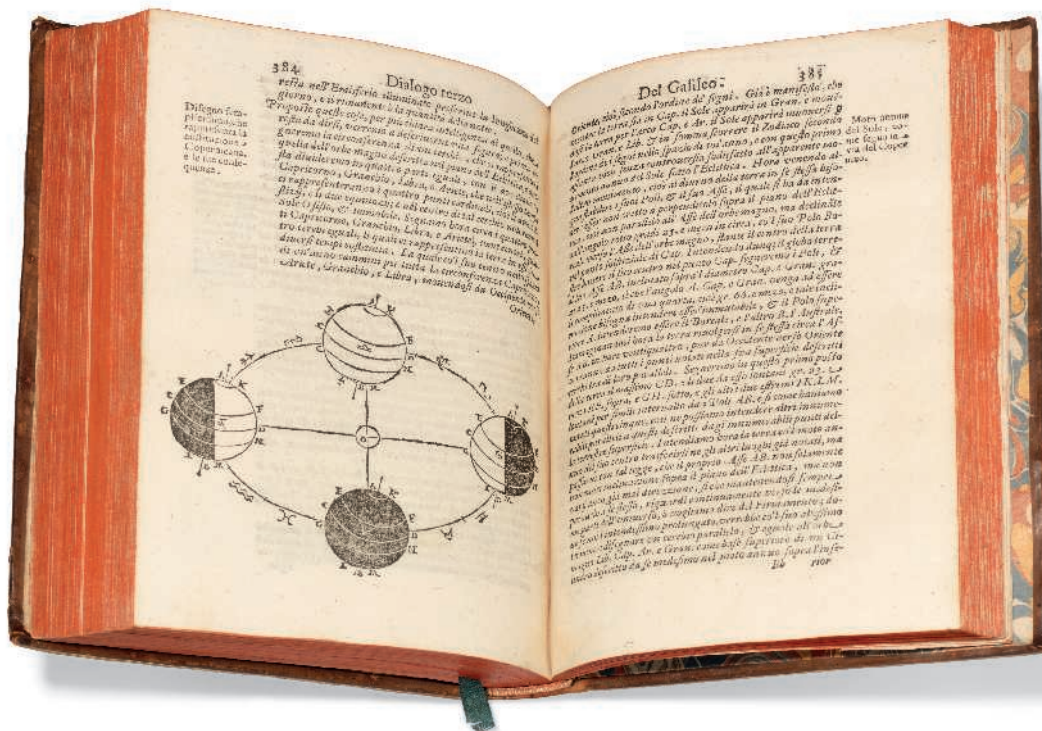
GALILEI, Galileo (1564-1642). *Dialogo ... sopra i due massimi sistemi del mondo Tolemaico, e Copernicano*. Florence: Giovanni Battista Landini, 1632.

**First edition, from the library of Pierre Des Noyers, of Galilei's celebrated defence of Copernican heliocentrism and the direct cause of his trial and imprisonment.** In 1624, eight years after Pope Paul V had forbidden him to promulgate the Copernican theory, Galileo was granted permission to write on the subject by the new Pope, Urban VIII (Maffeo Barberini, 1568-1644), his friend and patron for more than a decade, on the condition that Aristotelian and Copernican theories were put forward equally and impartially. To this end Galileo wrote his work as a dialogue among Salviati, an advocate for Copernicus, Simplicio, an upholder of the Ptolemaic and Aristotelian orthodoxy, and Sagredo, an educated layman who acts as adjudicator. Ostensibly impartial, the work 'is a masterly polemic for the new science. It displays all the great discoveries in the heavens which the ancients had ignored; it inveighs against the sterility, wilfulness, and ignorance of those who defend their systems; it revels in the simplicity of Copernican thought and, above all, it teaches that the movement of the earth makes sense in philosophy, that is, in physics... The *Dialogo*, more than any other work, made the heliocentric system a commonplace' (PMM). Galileo lost the support of Urban VIII by ascribing one of his views to the simple-minded Aristotelian Simplicio and was called to Rome for trial by the Inquisition. His sentence of life imprisonment was immediately commuted to permanent house arrest and the *Dialogo* was placed on the *Index*, where it remained until 1832. The Braun copy once belonged to a near-contemporary of Galileo, Pierre Des Noyers. Secretary and personal treasurer to Louise-Marie Gonzaga, Queen of Poland, Des Noyers had a deep knowledge of Poland and a strong interest in science; he was a correspondent of Hevelius and many other men of scientists and intellectuals across Europe. Carli and Favaro, p. 28; Cinti 89; Dibner, *Heralds of Science*, 8; Grolier/Horblit 18c; Norman 858; Wellcome 2647a; PMM 128.

Quarto (210 x 153mm). Engraved frontispiece by Stefano della Bella, woodcut Landini device on title, 31 woodcut text diagrams and illustrations, woodcut ornamental initial, type-ornament head- and tailpieces and factotum initials. With the errata leaf, pasted-on correction slip on p.92, and manuscript addition of letter H to diagram on p.192 (without final blank, frontispiece remargined, P8 lightly spotted). 18th-century mottled calf, gilt spine, later red edges (wormtrack on front cover, discreetly recased). *Provenance:* [Pierre] Des Noyers (1608-1693; title inscription).

£45,000-60,000

US\$58,000-76,000  
€52,000-68,000



0268

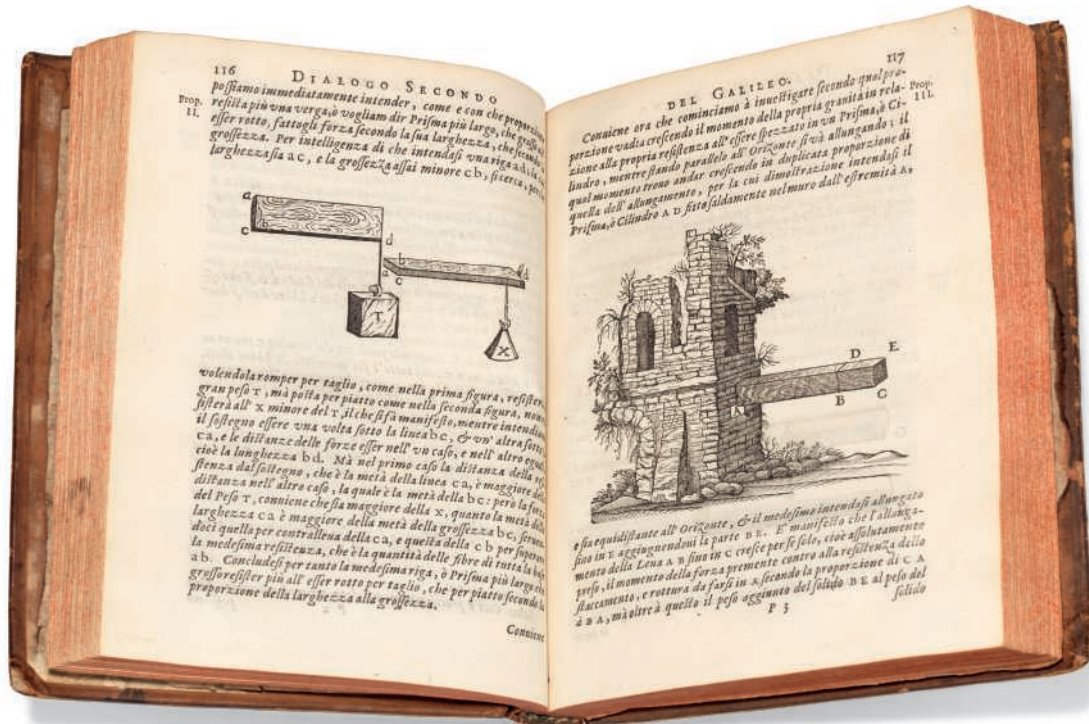
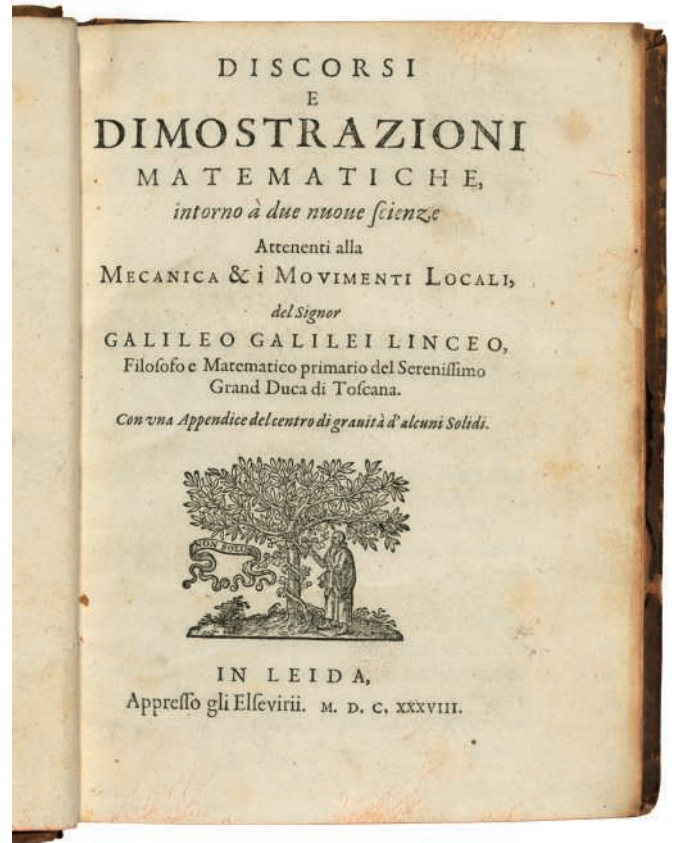
GALILEI, Galileo (1564-1642). *Discorsi e dimostrazioni matematiche, intorno a due nuove scienze attenenti alla meccanica & i movimenti locali*. Leiden: Elzevier Press, 1638.

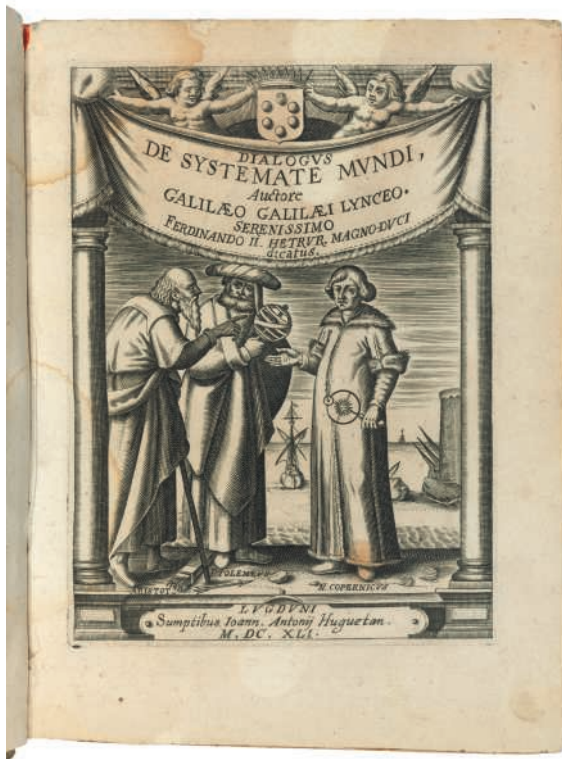
First edition of 'the first modern textbook of physics, a foundation stone in the science of mechanics' (Grolier/Horblit). Forbidden to publish in Italy due to his heretical support for heliocentrism, Galileo managed to have a manuscript copy of the present work smuggled out of the country to France, from where it was brought to the Elzeviers in Holland. Galileo adopts the dialogue format, as he did in the previous *Dialogo* (1632; see preceding lot), to introduce his two new sciences: 'the engineering science of strength of materials and the mathematical science of kinematics' (DSB). Subject matter includes uniform and accelerated motion, parabolic trajectories, the constitution of matter, the nature of mathematics, the role of experiment and reason in science, the weight of air, the nature of sound and the speed of light, among other things. **The *Discorsi*' underlies modern physics** not only because it contains the elements of the mathematical treatment of motion, but also because most of the problems that came rather quickly to be seen as problems amenable to physical experiment and mathematical analysis were gathered together in this book with suggestive discussions of their possible solution' (DSB). 'Mathematicians and physicists of the later seventeenth century, Isaac Newton among them, rightly supposed that Galileo had begun a new era in the science of mechanics. It was upon his foundations that Huygens, Newton and others were able to erect the frame of the science of dynamics, and to extend its range (with the concept of universal gravitation) to the heavenly bodies' (PMM). Carli and Favaro 162; Cinti 102; Dibner *Heralds of Science* 141; Grolier/Horblit 36; Norman 859; PMM 130; Riccardi 1, 516.12/1; Roberts & Trent *Bibliotheca Mechanica*, pp. 129-30; Sparrow *Milestones of Science* 75; Wellcome 2648; Willems 2648.

Quarto (191 x 141mm). Errata leaf at end, printers' woodcut device on title, numerous woodcut illustrations and diagrams in text, woodcut initials, head- and tailpiece. 18th-century sprinkled calf ruled in blind, paper spine label lettered in manuscript, red sprinkled edges, probably a Hopetoun binding (scuffed at extremities, small loss at head of spine). *Provenance*: Earls of Hopetoun (Sir James Hope of Hopetoun [d. c.1661] and successors; sale, Sotheby's, 25 February 1889; bookplate).

£50,000-80,000

US\$64,000-100,000  
€57,000-91,000





0269

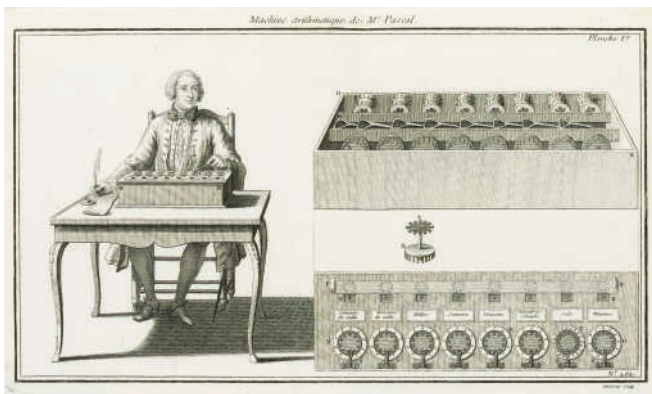
GALILEI, Galileo (1564-1642). *Systema cosmicum: in quo dialogus iv. de duobus maximis mundi systematibus, Ptolemaico & Copernicano, rationibus utrinque propositis indefinite disseritur*, translated from Italian by Matthias Bernegger (1582-1640). – Johannes KEPLER (1571-1630). *Ex Introductione in Martem*. – Paolo Antonio FOSCARINI (1565-1616). *Locorum S. Scripturae cum terra mobilitate conciliatio*, translated by Elia Diodati. Lyon: Jean-Antoine Huguetan the elder, 1641.

**Second Latin edition of the *Dialogo*, the summation of Galileo's astronomical work, and his celebrated advancement of the Copernican system.** Soon after its first publication in Italian in 1632 (see lot 267), the *Dialogo* was banned by the Pope, withdrawn from circulation and its author imprisoned, but almost immediately, in 1633, work on a Latin translation was underway north of the Alps. It appeared in 1635, the work of the Protestant Bernegger, with collaboration from Galileo, and with two important appendices by Kepler and Foscarini addressing the compatibility of the theory of the earth's movement with Scripture. Carli and Favaro 180; Cinti 109; Riccardi I, 1, 512, no. 10, 5.

Quarto (230 x 172mm). Title printed in red and black with engraved device, engraved frontispiece and portrait of Galileo by C. Audran, woodcut text diagrams, initials, head- and tailpieces, independent title-page for Foscarini's *De mobilitate terrae* (light dampstain at upper inside corner and occasionally elsewhere, some light browning and spotting, heavier in Tt, Xx, and Bbb). 20th-century vellum, spine lettered, two fore-edge ties, sprinkled edges.

£2,500-3,500

US\$3,200-4,400  
€2,900-4,000



0270

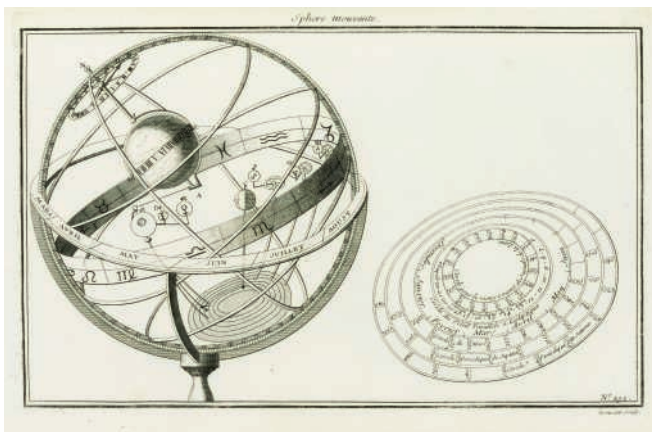
GALLON, Jean-Gaffin (1706-1775, editor). *Machines et inventions approuvées par l'Académie royale des sciences*. Paris: Antoine Boudet, 1776-1778.

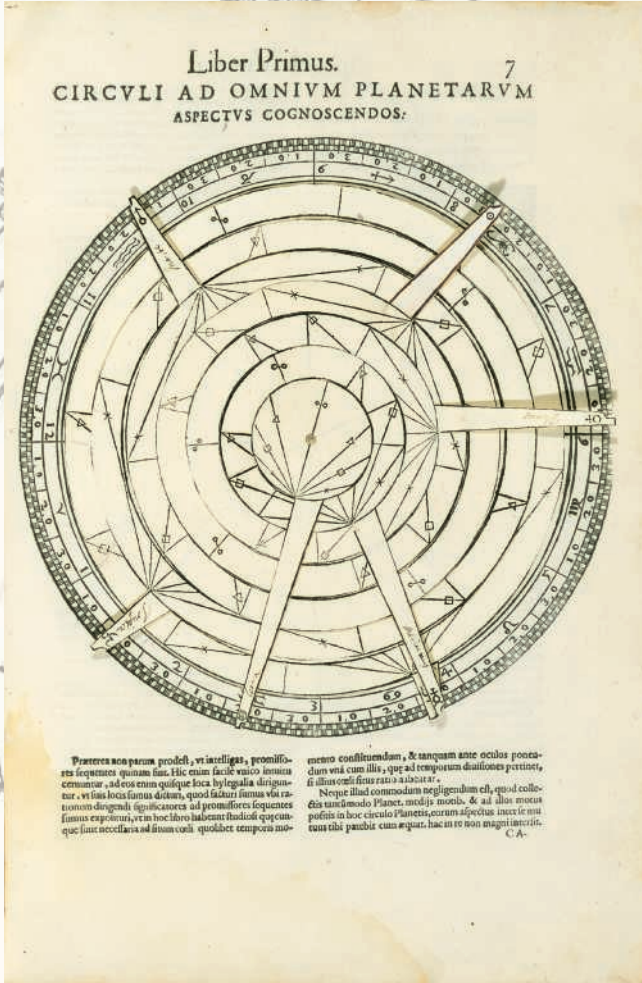
**An important publication reflecting the rise and progress of science in France.** This compendium of French inventions describes and illustrates machines and devices that were either examined by the Académie (and approved as being of use) or were made up in model form. The inventors, only some of whom were academicians, included Godin and Outhier who were involved in the expedition to measure the arc of the meridian (putting their instruments to use there), Dortous de Mairan, Cassini, Clairaut le père, l'abbé Nollet, Huygens, Pascal, Perrault and many others. This edition, in folio format, follows the 7 volume quarto edition published from 1735-1777. Cf. Brunet I, 1468.

3 volumes, folio (430 x 272mm). 497 engraved plates, comprising: vol.1 – 191 plates, numbered 1-189, 1 folding, plus 2 plates numbered 105\* and 177\*; vol.2 – 240 plates, numbered 190-429, with 197 and 198 in a single plate, plus one plate numbered 329\*; vol.3 – 66 plates, numbered 430-495, most full-page, some 2 to a sheet; each volume with explanatory text. Contemporary mottled calf (rebacked preserving spine labels). (3)

£4,000-6,000

US\$5,100-7,600  
€4,600-6,800





**0271**  
**GALLUCCI, Giovanni Paolo** (1538-c.1621). *Speculum Uranicum in quo vera loca ... colliguntur*. Venice: Damianus Zenarus, 1593.

**First edition** of a scientific instrument in book form, an attractive, unsophisticated copy. Named after Urania, muse of astronomy, and introduced by a magnificent allegoric engraved frontispiece rich in symbols, Gallucci's book helps chart, with numerous volvelles, the movements of the heavenly bodies by the methods of Regiomontanus. Publishing his work soon after the papal bull of 1586 forbidding astrology, Gallucci, a mathematician who tutored the Venetian nobility and a founder of the Second Venetian Academy, asserts the importance of the rational, scientific investigation of the heavens, ushering in the Galilean era of observation-based knowledge. Houzeau and Lancaster 12742; La Lande 125; Riccardi I, 570; Weidler p. 410.

Folio (415 x 274mm). Title with engraved border by Giacomo Franco incorporating Zenarus's dragon device, 17 large circular woodcut diagrams, 16 with attached volvelles with a total of 37 moving parts (of 39) and decorative woodcut or pen-work paper strips backing the volvelle stitching, woodcut headpieces and diagrams throughout, with the folding table 'Canon Sexagenarius' bound in at the end, and without the 4-leaf user's manual, 'De harum paginarum usu' which is generally absent following the author's directions to the binder, 'Haec pars in libro non ligetur' (some waterstaining to the lower and upper margin, slightly heavier in the early quires, occasional staining, spotting of diagram versos resulting from the stitching of the volvelles). Contemporary limp vellum (chipped, soiled, several early calculations in ink). *Provenance*: contemporary ink legends on the hands of one of the volvelles - near-contemporary initials 'A S' in ink on the back strip of the volvelle on f. 16 - later ink annotation to f.28v - Kenney Collection (printed label; sold at Sotheby's 1966).

£12,000-18,000

US\$16,000-23,000  
 €14,000-20,000



0272

GALVANI, Luigi (1737-1798). *De viribus electricitatis in motu musculari commentarius*. [In: *De Bononiensi Scientiarum et Artium Instituto atque Academia Commentarii*, vol. VII, pp. 363-418]. Bologna: Typographia Instituti Scientiarum, 1791.

**Rare first edition, first issue** (the paper was later issued as an offprint, known in only a dozen copies) of this momentous paper 'showing that electric currents could produce measurable biologic phenomena ... a foundation for the study of electrophysiology' (Grolier/Norman). The paper aroused great interest and controversy. Galvani believed that 'animals possess in their nerves and muscles a subtle fluid quite analogous to ordinary electricity' (DSB). In the course of his experiments, Galvani hit upon by accident the phenomenon of 'galvanism', the production of an electric current between two metals in a moist environment. Volta's repetition of Galvani's experiments, the effects of which Volta interpreted correctly as the result of contact electricity, led to his invention of the voltaic pile and the first continuous and controllable electric current. Dibner 59; Fulton & Stanton *Galvani* 1; Garrison-Morton 593; Grolier/Horblit 37a; Grolier/Norman 50; Osler 1242; PMM 240.

Large quarto (292 x 210mm). 4 folding engraved plates by Jacopo Zambelli. Galvani's work within the volume of the *Commentarii*, with the engraved title vignette showing the Bologna Institute of Sciences and Arts and numerous folding plates (Galvani: occasional very light foxing, including to the first plate, but clean and wide-margined). Later vellum, with the original gilt lettering-piece laid on.

£5,000-8,000

US\$6,400-10,000  
€5,700-9,100



0273

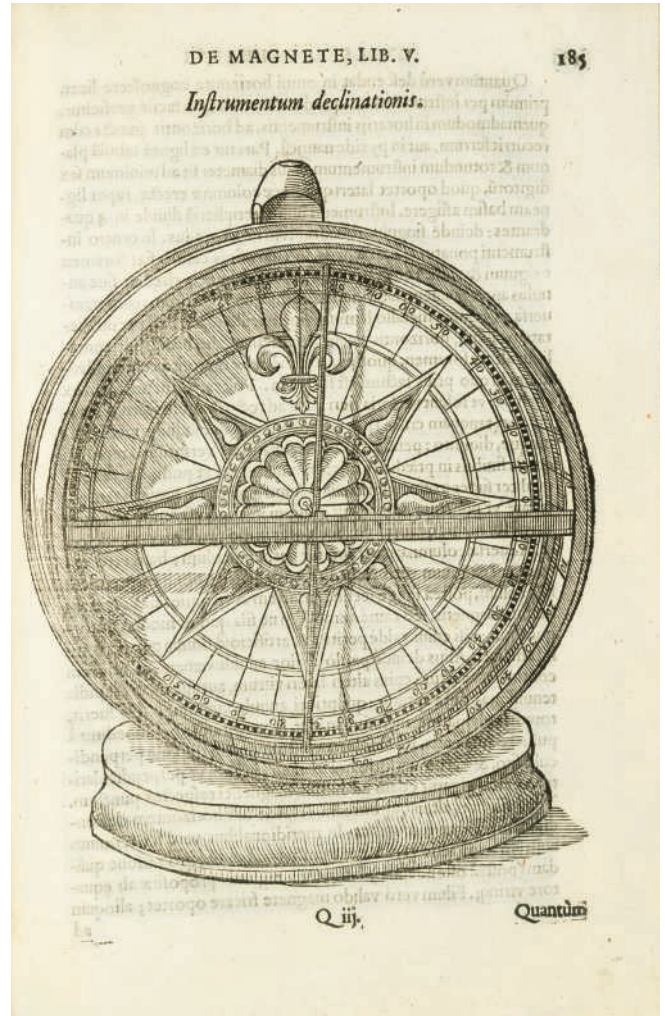
GESNER, Conrad (1516-1565). *Thierbuch; das ist, ausführliche Beschreibung... aller vierfussigen Thieren*. Heidelberg: Johann Lancelot for Andreas Cambier, 1606. [Bound with: - *Vogelbuch*. Frankfurt: Johann Saur for heirs of Robert Cambier, 1600. [And:] - *Fischbuch*. Frankfurt: Johann Saur for heirs of Robert Cambier, 1598. [And:] - *Schlangenbuch*. Heidelberg: Johann Lancelot for Andrea Cambier, 1613.

**Collected zoological works of Gesner, in German, in a contemporary binding.** The first work is the third abridged edition of the first 2 volumes of *Historiae animalium*, on quadrupeds, translated from the Latin by Conrad Forer (or Forrer, d.1594), correspondent with Gesner. The ornithology is the third edition of the abridged translation executed by Rudolf Heusslein, a Swiss physician. The final work on serpents is the second edition of the Jacob Carron translation in which the section on scorpions has its own title-page. Nissen *ZBI* 1552, 1555, 1557; Nissen *IVB* 351; Wellisch *A* 23/24.6, 25.7, 26.5, 27.5.

4 works bound in one volume, folio (370 x 235mm). Titles printed in red and black, very numerous woodcuts, some full-page (title to first work with marginal chip repaired and with large marginal chip to s4; M5 in second work with small marginal chip due to paper flaw, occasional light spotting). Contemporary blindstamped pigskin with central panel of Justice holding a sword and scales (rubbed). *Provenance*: Jo. Ja. Neyenburg (ownership inscription on title dated 1636) - 'Erkauft v. J. Jak. Sulzer Reichert. Ao. 1815' (purchase inscription on front pastedown).

£3,000-5,000

US\$3,900-6,400  
€3,500-5,700



0274

GILBERT, William (1544-1603). *De magnetete, magneticisque corporibus, et de magno magnetete tellure; Physiologia noua, plurimis & argumentis, & experimentis demonstrata*. London: Peter Short, 1600.

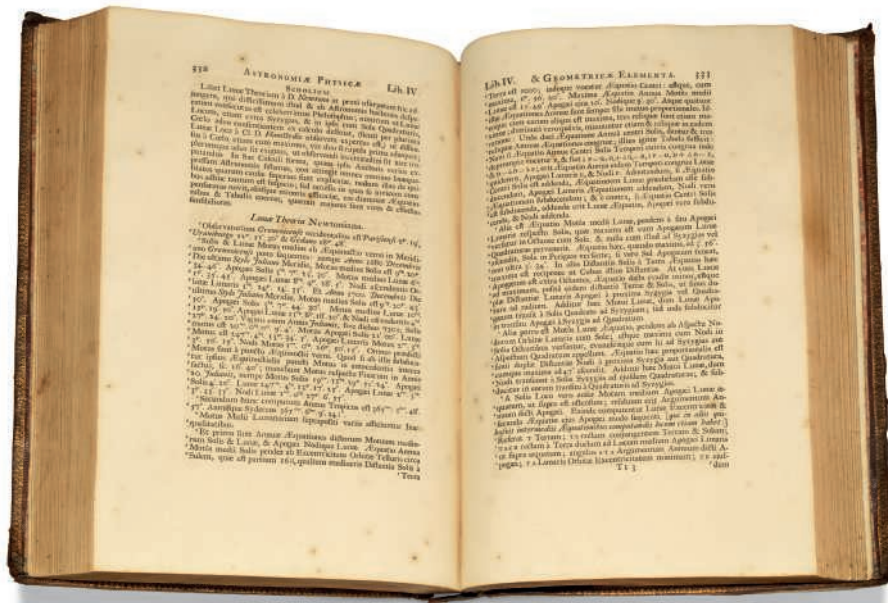
**First edition of the first great scientific book printed in England.** 'Gilbert coined the terms "electricity", "electric force" and "electric attraction" and may rightly be considered the founder of electrical science' (PMM); further, he 'provided the only fully developed theory dealing with all five of the then known magnetic movements and the first comprehensive discussion of magnetism since the thirteenth-century *Letter on the Magnet* of Peter Peregrinus' (DSB). *De magnetete* exemplifies pre-Baconian experimental philosophy by supporting new theories with empirically-derived experimental evidence, and these experiments were described in sufficient detail for the reader to recreate them. Gilbert also described his scientific instruments in great detail, including new ones such as the 'versorium': the first instrument to be used for the study of electric phenomena. Gilbert observed that the earth was a gigantic magnet and provided a physical basis for the Copernican theory. His work was cited by Digby, Boyle, Kepler and Huygens, and Galileo drew on Gilbertian magnetism

to support his belief in a Copernican heliocentric cosmology in his *Dialogo*. Dibner *Heralds* 54; Grolier *Science* 41; Norman 905; PMM 107; Wellcome 2830.

Folio (270 x 180mm). Woodcut title device and large woodcut arms on verso, one folding plate, 87 woodcuts in text of which 4 full-page, decorative woodcut initials and head- and tailpieces (a little soiling to the title, first and last leaf lightly browned, a few occasional scattered rust spots). 19th-century quarter calf, sides covered with black marbled paper, flat spine filleted and lettered in gilt (spine worn, extremities rubbed). *Provenance*: Jesuit Collège Royal Henry-Le-Grand, La Flèche, France (17th-c. inscriptions on title) – Jesuit residence in Laval, France (stamp on title, ticket on front paste-down) – Jesuit Maison Saint-Louis, Jersey, Channel Islands (stamp on the titlepage).

£10,000-15,000

US\$13,000-19,000  
€12,000-17,000



**0275**  
 GREGORY, David (1659-1708). *Astronomiae, physicae & geometricae elementa*. Oxford: Sheldonian Theatre, 1702.

**First edition.** The first astronomical textbook on gravitational principles, important for containing the first publication of Newton's paper 'Lunae theoria', the original statement of Newton's lunar theory. Babson 71; Sotheran I:1652; Wallis 87.

Folio (397 x 250 mm). Engraved device of Minerva after M. Burg to title, woodcut diagrams in text (a couple of leaves lightly foxed, title soiled, occasional spots). Contemporary full calf gilt, sides with wide borders of gilt tools, panelled spine decorated and lettered in gilt (joints split at extremities, spine ends worn and chipped, corners and edges worn sometimes with loss to leather, a few abrasions to the sides).

£1,000-1,500 US\$1,300-1,900  
 €1,200-1,700



**0276**  
 GUARINI, Guarino (1624-1683) - VITTONI, Bernardo (1704-1770, editor). *Architettura Civile*. Turin: Gianfrancesco Mairesse, 1737.

**First complete edition of an important work on baroque architecture, with the extensive text accompanying the plates.** The plates were first published without text in 1686, three years after Guarini's death. The present edition contains a few additional plates and the explanatory text based on Guarini's manuscript, here edited by the Italian architect Bernardo Vittone. Fowler 150; RIBA 1391.

Folio (360 x 245mm). Engraved portrait frontispiece of the author, large woodcut arms of Savoy on title, 79 engraved plates by Guarini, Abiati, Guenotto, Verga and Fayneau (some spotting and browning to plates, a few short tears along folds). Contemporary vellum (hinges broken but holding).

£5,000-8,000 US\$6,400-10,000  
 €5,700-9,100



0277

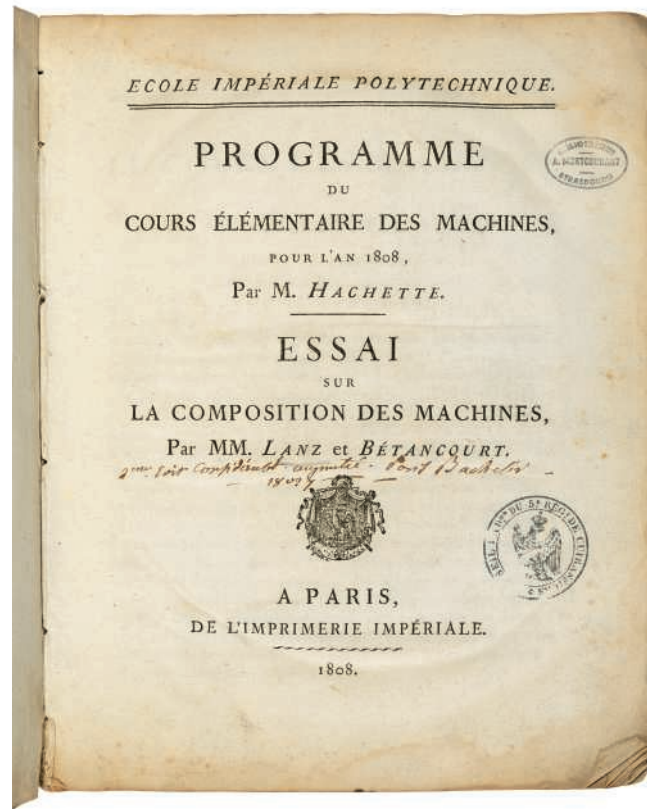
HACHETTE, Jean Nicolas Pierre (1769-1834). *Programme du cours élémentaire des machines*. - LANZ, José María (1764-1839) and Agustin de BETANCOURT (1758-1824). *Essai sur la composition des machines*. Paris: L'imprimerie impériale, 1808.

**First edition of Lanz and Betancourt's fundamental system of mechanical classification.** It is preceded by an outline of the course in machines taught by Hachette at the *École Polytechnique*, where Lanz and Betancourt were students. *Bibliotheca Mechanica* 153.

Quarto (247 x 190mm). Half-title, 12 folding engraved plates (faint waterstains). Contemporary vellum (stained, a few small tears with loss). *Provenance*: '5e. Régt. De Cuirassiers' (stamp) - 19th-century bibliographic note on title and half-title verso - Strasbourg, Bibliothèque A. Montcourant (stamp).

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700



0278

HARVEY, William (1578-1657). *Exercitationes anatomicae, De motu Cordis & Sanguinis Circulatione. Accessit Dissertatio de Corde Doct. Jacobi de Back*. Rotterdam: A. Leers, 1660.

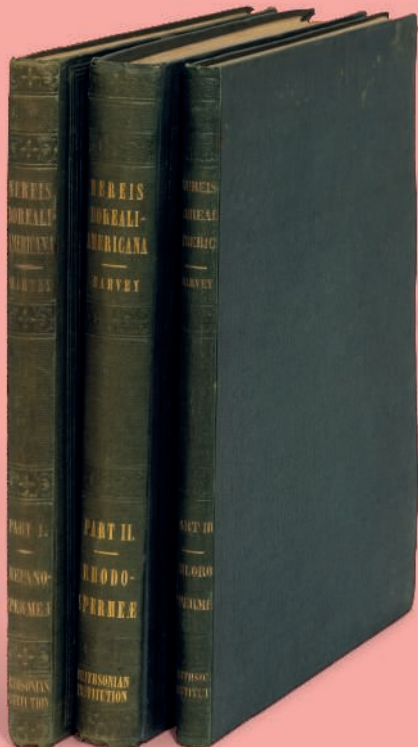
**The Latin edition of this milestone in medicine** was published simultaneously in Rotterdam and London. 'The most important book in the history of medicine. Harvey proved experimentally that in animals the blood is impelled in a circle by the beat of the heart, passing from arteries to veins through the pores (i.e., the capillaries seen by Malpighi with the microscope in 1660)' (Garrison-Morton). 'The discovery and experimental proof of the circulation of blood. Since antiquity, ideas about the physiology and pathology of most parts of the body had been based to an important degree on assumptions made about the function of the heart and blood vessels. In fundamentally changing the conception of these functions, Harvey pointed the way to reform of all of physiology and medicine' (Norman). Keynes 9. See Garrison & Morton 759; Norman 1006.

2 parts in one volume, 12mo (127 x 73mm). With additional engraved title (dated 1661) (very light uniform browning). Contemporary vellum (soiled, spine chipped). *Provenance*: contemporary inscription with content and partly erased inscription on front flyleaf - small 18th and 19th century inscriptions at front - Prof. C. Heymans (bookplate).

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700





0279

HARVEY, William (1811-1866). *Nereis boreali-americana, or, Contributions to a history of the marine algae of North America*. Washington City: The Smithsonian Institution, 1852-1858.

**A comprehensive and superbly illustrated monograph on the marine algae of North America.** Harvey was an important Irish botanist whose herbarium is today located at Trinity College, Dublin. Nissen BBI 804.

3 volumes, large quarto (316 x 236mm). 50 lithographed plates printed in colour and finished by hand (some spots). Original green cloth, vols.1-2 stamped in blind and gilt (a few marks).

(3)

£800-1,200

US\$1,100-1,500  
€920-1,400

0280

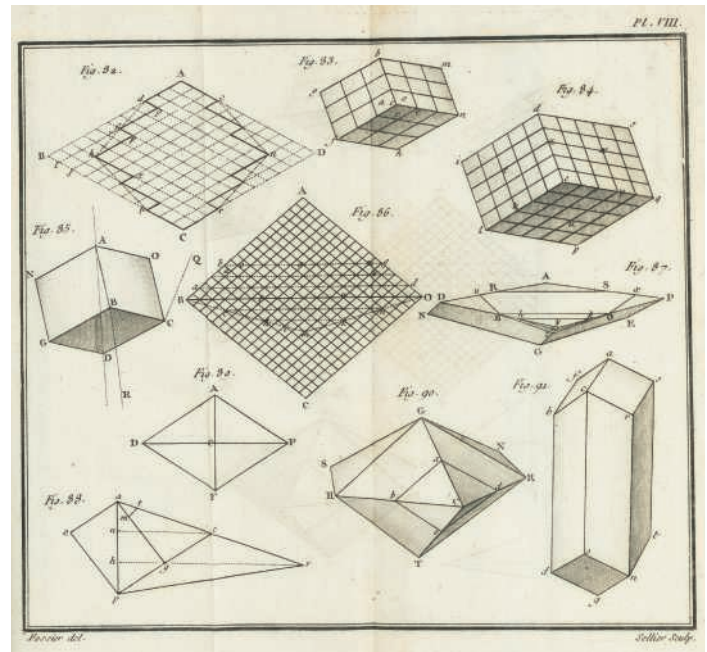
HAÜY, René Just (1743-1822). *Essai d'une théorie sur la structure des cristaux appliquée a plusieurs genres de substances cristallisées*. Paris: Gogué & Née de la Rochelle, 1784.

**First edition of the work that laid the foundation for the mathematical theory of crystal structure.** Often thought of as the founder of crystallography, Haüy proposed the idea of the crystal molecule and recognized that, based on the discontinuity principle, there are limited varieties of a crystal species. Dibner *Heralds of Science* 92; Grolier/Horblit 47; Norman 1021-1022.

Octavo (198 x 123mm). Half-title, 8 folding engraved plates by Sellier after Fossier (half-title detached, a few scattered spots). Contemporary tree calf (rubbed, upper joint cracked but holding).

£1,500-2,000

US\$2,000-2,500  
€1,800-2,300



0281

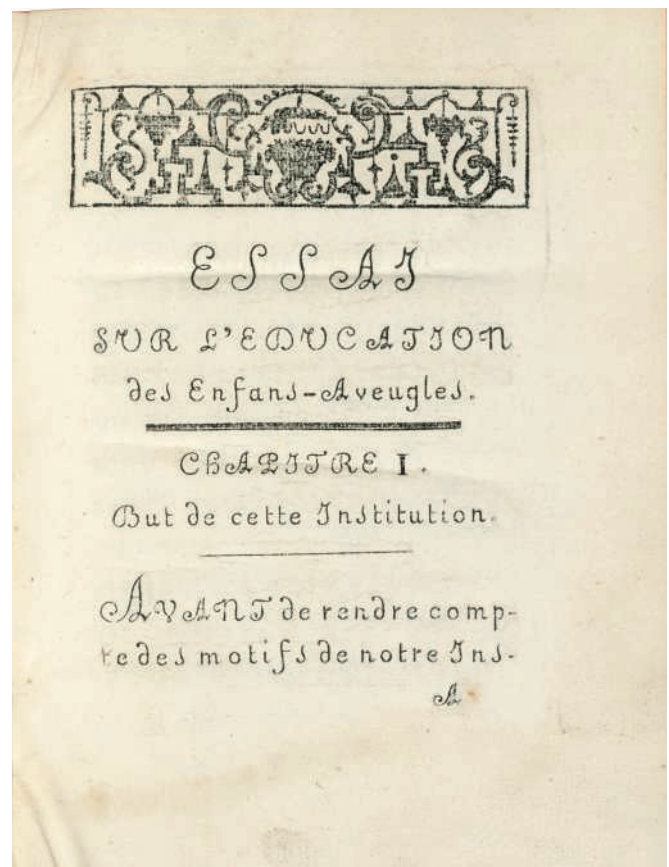
HAÜY, Valentin (1745-1822). *Essai sur l'éducation des aveugles*. Paris: les Enfants-Aveugles, 1786.

**The first printed book for the blind.** Valentin Haüy invented the first system of printing for the blind, consisting of a special large type, slightly different in shape from ordinary italic, which was embossed on heavy paper to be traced by the fingers' (Norman). His *Essai sur l'éducation des aveugles* 'showcased his system of printing for the blind while at the same time proving its efficacy, since the book was printed by Haüy's blind students under the direction of the royal printer Clousier'. Garrison-Morton 5833; Norman 1023.

Quarto (245 x 190mm). Leaves 1-2 and 3-4 of A-2C4 pasted together to form 2 thick leaves, as issued, with an additional loosely inserted 'Extrait des registres' dated 13 January 1787 (lacking the 'avis' leaf, the 'table' leaf loose). Contemporary mottled calf, spine gilt (slightly rubbed, lacking lettering piece).

£1,500-2,000

US\$2,000-2,500  
€1,800-2,300





0282

HELMHOLTZ, Hermann von (1821-1894). *Über die Erhaltung der Kraft, eine physikalische Abhandlung*. Berlin: G. Reimer, 1847.

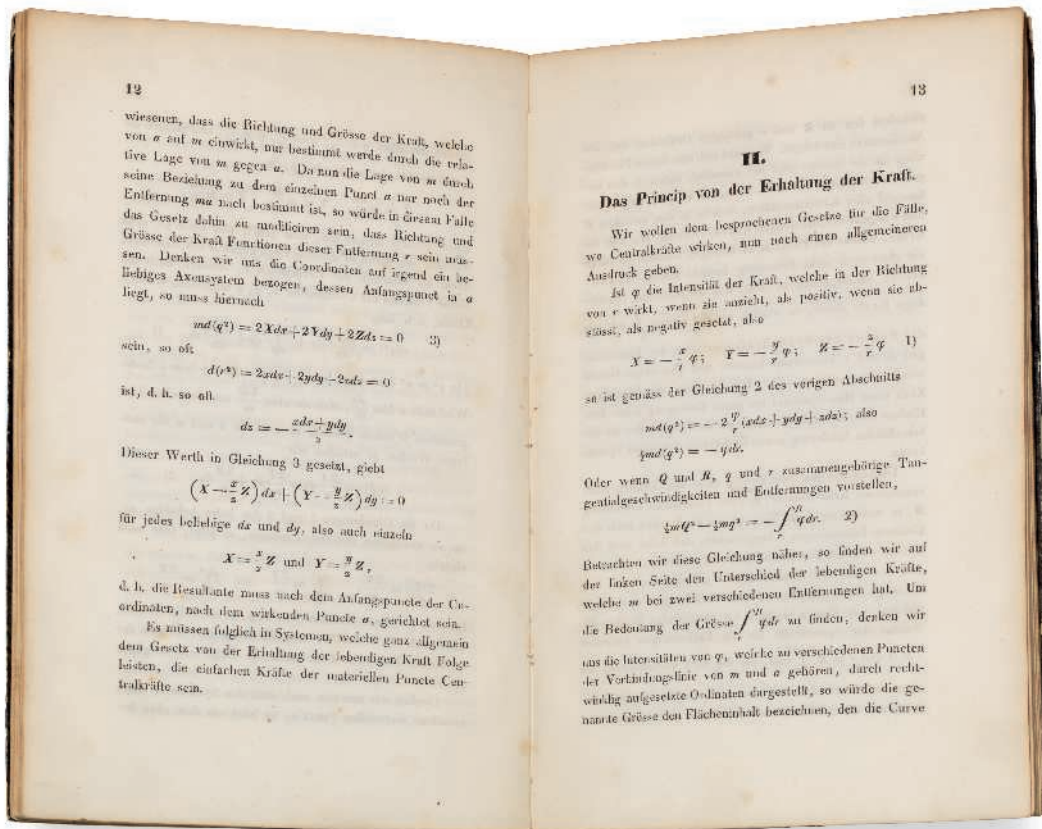
First edition of 'the first comprehensive statement of the first law of thermodynamics: that all modes of energy, heat, light, electricity, and all chemical phenomena, are capable of transformation from one to the other but are indestructible and cannot be created' (PMM). In his brilliant analysis of the conservation of energy, Helmholtz classified different forms of energy and kinds of force and motion, into kinetic or potential. He gave mathematical expression to the energy of motion, thus providing 'a fundamental measure in research of all forces including muscular and chemical' (Dibner). *Dibner Heralds of Science* 159; *Garrison-Morton* 611; *Grolier/Horblit* 48; *Milestones of Science* 96; *PMM* 323; *Waller* II, 11365.

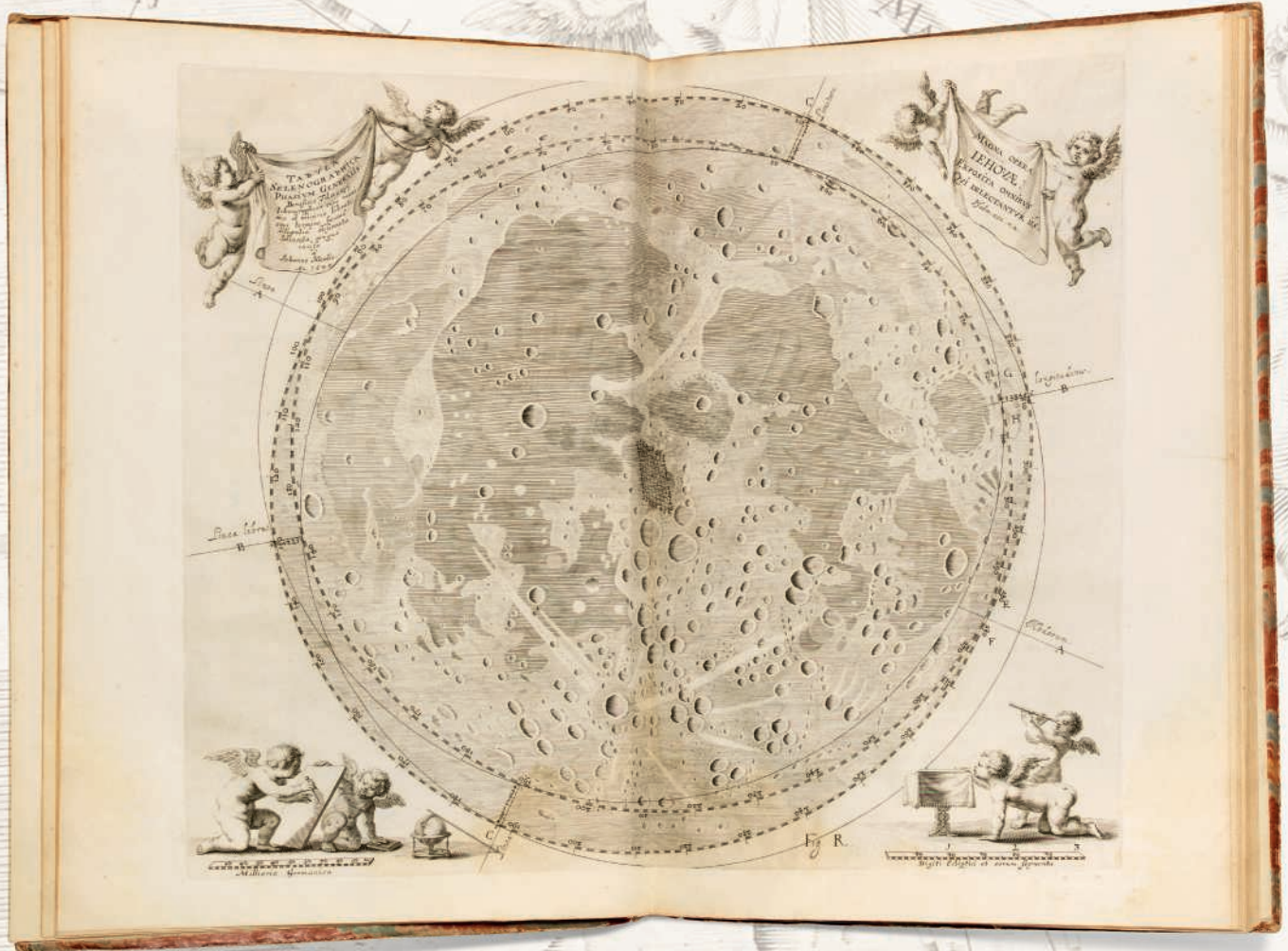
Octavo (220 x 137mm). (Some spotting.) Original printed wrappers bound in at end, 19th-century cloth-backed boards, paper title-label on front cover (a little worn), by L.A. Garbe of Rostock (ticket at end); modern cloth case. *Provenance*: C. Bergmann (signature on front wrapper and title) - Rostock, University Library (stamp repeated 4 times).

£20,000-25,000

US\$26,000-32,000

€23,000-28,000





### 0283

HEVELIUS. *Epistolae II. Prior: de motu lunae libratorio, in certas tabulas redacta... Posterior: de utriusque luminaris defectu anni 1654.* Danzig: Andreas Julius Moller for the author, 1654.

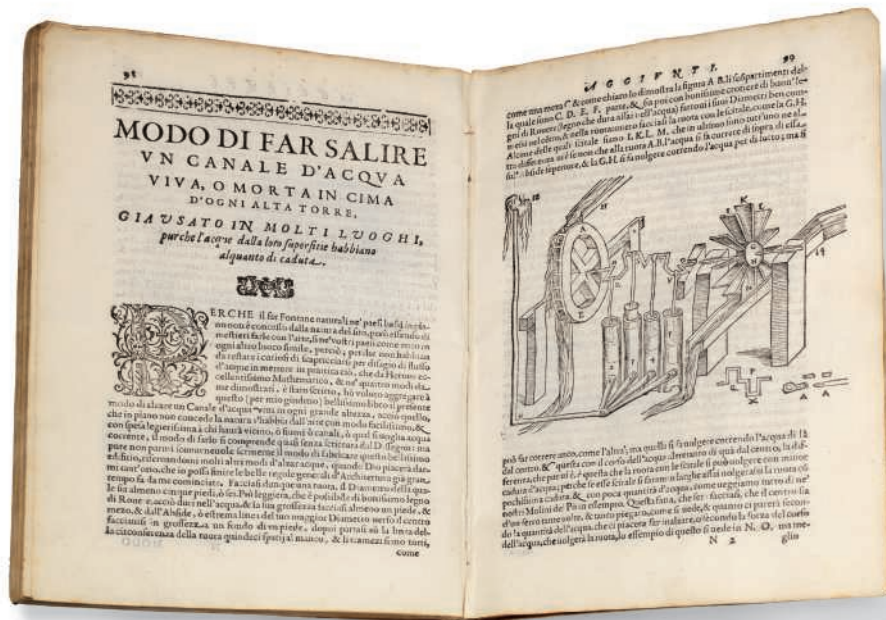
**Hevelius's definitive mapping of lunar libration.** His mapping of the moon began with his great lunar atlas, the *Selenographia* (1647), and continued through further observations and production of diagrams in the following years, along with the author's other astronomical observations. In 1654 he published these four scientific papers, presented as correspondence: on the solar eclipses of 1649 and 1652, on lunar libration, and on the double-eclipses of 1654: new engraved plates graphically reproduced the astronomical events that had followed the publication of *Selenographia*. 'Hevelius' descriptions of a librational cycle of shadow changes in the lunar details, his method of judging

the libration by means of changes in the apparent (telescopic) separation of a pair of lunar details, and his introduction of rudimentary lunar coordinate systems provided a sound basis for the work of subsequent astronomers' (DSB). Norman 1065.

Folio (344 x 224mm). Engraved title vignette, 6 engraved plates by Hevelius, including a double-page plate from the *Selenographia* (1647), one engraved diagram in text, letterpress astronomical tables, woodcut initials (first 2 leaves loose, light waterstaining to the inner lower corner of quire A, occasional light browning; inner upper corner of the front free end-paper torn). 18th-century morocco-backed marbled boards (joints cracked, spine chipped and worn, edges rubbed).

£10,000-15,000

US\$13,000-19,000  
€12,000-17,000



0284

HERO of Alexandria (fl. 62 AD) *Gli artificiosi et curiosi moti spiritali*. Translated by Giovanni Battista Aleotti (1546-1636). Ferrara: Vittorio Baldini, 1589.

**First edition of Aleotti's translation of Hero's *Pneumatics*.** It is a curious mixture of the useful and amusing, combining descriptions of fire-engines and simple steam turbines with those of penny-in-the-slot machines, singing birds and sounding trumpets. Adams H-367; Mortimer, *Harvard Italian*, 230.

Quarto (215 x 158mm). Title within woodcut architectural border, numerous woodcut illustrations in the text, woodcut head- and tailpieces, initials, printer's device on colophon (some faint waterstains in upper margin, without the 2ff. "tavola"). Early vellum, titled in manuscript on spine (faint soiling). *Provenance*: 'Giacopo Morell[i]' (early inscription recording purchase at Mantua).

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700

0285

HUMBOLDT, Alexander von (1769-1859) and Aimeé Jacques Alexandre BONPLAND (1773-1858). *Voyage aux régions équinoxiales du Nouveau Continent, fait en 1799, 1800, 1801, 1802, 1803 et 1804*. Paris: Librairie grecque-latine-allemande, 1816-1826.

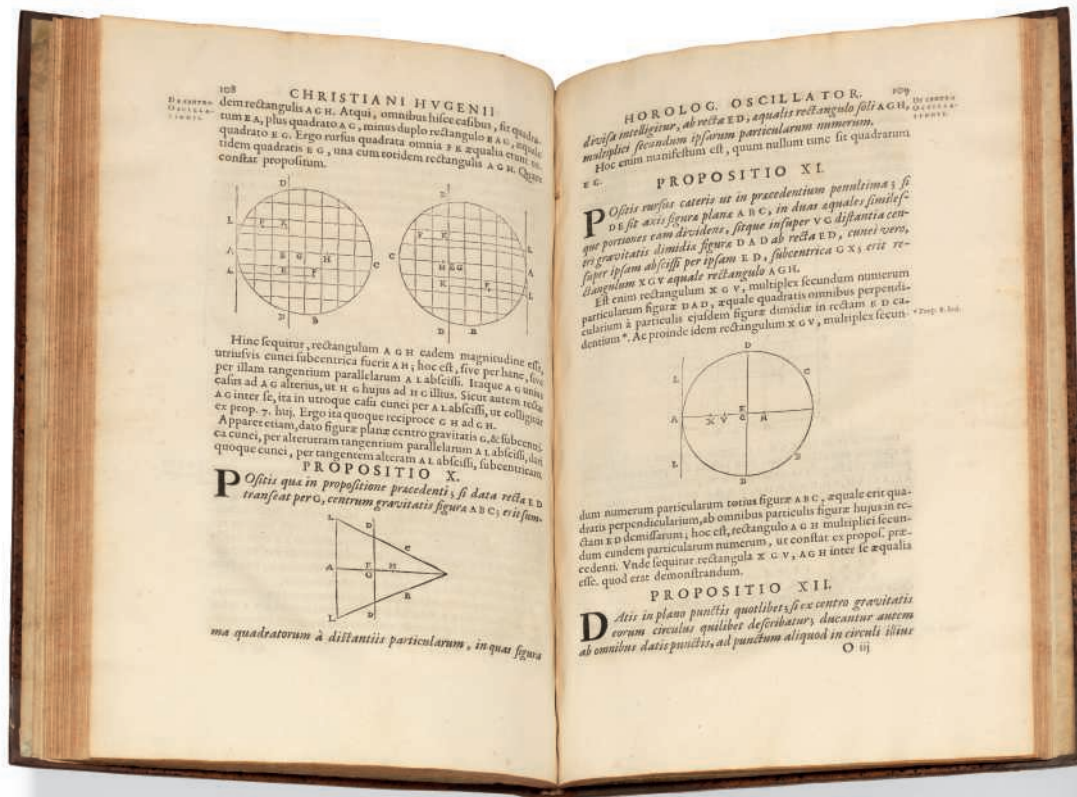
**Rare second edition, first in octavo format.** The title-pages call for an atlas, but no such accompanying volume seems to be published. Sabin 33768 (with errors in pagination).

12 volumes (only, of 13), octavo (195 X 116mm). Half-titles in vols 1-6, folding engraved plate in vol. II (lacking vol. 13 published later in 1831, scattered variable browning and spotting). Contemporary tree calf, vols 1-6 with gilt spines, vols 7-12 with non-uniform, less elaborate, gilt spines but with gilt borders to covers (extremities lightly rubbed, a few corners more heavily). *Provenance*: a made-up set with titles in vols 7-12 excised to remove provenance, sometimes affecting a few letters.

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700





0286

HUYGENS, Christiaan (1629-1695). *Horologium oscillatorium sive de motu pendulorum ad horologia aptato demonstrationes geometricae*. Paris: F. Muguet, 1673.

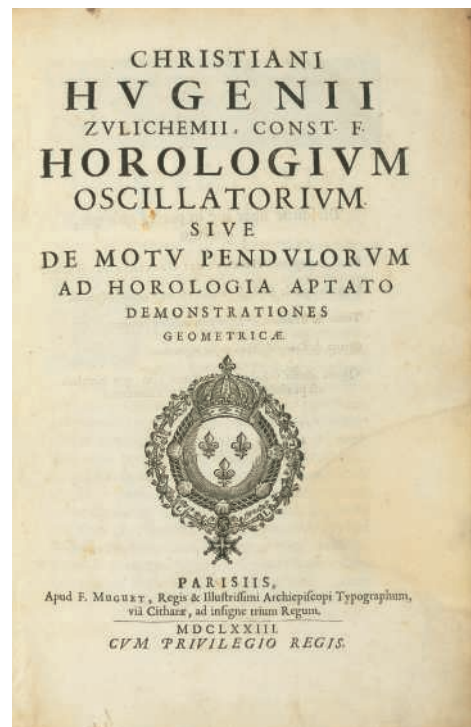
**Presentation copy of the first edition of Huygen's most important work**, containing the first mathematical analysis of the motion of the pendulum, and a general treatise on the dynamics of bodies in motion. The treatise 'was the most original work of this kind since Galileo's *Discorsi*.... It ends with 13 theorems (without proofs) on the dynamics of circular motion. Newton in the *Principia* acknowledges Huygens's priority here, though Huygens's work had little influence on his own' (PMM). 'A work of the highest genius which has influenced every science through its mastery of the principles of dynamics. It is second in scientific importance perhaps only to the *Principia*' (C. Singer, *A Short History of Science*...., 1941, p. 258). Huygens constructed the first pendulum clock in 1657, an idea already put forth by Galileo, who had noted the isochronism of the pendulum (its property of swinging in a constant time, regardless of the width of the swing). The idea was a brilliant solution to the problems of keeping time aboard ship, since a reliable time-keeping device was essential for determining longitude, a problem of acute importance in 17th-century Holland, and Huygens' invention, described in the *Horologium*, was hugely successful – by 1658 pendulums were even applied to the tower clocks of Scheveningen and Utrecht. In the *Horologium* Huygens broadened his mathematical analysis of the pendulum's movement from a central exposition of the isochronism of the cycloid (a discovery which he had called 'the most fortunate finding which ever befell me' [DSB]) to a general mathematical discussion of the laws of motion. He focused on the properties of curves, including the theory of the evolutes of curves and the fall of bodies along curves, and determined the first exact value of the intensity of the force of gravity by using a compound pendulum. Dibner, *Heralds* 145; Grolier/Horblit 53; Norman 1137; PMM 154.

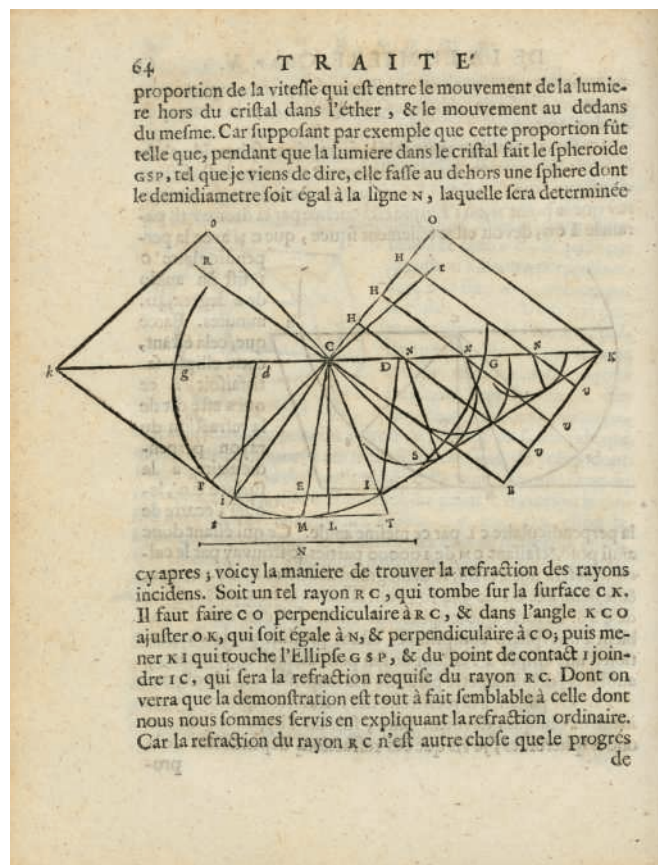
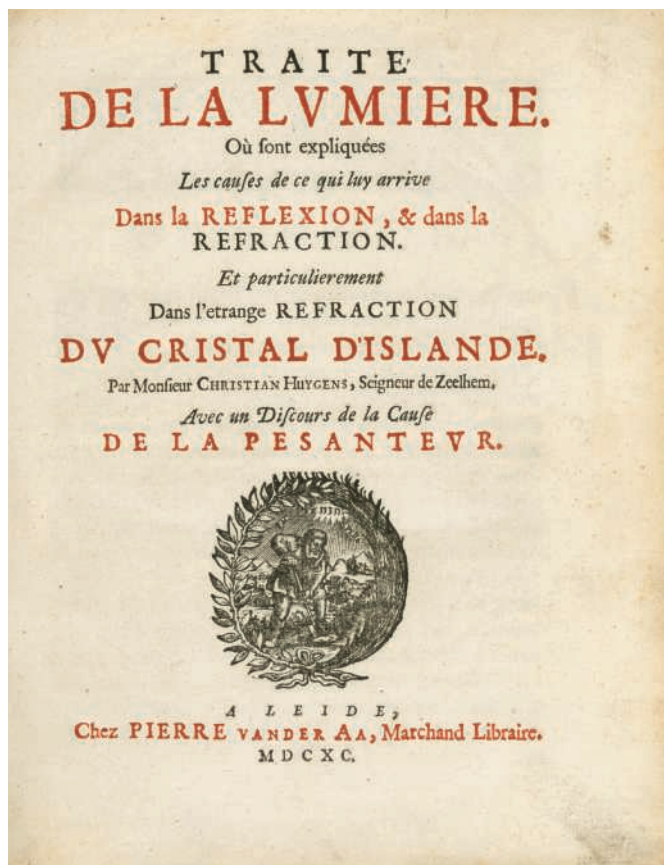
Folio (312 x 202mm). Woodcut arms of Louis XIV on title, full-page woodcut of the pendulum on A2v, approximately 100 woodcut diagrams in text (outer portion of titlepage restored probably with removal of a stamp or inscription, lower half of last leaf restored with removal of a stamp, repair to the top margin of front flyleaf, a couple of quires lightly foxed). Contemporary speckled calf, spine gilt in compartments (skillfully rebaked with the original spine laid down, corners repaired, extremities a little rubbed). *Provenance*: presentation to an unknown recipient (Donné par l'auteur) on front flyleaf – 'H. Geylser' (jurist, c.17th c., inscription on front paste-down) – 'Francais' (18th c., inscription on front paste-down) – 'G. Scherz Math. Prof.' (?19th c., inscription on front paste-down).

£12,000-16,000

US\$16,000-20,000

€14,000-18,000





0287

HUYGENS, Christiaan (1629-1695). *Traité de la lumière. Ou sont expliquées les causes de ce qui luy arrive dans la reflexion, & dans la refraction... Avec un discours de la cause de la pesanteur.* Leiden: Pierre vander Aa, 1690.

**First edition, issue with Huygens's full name on title, of his groundbreaking exposition of the wave or pulse theory of light.** He had developed his theory in 1676 and 1677 and completed the *Traité de la lumière* in 1678, reading portions of it to the Academy during the following year. He left it unpublished, however, until Newton's *Principia* (1687) and a visit with Newton in 1689 stimulated him to have it printed at last. His wave theory of light was in opposition to the corpuscular theory of light advanced by Newton, although modern physics has since reconciled both theories. Light, according to Huygens, is an irregular series of shock waves which proceeds with very great, but finite, velocity through the ether. This ether consists of infinitely minute, elastic particles compressed very close together. Light, therefore, is not an actual transference but rather of a 'tendency to move', a serial displacement similar to a collision which proceeds through a row of balls' (DSB). Dibner 146; Grolier/Horblit 54; Norman 1139.

2 parts in one volume, quarto (198 x 160mm). General title printed in red and black, separate title to part 2, woodcut device on both titles, numerous woodcut diagrams in the text. Contemporary vellum (slightly bowed). *Provenance*: shelfmark on pastedown.

£10,000-15,000

US\$13,000-19,000  
€12,000-17,000



0288

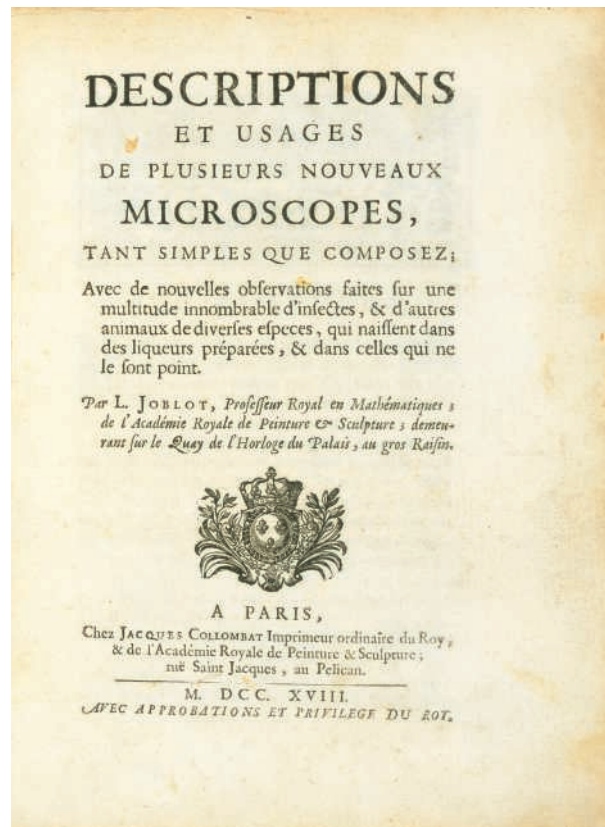
JOBLOT, Louis (1645-1723). *Descriptions et usages de plusieurs nouveaux microscopes, tant simples que composez, avec des nouvelles observations faites sur une multitude innombrable d'insectes, & d'autres animaux de diverses especes, qui naissent dans les liqueurs preparees, & dans celles qui ne le sont point.* Paris: Jacques Collombat, 1718.

This is the first treatise on Protozoa, which were discovered a few years earlier by Anton van Leeuwenhoek. Although Joblot's work with microscopes is better known from his later (and more common) 1754 edition, this is the first edition of the *Descriptions*, which established Joblot as the first French microscopist. The first part of the book described several microscopes and their construction and introduced some improvements, including the use of stops (diaphragms) in compound microscopes to correct for chromatic aberration' (DSB VII, p.110). Cole 1265; Nissen ZBI 2113.

2 parts in one volume, quarto (249 x 185mm). Woodcut device on title, woodcut initials, head- and tailpieces, first page of text engraved, 34 engraved plates (marginal tear to o1 just touched signature letter, variable light browning). Contemporary calf, gilt spine (worn at corners and at head and foot of spine, extremities rubbed).

£1,500-2,000

US\$2,000-2,500  
€1,800-2,300



0289

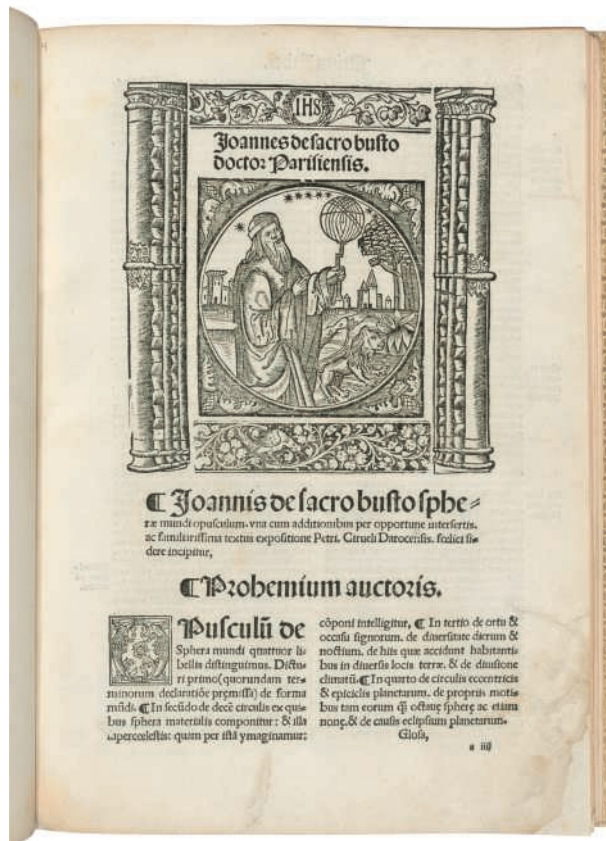
JOHANNES DE SACRO BOSCO. *Sphaera mundi*, edited and with commentary by Pedro Ciruelo (1470-?1554) and the questions of Petrus de Alliaco. Alcalá de Henares: Miguel de Eguia, 1526.

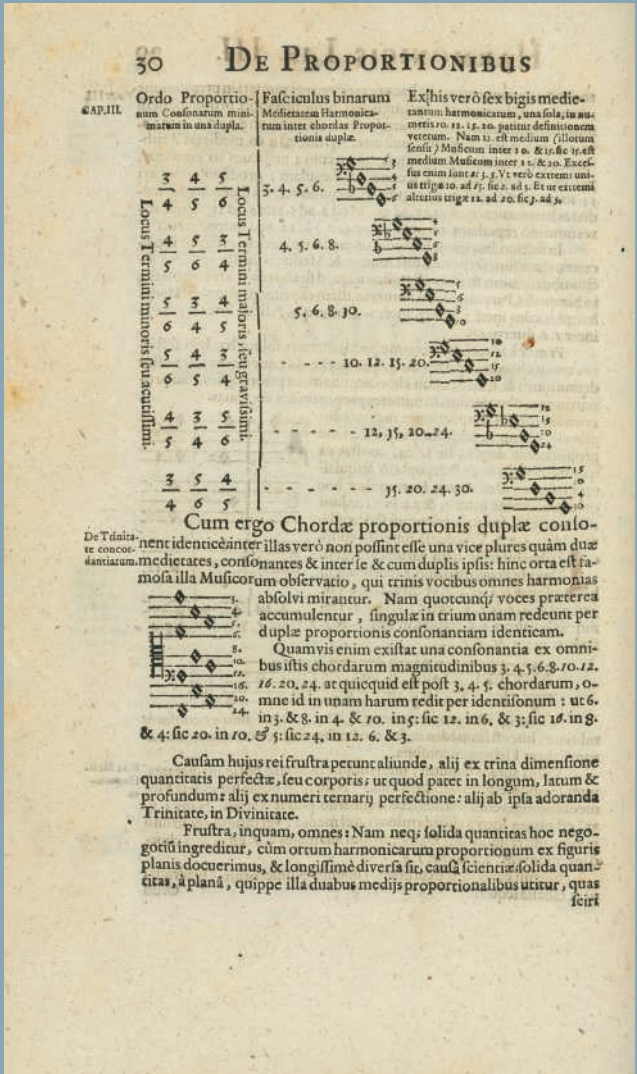
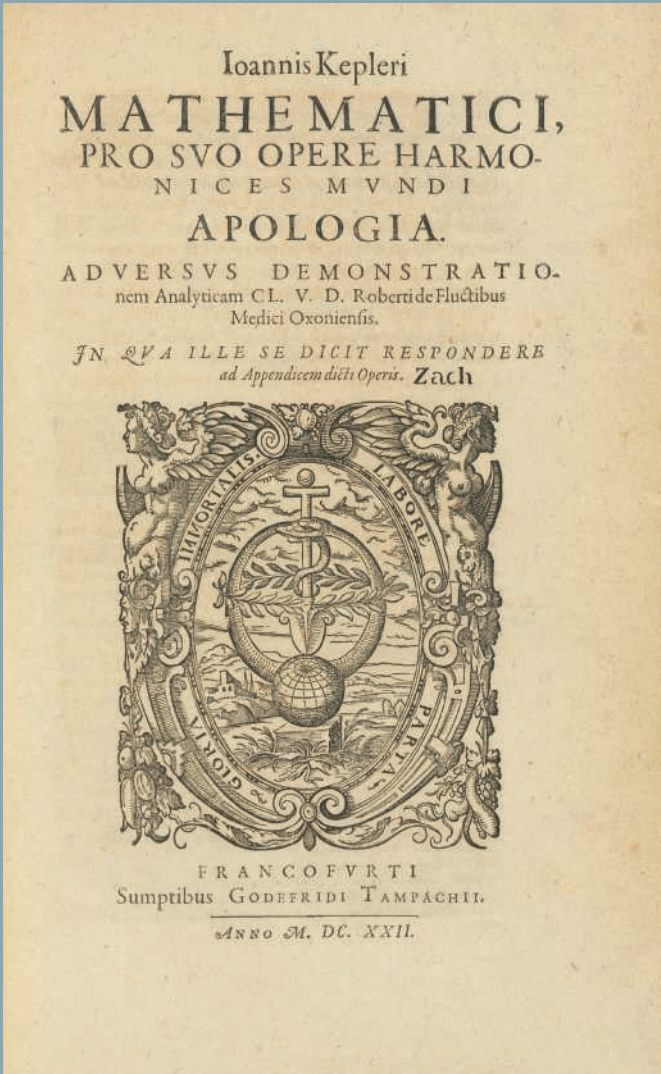
First edition printed in Spain of one of the most popular scientific works of the 15th and early 16th centuries. The Spanish mathematician Pedro Ciruelo first published his edition of *Sphaera mundi* in 1498 at Paris while studying there and teaching mathematics. He returned to Spain to teach at the newly established university at Alcalá, where the present edition was printed, newly corrected by Ciruelo. Only 3 copies sold at auction in over 50 years. Not in Adams; Palau 284125; Salva 3812.

Folio (265 x 188mm). Woodcut architectural border on title-page, armillary sphere within border on title verso and repeated at end, numerous text diagrams and illustrations, historiated and decorative initials (title margin repaired affecting lower corner of border, lower corner of first quire repaired, an occasional marginal repaired wormtrack, lightly washed). Modern vellum gilt, gilt edges. *Provenance*: a few contemporary annotations - 'Ex libris Joannis Penis[?]' (early title inscription partly erased).

£3,000-5,000

US\$3,900-6,400  
€3,500-5,700





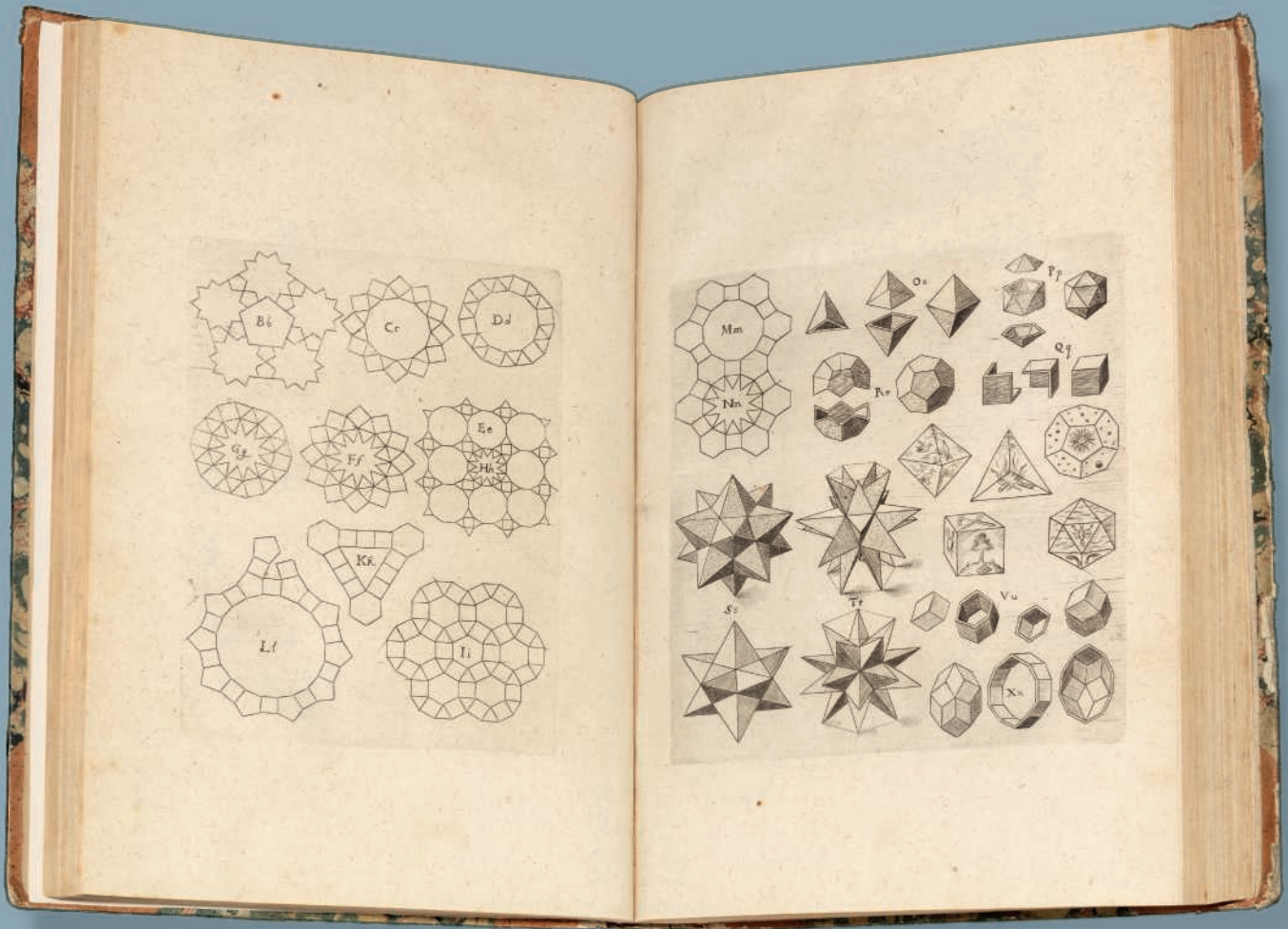
**0290**

KEPLER, Johannes (1571-1630). *Harmonices mundi libri V*. Linz: Johann Planck for Gottfried Tampach, 1619. [Bound after:] - *Pro suo opere Harmonices Mundi Apologia*. Frankfurt: Erasmus Kempfer for Godefrid Tampach, 1621-1622.

**First edition of Kepler's great cosmological treatise**, containing the third law of planetary motion. Kepler had drafted a plan for the work already in 1599, but he was unable to return to it until 1616. All of his previous work and the insights into the working of the cosmos that he had gained in the intervening decades served as material for this, his life's work. 'Certainly for Kepler this book was his mind's favorite child' (Caspar, Kepler, 1959, p. 290, quoted in DSB). An ardent Copernican, Kepler accepted that the sun was near the centre of the universe, but he went farther, by attributing physical force to it. Books I and II are concerned with the geometrical foundation of universal harmony, beginning with a detailed exposition of Euclid's Elements. He discusses polygons and polyhedrons and - for the first time - stellated dodecahedrons. Book III investigates harmonic proportions and music theory, while Book IV contains the fullest expression of his astrological views. In Book V Kepler refined the theory expounded in his *Mysterium cosmographicum* (1596), that

the mean distances of the planets from the sun are in proportions related to spheres inscribing and circumscribing the five regular solids. 'Now, imbued with a new respect for data, he could no longer dismiss [the earlier theory's] 5 percent error... In the astronomical book V... he came to grips with this central problem: By what secondary principles did God adjust the original archetypal model based on the regular solids?... In the course of this investigation, Kepler hit upon the relation now called his third or harmonic law' (DSB). In this he related the magnitude of the planetary orbits to their periods of revolution around the sun, and established that the square of a planet's periodic time is proportional to the cube of its mean distance from the sun. Caspar 58 and 68; Zinner 4737; Dibner 6; Horblit 58; Norman 1207; Milestones of Science 115. See PMM 112.

**First edition of the Apologia**. The appendix to *Harmonices mundi* contained severe objections to the rival theory expounded by Robert Fludd, the English physician and mystical philosopher, whom Kepler accused of 'taking] great delight in topics which are hidden in the darkness of riddles, whereas I strive to bring topics which are wrapped in obscurity out into the light of



understanding'. Fludd rose to the challenge by publishing replies, which Kepler addressed in this *Apologia* by strenuously defending a cosmology founded on mathematics against a mystical approach.

2 parts in one volume, folio (295 x 189mm). *Harmonices*: first state of general title with printer's device and without text beginning 'Accessit nunc...'; 5 section titles, with the dedication to King James of England \*2r-4r (later suppressed by Kepler and absent from a few copies), errata leaf at end; 5 engraved plates on 4 leaves, numerous woodcut diagrams and illustrations in text after W. Schickard, woodcut musical notation in Book III (title with stain resulting from a 19th-century round ink stamp on the verso, smudged, occasional foxing, printing fault on the errata). *Apologia*: large engraved vignette in title (title and last leaf a little browned, some light foxing). Early 19th-century boards, flat spine filleted in gilt with contrasting lettering-piece and small oval morocco stamp with monogram 'v.Z' (see below) at foot, sides covered with marbled paper (hinges and joints restored with new endpapers, corners and edges worn and rubbed, paper cover on spine worn off in places); modern custom-made box. *Provenance*: a few early short marginalia,

cropped - 'Zach' (19th-century stamp on the first title and first divisional title of second work, and 'v.Z' gilt oval lettering-piece on the spine. This is one of the stamps used by the astronomer Franz Xavier von Zach, d. 1832. 'The history of astronomy and exact geo-sciences of the Goethe era cannot be written if Zach is ignored' - P. Brosche, *Der Astronom der Herzogin*, 2001. Zach acted as a catalyst and scientific editor and facilitator. Brosche mentions 41 crates of books shipped by him when moving to Frankfurt in 1827. Books bearing a stamp with 'Zach' in all capitals preceded by 'V' (Von) can be found in the *Milestones of Science* Collection - Sparrow 149 and 115 (another copy of Kepler) - and the all-capitals version is in the Jena2 copy of Copernicus 1543, see O. Gingerich, *Census* - unidentified smudged 19th-century stamp on the verso of second title.

£70,000-100,000

US\$89,000-130,000  
€80,000-110,000



0291

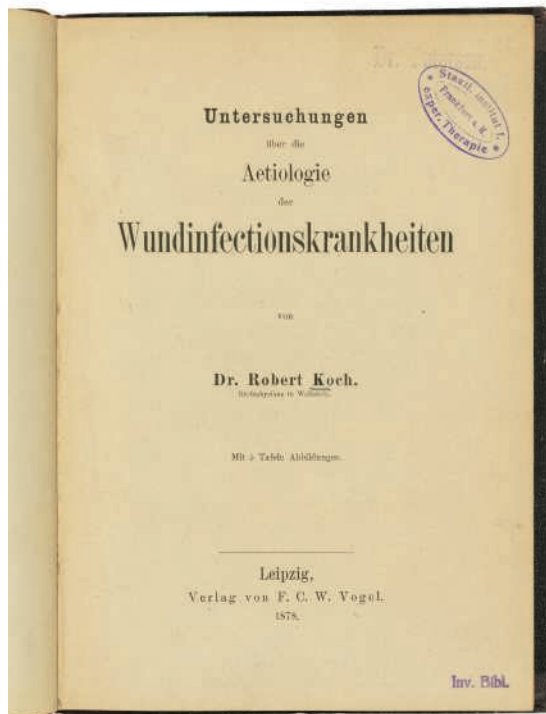
KIRCHER, Athanasius (1602-1680). *Physiologia Kircheriana experimentalis, qua summa argumentorum multitudine & varietate*, edited by Johann Stephan Kestler. Amsterdam: Jan Waesberg, 1680.

**First edition, published the year of Kircher's death, of a selection from his voluminous works.** The range of subjects covered encompasses the entire spectrum of his researches in physics. Kestler, the editor, was Kircher's pupil but, as Kircher died the year this book was published, it is uncertain to what degree he was involved in its production. Garrison-Morton 580: 'includes the first recorded experiment in hypnotism in animals'.

Folio (376 x 239mm). Additional engraved title, woodcut and engraved illustrations in the text (light spotting or browning, some marginal wormholes with associated repairs to first 8 and last 4 leaves). Contemporary calf, red morocco lettering piece, spine gilt (chipped at spine ends, lightly rubbed, joints slightly splitting).

£1,200-1,800

US\$1,600-2,300  
€1,400-2,000



0292

KOCH, Robert (1843-1910). *Untersuchungen über die Aetiologie der Wundinfektionskrankheiten*. Leipzig: F.C.W. Vogel, 1878.

**First edition of Koch's important contribution to the germ theory of disease.** 'His great work determined the role of bacteria in the aetiology of wound infections and demonstrated for the first time the specificity of infection. It also contains the first explicit statement of the criteria [...] which later became known as Koch's postulates' (Garrison-Morton). Garrison-Morton 2536; Norman 1229; PMM 366b.

Octavo (223 x 152mm). 5 lithographed plates (trivial waterstain in upper corner of plates). Contemporary half cloth over boards, spine ruled and lettered in gilt (spine ends just chipped, spine lightly sunned, removed label leaving faint traces of adhesive). *Provenance:* Frankfurt, Royal Institute for Experimental Therapy (stamps) – Dr. Petersen (ink stamp) – upper corner excised from front endpaper probably removing provenance mark – printed portrait of the author on front pastedown.

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700



*Aërostatische Maschine 70 Schuhe hoch und 46 Schuhe im Durchschnitte die den 19 Oct. 1783 zu Paris mit zwey Personen 324 Schuhe in die Höhe gestiegen.—*

0293

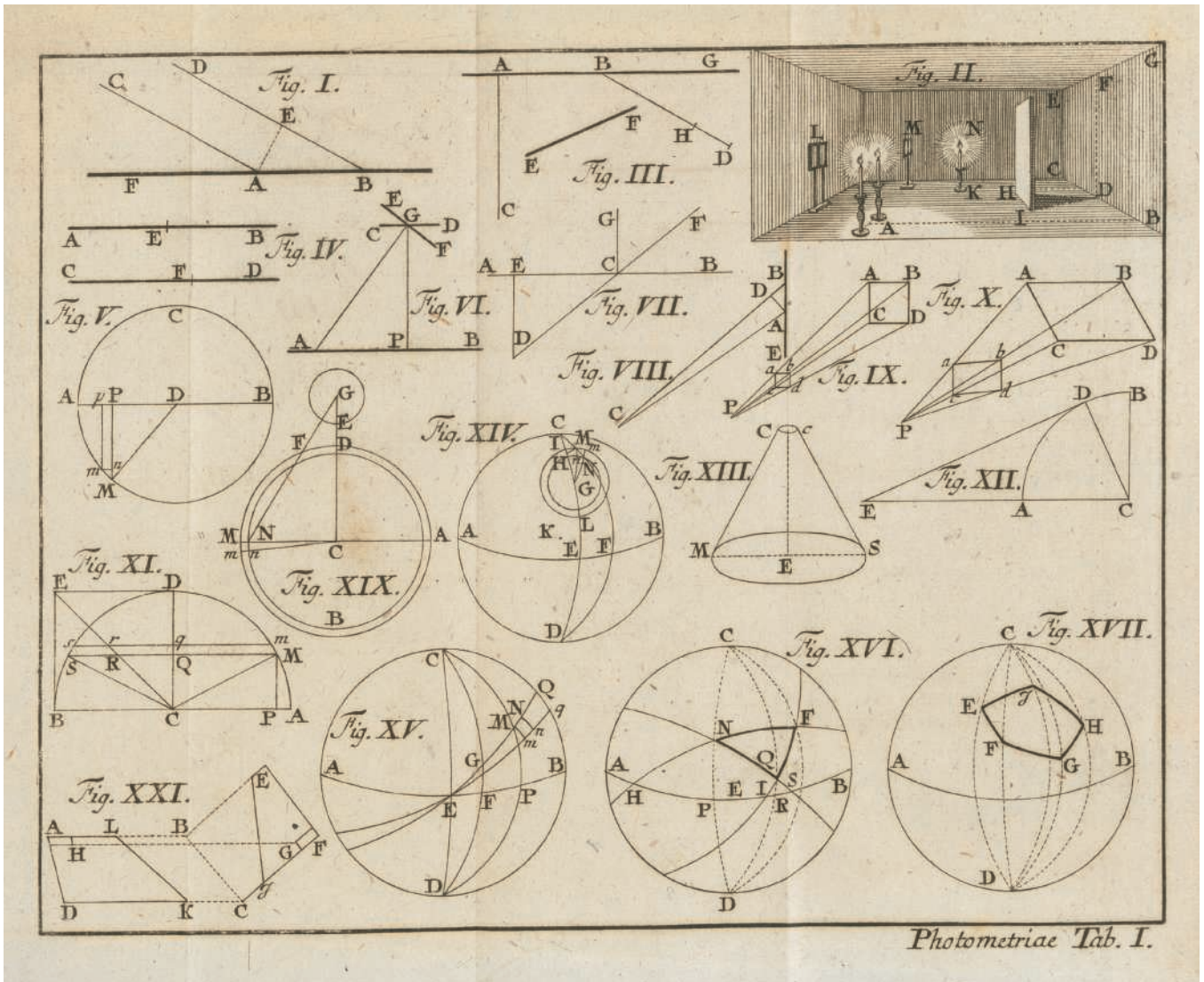
KRAMP, Christian (1760-1826). *Geschichte der Aerostatik*. Strasbourg: Akademische Buchhandlung, 1784.

**First edition of an early history of ballooning.** Kramp, professor of mathematics at Strasbourg, 'treated the subject historically, physically, and mathematically' (DSB). He published a supplement to this work in 1786.

2 volumes, octavo (191 x 116mm). Engraved frontispiece in each volume, 9 engraved folding plates, 2 folding tables (faint spots at beginning of vol.2). Contemporary half calf over speckled boards, spines gilt (slightly rubbed, heavier at head of vol.2, removed labels leaving darkened area at foot of each volume with associated short splits to joints). *Provenance*: Berlin, Friedrich-Wilhelms Institut (ink stamps) – shelfmarks on pastedown. (2)

£1,500-2,000

US\$2,000-2,500  
€1,800-2,300



0294

LAMBERT, Johann Heinrich (1728-1777). *Photometria sive de mensura et gradibus luminis, colorum et umbrae*. Augsburg: Christoph Peter Detleffsen for the widow of Eberhard Klett, 1760.

**First edition of the foundation for the exact measurement of light.**

Lambert's discoveries 'are of fundamental importance in astronomy, photography and visual research generally ... Both Kepler and Huygens had investigated the intensity of light, and the first photometer had been constructed by Pierre Bouguer (1698-1758); but the foundation of the science of photometry - the exact scientific measurement of light - was laid by Lambert's 'Photometry' ... In the *Photometria* he described his photometer

and propounded the law of the absorption of light named after him. He investigated the principles and properties of light, of light passing through transparent media, light reflected from opaque surfaces, physiological optics, the scattering of light passing through transparent media, the comparative luminosity of the heavenly bodies and the relative intensities of coloured lights and shadows' (PMM). Norman 1269; PMM 205.

Octavo (184 x 110mm). 8 folding engraved plates (title and a few plates very lightly spotted). Contemporary mottled calf, red morocco lettering piece, spine gilt (extremities lightly rubbed, joints split but holding). *Provenance*: erased stamp on title.

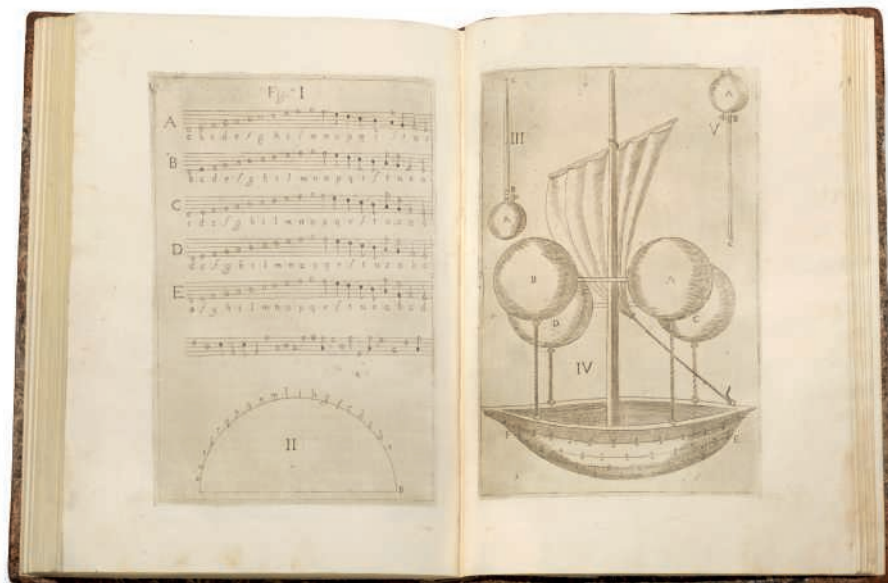
£20,000-30,000

US\$26,000-38,000  
€23,000-34,000

0295

LANA TERZI, Francesco (1631-1687). *Prodromo ovvero saggio di alcune inventioni nuove premesso all' arte maestra*. Brescia: Rizzardi, 1670.

**First edition of an important work in the history of aeronautics.** In the *Prodromo* Lana Terzi presented several technological innovations, of which the best known is his proposal for a 'flying boat,' to be airborne by four spheres of thin copper from which air had been exhausted. Although the vehicle was never tested, and would have proved unworkable, since the copper would not have been able to withstand the atmospheric pressure, Lana Terzi's reasoning was correct. In surmising that a vessel containing a semi-vacuum would weigh less than the surrounding air and would consequently become buoyant, Lana Terzi formulated the earliest concept of flight based on aerostatic principles. 'While Lana apparently originated the method of reducing air density in a vessel by heating it, the implications of this phenomenon in relation to flight were not fully understood until the advent of the Montgolfier brothers a century later' (Norman). Dibner *Heralds of Science* 176; Wellcome III, p. 440; Norman 1272.



Folio (298 x 201mm). 20 engraved plates, all but two printed on facing pages of pairs of conjugate leaves, woodcut initials and tail-piece ornaments, type ornament head-pieces (repaired long closed tear to titlepage, leaves of the initial quire repaired and reinforced at gutter, four of the plate leaves reinforced at gutter, short repaired marginal tear to the last leaf, some light marginal waterstaining to the last few quires, an occasional spot). 19th-century speckled half calf, marbled sides, flat spine decorated in gilt with two contrasting morocco lettering-pieces (some surface wear and rubbing).

£2,000-3,000

US\$2,600-3,800  
€2,300-3,400

0296

LAPLACE, Pierre Simon (1749-1827). *Traité de mécanique céleste*. Paris: Duprat [vol. 4 Courcier, vol. 5 and 6 Bachelier], [1799]-1825.

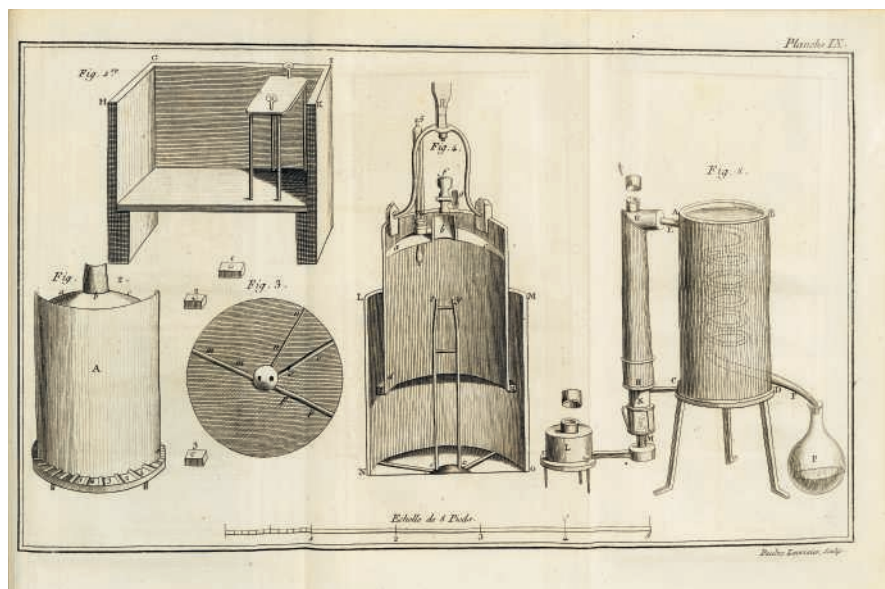
**First edition of Laplace's monumental work, in which he 'codified and developed the theories and achievements of his predecessors, notably Newton, Euler, d'Alembert and of his contemporary Lagrange' (PMM).** 'Laplace's system of celestial mechanics (a term he coined) marked an advance over that of Newton, who had posited the necessity of a Deity in the universe to correct planetary irregularities; Laplace on the other hand, when asked by Napoleon why his system contained no mention of the Creator, replied "I had no need of such a hypothesis."' (Norman). Norman 1277; PMM 252.

6 volumes, quarto (250 x 195mm). Half-titles. With the supplements to vols.3 and 4 and the separately bound supplement to vol.5, folding engraved plate in vol. 4 (lacking the 4 part-titles in vol. 5, very occasional faint spotting or browning). Contemporary mottled half calf over marbled boards, spines gilt (spines lightly worn). *Provenance:* Moritz Heider (Austrian dentist, 1816-1866; inscription) - Oswald Weigel (bookseller's stamp) - The Netherlands, Kolleg St Ludwig Library (stamp) - A. Reisinger (embossed stamp) - Dr Shobloch (stamp). (6)



£5,000-8,000

US\$6,400-10,000  
€5,700-9,100



0297

LAVOISIER, Antoine-Laurent (1743-1794). *Traité élémentaire de chimie, présenté dans un ordre nouveau, et d'après les découvertes modernes [...]* Nouvelle édition, à laquelle on a joint *Nomenclature Ancienne & Moderne*. Paris: Cuchet, 1789.

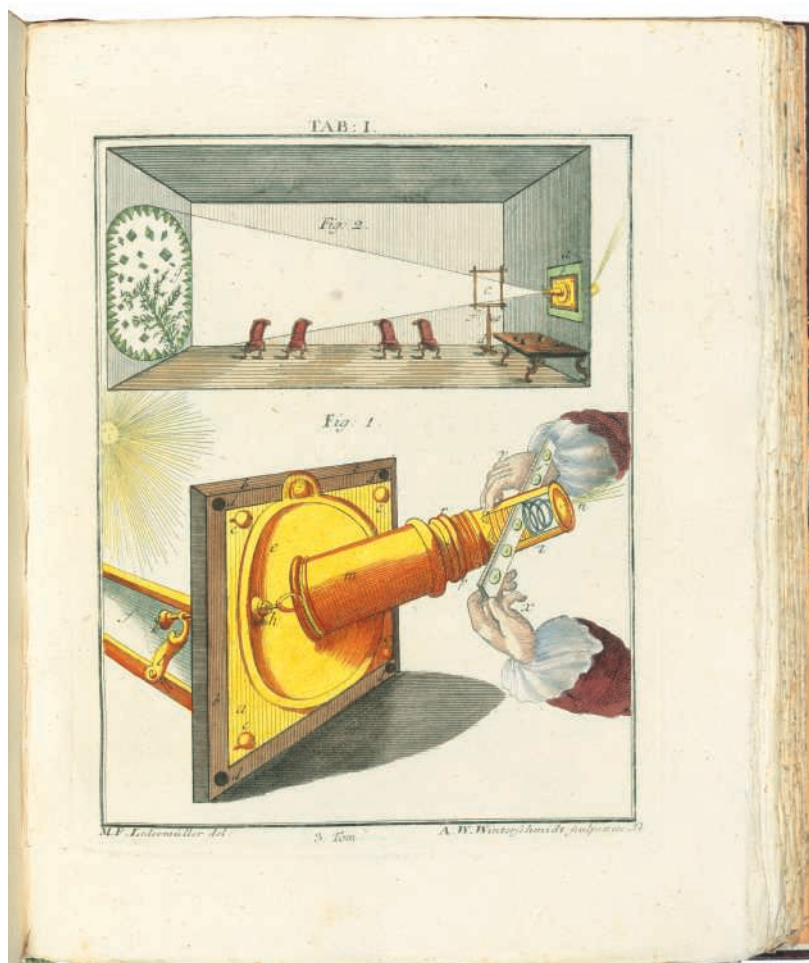
The true second edition, published the same year as the first edition, with the addition of the *Nomenclature Ancienne & Moderne*. The 'culmination of Lavoisier's achievement' the *Traité* was 'neither a general reference work nor a technical monograph' but 'a succinct exposition of Lavoisier's discoveries (and those of his disciples) and an introduction to the new way of approaching chemistry' (DSB VIII, pp. 81-82). This edition precedes Cuchet's 1793 publication, which was erroneously labelled 'Seconde édition'. Wellcome III, p.461.

3 volumes, octavo (197 x 118mm). 13 engraved plates, 3 folding tables (occasional faint browning). Contemporary calf, red and black lettering-pieces, spines gilt (joints and corners slightly rubbed). Provenance: 'Bibliothèque de Mr. Cl. de Riverieux de Varax' (bookplate) – traces of removed label. (3)

£1,000-1,500

US\$1,300-1,900

€1,200-1,700



0298

LEDERMÜLLER, Martin Frobius (1719-1769). *Mikroskopische Gemüths- und Augen-Ergötzung*. Nuremberg: Christian de Launoy for Adam Wolfgang Winterschmidt, 1763. [Bound with:] *Drittes Funfzig...2te Auflage*. Nuremberg: Winterschmidt, 1778. [And:] *Abgenöthigte Verteidigung, als ein Anhang*. Nuremberg: Launoy heirs, 1765.

A fresh, uncut copy of one of the most beautiful 18th-century microscopical works, published in parts between 1759 and 1763. Ledermüller 'was an eighteenth-century polymath. By profession a lawyer, Ledermüller shows a discerning interest in the art and science of botany, and in the newer science of microscopy' (Hunt). He was the curator of the natural history collection of Friedrich, Margrave of Brandenburg, the dedicatee of this volume. The Braune copy, uniform in size, condition and colouring, is the first complete edition, here with the second part in the second edition. See Hunt 581; Nissen *BB1* 1156; Pritzel 5142; Stafleu & Cowan TL2 4288. Wellcome III, 472. Sold as a periodical, not subject to return.

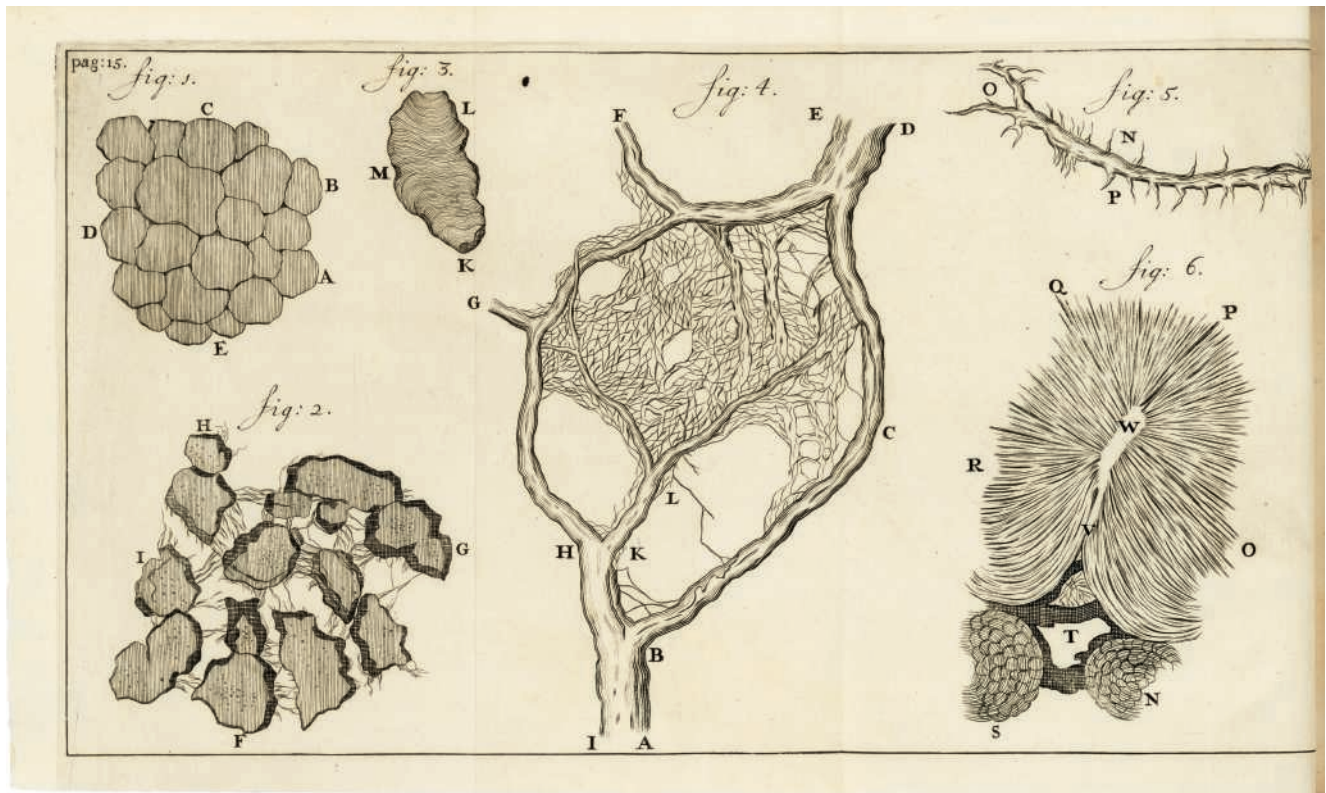
3 works in 2 volumes, quarto (264 x 210mm). Engraved portrait frontispiece of the dedicatee, 2 coloured engravings in the *Verteidigung*, 2 engraved titles (one coloured) and 150 plates, all but one with contemporary colouring, text and plates bound separately (apparently lacking one leaf at end of first work [?index] and A1 in second). Modern half calf.

£2,500-3,500

US\$3,200-4,400

€2,900-4,000





0299

LEEUWENHOEK (Anthony van, 1632-1723) *Send-Brieven zoo can de... Koninklyke Societeit te Londen Delft*, Adrianus Beman, 1718. [With:] *Epistolae physiologicae super compluribus naturae arcanis*. Delft: Adrianus Beman, 1719.

**First edition in the original Dutch and first edition in Latin** of this series of letters by the pioneer of microbiology Van Leeuwenhoek, who 'for fifty years [...] patiently and painstakingly documented the hidden realms of nature in a way no one had done before him. [...] Early in his career as a scientist, he observed what he described as animalcules or "little animals" [dierkens] in water, and from then on he described in considerable detail a spectrum of microorganisms never before detected, including bacteria, protozoa, and rotifers' (Grolier Medicine). During his lifetime Leeuwenhoek published 165 letters describing his microscopic observations, individually or in collections, arranging them in series with Arabic or Roman numerals. These two volumes contain letters I-XLVI (the first letters were numbered 28-146, letters 1-27 were not published separately). These letters were Leeuwenhoek's main means of communication with the Royal Society and, since he wrote no monographs nor taught students, provide the original source material for the discoveries and observations of one of history's greatest microscopists. Dobell 19 and 28; Wellcome III, p. 476; see Grolier Medicine 37; see PMM 166.

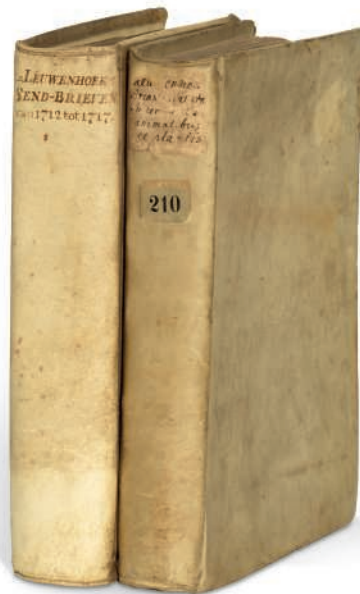
2 volumes, octavo (196 x 152mm). First work with engraved title, both works with 31 plates of which 10 folding. Near-uniform contemporary Dutch stiff vellum, first work with panelled sides stamped in blind with floral corner-pieces and a central arabesque, flat spine lettered in ink (upper side lightly soiled), second work in plain vellum, titling and shelfmark labels on spine.

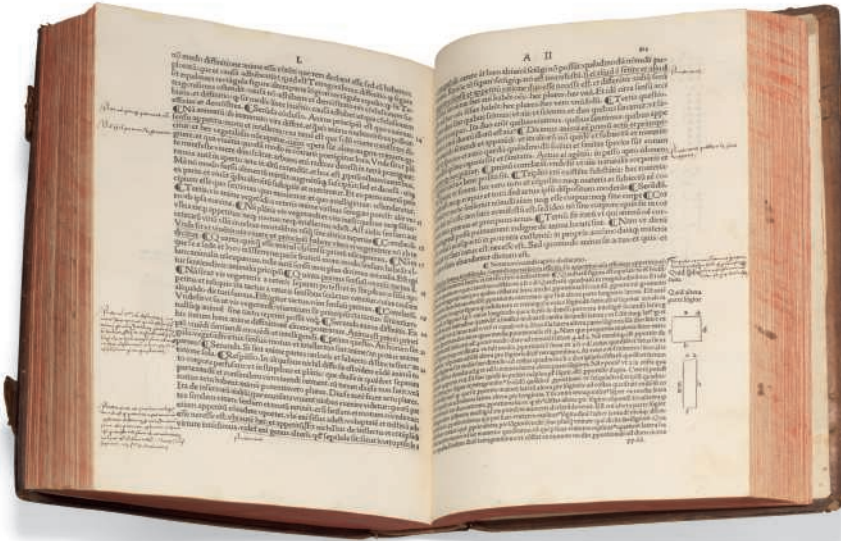
(2)

£2,000-3,000

US\$2,600-3,800

€2,300-3,400





**0300**

LEFÈVRE D'ÉTAPLES, Jacques (c. 1450–1536), and ARISTOTLE. *In hoc opere continentur totius philosophiae naturalis paraphrases. Adjecto ad litteram familiari commentario...* Paris: Wolfgang Hopyl, 1501.

**First edition of the great humanist's exposition of Aristotle's works on the natural world.** Ushering in a century of Aristotelian studies intent on developing the conceptual framework that contributed to creating the context for the new science, Lefèvre pays attention to problematic issues such as place, vacuum, the infinite, and time. Lefèvre's central claim was that Aristotle himself should be the exemplar of method, not any "Aristotelians". He exhorted students to read Aristotle's own works, rather than to make a career out of studying commentaries on them [...] Distinctive emphases do surface. In these paraphrases, Lefèvre is most distinctive when framing natural philosophy within its goals rather than its constituent parts" (R. J.Oosterhoff). USTC 142754 (no copy located in the US); Moreau I.59.69.

Folio (275 x 204mm). Printed shoulder notes and diagrams in the margins, woodcut diagrams to text, guide letters for initials (lower portion and upper margin of the titlepage torn off and repaired, a few quires a little foxed, some worm-holes near the gutter of the last 2 leaves with the loss of only a couple of letters). Contemporary calf, sides panelled in blind with multiple borders incorporating medallions with figures of King, Cardinal and Bishops and a chequered coat of arms surrounded by foliate motifs, and a more abstract design in the central panel, panelled spine filleted and stamped in blind, all edges stained red (joints cracked but holding, ties and catches perished, spine chipped at head, corners and edges worn, some rubbing to the sides). *Provenance:* numerous contemporary academic marginalia in Latin throughout.

£5,000-8,000

US\$6,400-10,000  
€5,700-9,100

**0301**

LEOPOLD, Duke of Austria (13th century). *Compilatio ... de astrorum scientia Decem continentis tractatus.* Venice: [Jacobus Pentius, for] Melchior Sessa and Petrus de Ravanis, 15 July 1520.

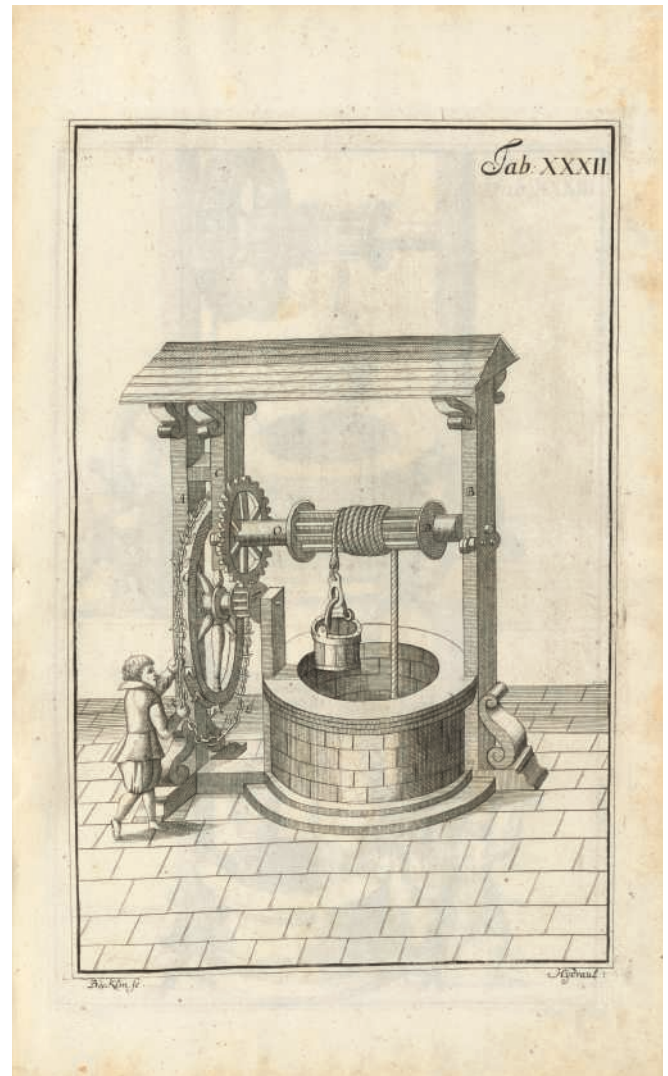
**Second edition of the *Compilatio* by the 13th-century astronomer, Leopold of Austria.** Primarily a work of astrology, the sixth book concerns meteorology both from a theoretical and a practical point of view, and thus includes, for example, folkloric methods of weather prediction. Although virtually nothing is known of the author, the work was influential in the late Middle Ages, being cited by the great astronomer, Pierre d'Ailly, and admired by Regiomontanus, who proposed to edit an edition of the work. This edition retains the dedication to Udalricus de Frundsberg, bishop of Trient, by Erhard Ratdolt, printer of the first edition. Adams L-516; BLSTC *Italian* (assigning it to Pencio) p.375 (718.f.8); Sander 3948; Essling 2081; Houzeau and Lancaster 4783.

Quarto (206 x 150mm). Large woodcut of an astronomer and Sessa's device on title, many woodcuts illustrating signs of the zodiac, gods of antiquity, celestial spheres, and astrological predictions, woodcut initials (lightly washed, slight extension of lower margin of f11). Modern morocco, marbled edges, marbled paper slipcase.

£2,500-3,500

US\$3,200-4,400  
€2,900-4,000





### 0302

LEUPOLD, Jacob (1674-1727). *Theatrum machinarum generale* [bound with:] *Theatrum machinarum hydropneumarum*. Schau-Platz des Grundes mechanischer Wissenschaften. Leipzig: Christoph Zunkel for the author and Johann Friedrich Gleditsch [and others], 1724.

**First edition of the first two parts of a comprehensive illustrated survey of engineering and technology.** 'Leupold was one of the major transmitters of the machine designs and technological images of Francesco di Giorgio Martini (1439-1501), the Siennese painter, sculptor and architect whose writings and drawings provided the chief source of inspiration [...] for several generations of engineers' (Norman). Berlin Catalogue 1786; Norman 1339.

2 volumes in one, folio (373 x 244mm). Half-titles, titles printed in red and black, 122 engraved plates of which 1 folding (occasional faint browning). Contemporary half blind-rule calf over speckled boards (trivial tear at head of spine, very lightly rubbed).

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700

### 0303

LEUPOLD, Jacob (1674-1727). *Theatri machinarum hydraulicum* [vols. 1-2, bound with:] *Theatrum machinarum hydropneumarum* [and:] *Theatrum pontificiale*. Leipzig: Christoph Zunkel for the author and Johann Friedrich Gleditsch [and others], 1724-1726.

**First edition of parts 2, 3, 4 and 7 of Leupold's copiously illustrated technological survey.** It was at the time of publishing the most comprehensive work of its kind, far exceeding its predecessors in scope and scale. Cf. Berlin Catalogue 1786, 1787 and 3553; cf. Norman 1340.

4 volumes in one, folio (367 x 232mm). Half-titles, titles printed in red and black, 218 engraved plates of which 2 folding (some spotting, browning and scattered waterstains, short tear into text in K1 of *pontificiale*). Contemporary blindstamped pigskin over wooden boards, black morocco lettering pieces (slightly worn and stained, a few tiny wormholes, lacking one clasp). *Provenance*: Vienna, Bibliotheca Windhagiana (inscription dated 1738).

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700



**0304**

LINNAEUS, Carl (1707-1778). *Systema Naturae per Regna Tria Naturae, secundum Classes, Ordines, Genera, Species...Editio Decima, Reformata*. Stockholm: Lars Salvius 1758-59.

**Definitive - tenth - edition, 'the starting point for zoological nomenclature'** (Staffleu-Cowan). Linnaeus' system of binomial classification was first published in 1735 as a series of seven folio broadsheets and originally applied to plants only. As he collected new data, Linnaeus revised and updated the *Systema naturae*, eventually applying his system of classification to all of zoology, where it appears here for the first time. Dibner 27n; Staffleu & Cowan TL2 4794; Norman 1359.

2 volumes, octavo (198 x 122mm). (Occasional browning or spotting, light offsetting of turn-ins in vol. 2, small dampstain on title.) Contemporary marbled calf ruled in gilt, gilt spines, red sprinkled edges (a little wear and repair at spine). *Provenance*: early collation note in vol.1. (2)

£4,000-6,000

US\$5,100-7,600  
€4,600-6,800

6305

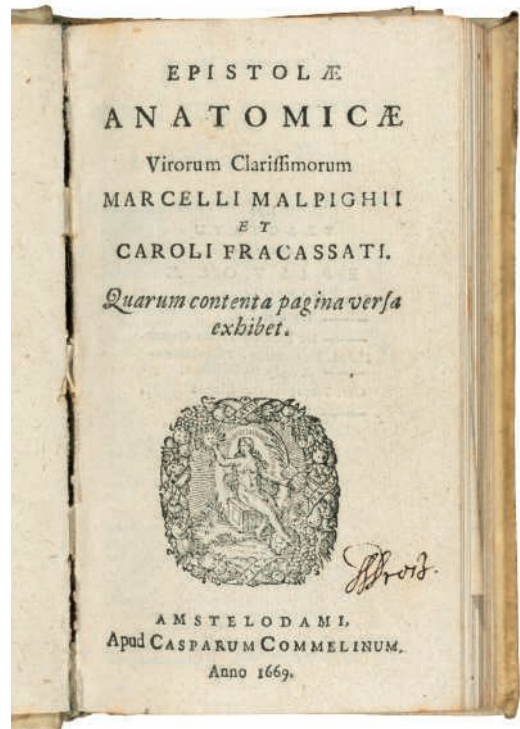
MALPIGHI, Marcello (1628-94) and Carlo FRACASSATI (1630-1672). *Epistolae anatomicae*. Amsterdam: Caspar Commelin, 1669.

First edition thus, uncommon on the market, of an unprepossessing but important publication. First published in 1665 under the title *Tetras anatomicarum epistolarum*; this edition includes *De externo tactus organo*, which had been published separately in 1665. Malpighi's second letter and Fracassati's first are addressed to Giovanni Alfonso Borelli. Fracassati 'Malpighi's close friend, confidant, and colleague at Bologna, was responsible for assembling these letters for publication. The work contains four letters of Malpighi and two of Fracassati on the brain, tongue, adipose tissues, and skin. The five folding plates illustrate Malpighi's microscopic investigations of the brain and tongue. Malpighi's name is celebrated in several eponymous anatomical structures in the kidney, spleen, skin, and lungs. It is in the epistle on the tongue that he described the mucosal layer beneath the epidermis which is now called the Malpighian layer. In "De omento, pinguedine, et adiposis ductibus," Malpighi reported his observation of the red blood corpuscles. Unfortunately he mistook them for globules of fat passing into the blood and it wasn't until 1674 that Leeuwenhoek gave the first accurate description of the erythrocytes' (*Heirs of Hippocrates*). *Heirs of Hippocrates* 570

12mo (126 x 71mm). Printer's woodcut device, 5 folding engraved plates (minor spotting and soiling). Contemporary stiff vellum, yapp edges (a little soiled). *Provenance*: contemporary short ink name on title – two sets of old shelfmarks at front.

£2,000-3,000

US\$2,600-3,800  
€2,300-3,400



6306

[MATHEMATICS]. *Veterum mathematicorum Athenaei, Apollodori, Philonis, Bitonis, Heronis, et aliorum opera, Graece et Latine pleraque nunc primum edita*. Edited by Melchisdec Thvenot (1620?-1692), Philippe de la Hire (1640-1718) and Jean Boivin (1665-1726). Paris: Imprimerie Royale, 1693.

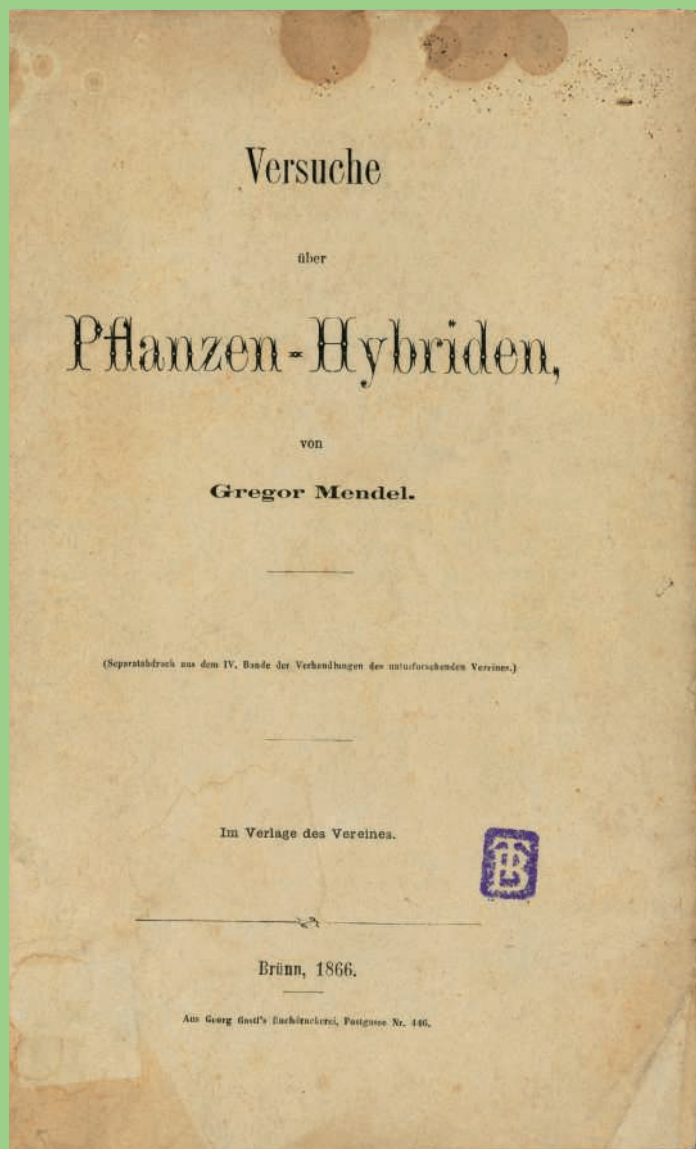
First Greek edition of Hero's *Pneumatica* and *Automata* and first edition of Biton in Greek and Latin, among the content of this collection of early Greek writings in hydrostatics and mechanics: one of a series of publications of the French Academy of Sciences. 'Printed at the royal press in small editions they were intended as gifts of the King and Academy... they are among the most sumptuous books in science' (Dibner). Brunet V:1163; Dibner *Heralds* 84; Norman 2148.

Folio (420 x 283mm). Greek and Roman type. Numerous engravings in text, engraved head- and tail-pieces (one or two very occasional spots). Contemporary blindstamped vellum, sides with filleted borders and floral corner-pieces surrounding a large arabesque centerpiece, panelled spine lettered in ink (short crack to the head of the upper joint, corners a little bumped and rubbed, faint soiling). *Provenance*: Earl of Shaftesbury (his shelfmark and purchase date and price at front).

£2,000-3,000

US\$2,600-3,800  
€2,300-3,400





0307

MENDEL, Johann Gregor (1822-1884). 'Versuche über Pflanzen-Hybriden'. Offprint from: *Verhandlungen des naturforschenden Vereines in Brünn*. Vol. IV (1865). pp. [3]-47. Brno: Georg Gastl for the Naturforschenden Verein, 1866.

**Extremely rare offprint issue of the foundation of the science of genetics, corrected in manuscript by Mendel's amanuensis. 'One of the most important papers in the history of biology, and the foundation of modern genetics' (DSB).**

The son of Moravian peasants, Mendel was an academically gifted child. He was determined not to follow the family tradition of farming, and instead entered the Augustinian monastery at Brünn (now Brno) in 1843. The monastery itself was dedicated to teaching, and was filled with an array of academic monks, one of whom, Fr Aurelius Thaler (1796-1843), established an experimental garden. In 1851 Mendel enrolled at Vienna University, where he was exposed to a wide range of scientific courses including plant physiology. Here, he learned that plants were composed of cells, and was introduced to hybridization by artificial fertilization. Upon his return to the monastery, Mendel used the experimental plot and a new green-house to explore the effects of cross-fertilization in plants. His paper reports the results of ten

years of experimental work on artificial plant hybridization, during which he followed a program designed to test his working hypothesis that hereditary matter is discrete and particulate. Mendel bred and cultivated nearly thirty thousand pea plants, performing careful statistical analyses of the distribution of seven pairs of mutually exclusive seed and plant characteristics – a manageable number that allowed him to observe all possible combinations of traits' (Grolier *Medicine*). The surprising result of Mendel's years of methodical research and systematic statistical analysis was his discovery of the 'Mendelian ratios,' a mathematical expression of the pattern of dominant and recessive hereditary traits, possibly 'the most significant single achievement in the history of genetics' (Garrison-Morton). Related to this discovery was Mendel's recognition of the independence of each set of traits in a hybrid from all other differences in the two parental plants (later known as Mendel's law of independent assortment).

**This is one of only 14 known extant offprints, and one of only 6 known copies with contemporary manuscript corrections.** Mendel's paper was distributed, in journal form, to 134 scientific institutions in various countries, and the offprint of 40 copies circulated to colleagues and correspondents at the author's discretion. A number of these offprints were corrected in manuscript at Mendel's direction by his amanuensis. Weiling has stated these

Im mittleren Verlaufe der Befruchtung verbindet sich jede Pollenform gleich oft mit jeder Keimzellform, daher jede von den 4 Pollenzellen  $AB$  einmal mit einer von den Keimzellarten  $AB$ ,  $Ab$ ,  $aB$ ,  $ab$ . Genau eben so erfolgt die Vereinigung der übrigen Pollenzellen von den Formen  $Ab$ ,  $aB$ ,  $ab$  mit allen anderen Keimzellen. Man erhält demnach:

$$\frac{AB}{AB} + \frac{AB}{Ab} + \frac{AB}{aB} + \frac{AB}{ab} + \frac{Ab}{AB} + \frac{Ab}{Ab} + \frac{Ab}{aB} + \frac{Ab}{ab} + \frac{aB}{AB} + \frac{aB}{Ab} + \frac{aB}{aB} + \frac{aB}{ab} + \frac{ab}{AB} + \frac{ab}{Ab} + \frac{ab}{aB} + \frac{ab}{ab}, \text{ oder}$$

$$AB + ABb + AaB + AaBb + ABb + Ab + AaBb + Aab + AaB + AaBb + aB + aBb + AaBb + Aab + aBb + ab + AB + Ab + aB + ab + 2 ABb + 2 aBb + 2 AaB + 2 Aab + 4 AaBb.$$

In ganz ähnlicher Weise erklärt sich die Entwicklungsreihe der Hybriden, wenn in denselben dreierlei differirende Merkmale

corrections are in Mendel's hand, but we have been unable to verify this by comparison with Mendel's existing manuscript correspondence. Weiling traces 5 corrected copies, three of which are in institutions (Botanisches Institut der Universität, Vienna, Max-Planck-Institut für Biologie, Tübingen, Institut für Systematische Botanik der Universität Graz, and Lilly Library, Indiana) and two in private hands, of which the present lot is one (Weiling 11).

The corrections are as follows: p.3, l.3: 'hier' for 'her'; p.6, l.36: 'beschrieben' for 'geschrieben'; p.9, l.3: 'Je' for 'In'; p.12, l.25: 'völligleiche' for 'völlige'; p.22, l.12: 'wicklungsreihen' for 'wicklungsreihe'; p.31, l.31: '=' for '+'; p.34, l.1: 'darstellten' for 'darstellen'; and p.40, l.16: 'den' for 'dem'. These conform to the corrections found in the Tübingen copy, but without 3 further corrections found on pp. 21, 26 and 46 in the Tübingen copy. Although Weiling states that the Tübingen copy is part of the Boveri bequest, and therefore presumably Nägeli's copy, there is little evidence to support this provenance, the offprint merely being shelved adjacent to the Boveri request. However, the copies in Vienna and Graz are from the collections of Kerner and (possibly) Unger respectively, which suggests corrected copies were sent to important biologists.

Despite this circulation, Mendel's paper was not taken note of and fell into obscurity. In 1900, within a two-month period, there appeared three

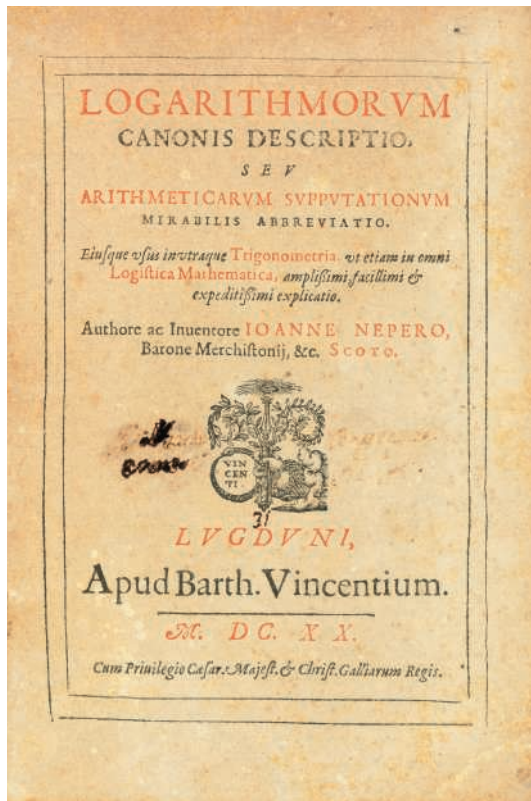
independent reports by Hugo de Vries, Carl Correns, and Erich von Tschermak which reached the same conclusions almost simultaneously, each acknowledging that they had been preceded by a virtually unknown monk several decades before. Subsequent work in the 1930s established that Mendel's laws provided the necessary solution – unknown to Darwin – to understand the mechanism by which evolution by natural selection could work.

Dibner *Heralds* 35; Garrison-Morton 222; Grolier/Horblit 73a; Grolier *Medicine* 74; PMM 356a; Stafleu 5818; Norman 1489; F. Weiling 'Fünf weitere sonderdrucke der "Versuche über Pflanzen-hybriden" J.G. Mendels aufgetaucht' in *Folia Mendeliana*, 19:257-263, 1974 (the present lot no. 11).

Octavo (228 x 147mm). 47pp. (tiny marginal wormhole to first 3 leaves). Original grey-paper backstrip (3 small stains to title-page extending through to second leaf, lower corner to upper wrapper lightly creased); dark-brown leather slipcase. *Provenance*: 'TB' (small purple collector's stamp on title).

£200,000-300,000

US\$260,000-380,000  
€230,000-340,000



0308

NAPIER, John (1550-1617). *Logarithmorum canonis descriptio*. Lyon: B. Vincent, 1620.

**First Lyon edition, second issue, of Napier's discovery of logarithms**, one of the greatest milestones in the history of Western science. It enormously advanced the art of calculation and was immediately and successfully applied by Kepler to astronomy. Cf. PMM 116.

3 parts in one volume, quarto (204 x 139mm). Each part with separate title, first title printed in red and black, woodcut diagrams (browning, small waterstain on L2 in second part). Contemporary vellum, titled in manuscript on spine (small stains, some loss of vellum at spine). *Provenance*: label removed from spine, evidence of removed bookplate on pastedown, erased inscription on title and two other places.

£1,800-2,500

US\$2,300-3,200  
€2,100-2,800

0309

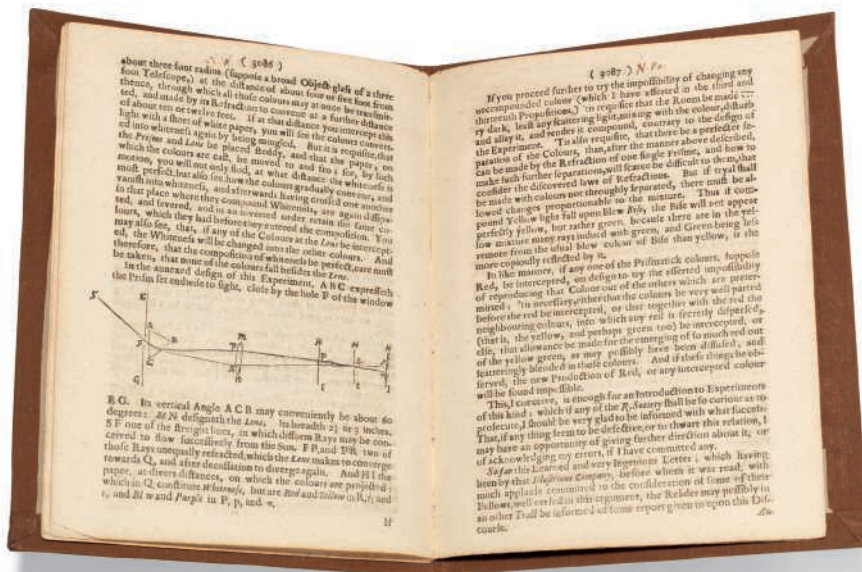
NEWTON, Sir Isaac (1642-1727). 'A Letter of Mr. Isaac Newton... Containing his New Theory about Light and Colors.' Extracted from: *Philosophical Transactions*, Volume 6, number 80, pp.3075-3087. [London: John Martyn, 19 February 1672].

**First edition of Newton's first scientific publication, one of his most important, leading to his great work on *Opticks* (1704)**. In his initial experiment, Newton describes how he 'darkened my chamber and made a small hole in my window-shuts, to let in a convenient quantity of the Sun's light, I placed my Prisme at his entrance, that it might be thereby refracted to the opposite wall. It was at first a very pleasing divertisement, to view the vivid and intense colours produced thereby; but after a while applying myself to consider them more circumspectly, I became surprised to see them in an *oblong* form; which, according to the received laws of Refraction, I expected should have been *circular*' (Newton, pp. 3075-3076). 'A second, inverted prism restored the refracted light into a white ray. He concluded that sunlight (or white light) was composed of a mixture of light of many colors, each having its own degree of refrangibility and that none could be converted into another' (Dibner). Cf. Babson 165; cf. Dibner *Heralds* 144.

Quarto (215 x 162mm). Disbound, contained between modern cloth boards. *Provenance*: early ink annotation 'N. 80' beside each recto headline.

£6,000-9,000

US\$7,700-11,000  
€6,900-10,000





PHILOSOPHIÆ  
NATURALIS  
PRINCIPIA  
MATHEMATICA.

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Autore *J. S. NEWTON*, *Trin. Coll. Cantab. Soc. Matheseos*  
*Professore Lucasiano, & Societatis Regalis Sodali.*

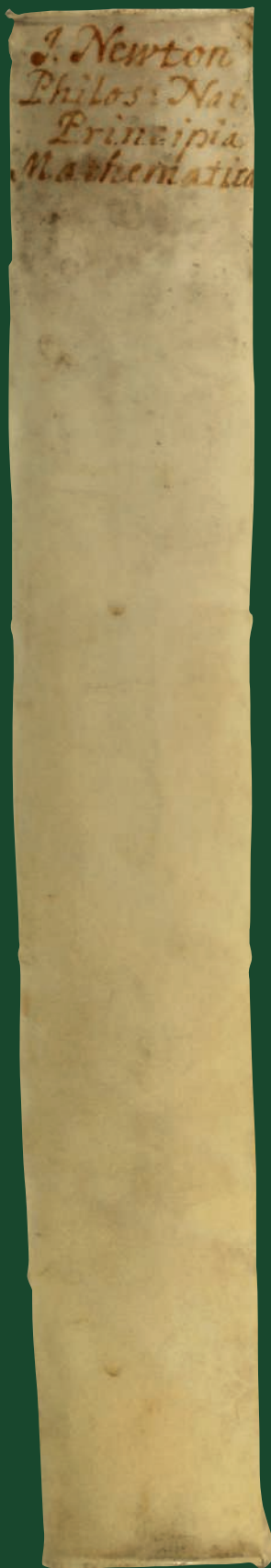
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IMPRIMATUR.  
S. PEPYS, *Reg. Soc. PRÆSES.*  
*Julii 5. 1686.*

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LONDINI,

*Jussu Societatis Regiæ ac Typis Josephi Streater. Prostat apud*  
*plures Bibliopolas. Anno MDCLXXXVII.*



0310

NEWTON, Sir Isaac (1642-1727). *Philosophiae naturalis principia mathematica*. Edited by Edmond Halley (1656-1743). London: Joseph Streater for the Royal Society [at the expense of Edmond Halley], to be sold by various booksellers, 1687.

**First edition of 'the greatest work in the history of science' (PMM); 'perhaps the greatest intellectual stride that it has ever been granted to any man to make' (Einstein).** The *Principia* elucidates the universal physical laws of gravitation and motion which lie behind phenomena described by Newton's predecessors Copernicus, Galileo and Kepler. Newton establishes the mathematical basis for the motion of bodies in unresisting space (the law of inertia); the motion of fluids and the effect of friction on bodies moving through fluids; and, most importantly, sets forth the law of universal gravitation and its unifying role in the cosmos. For the first time a single mathematical law could explain the motion of objects on earth as well as the phenomena of the heavens... It was this grand conception that produced a general revolution in human thought, equaled perhaps only by that following Darwin's *Origin of Species'* (PMM). Newton's scientific views were not seriously challenged until Einstein's theory of relativity and Planck's quantum theory, but his principles and methods remain essential for the solution of many scientific questions.

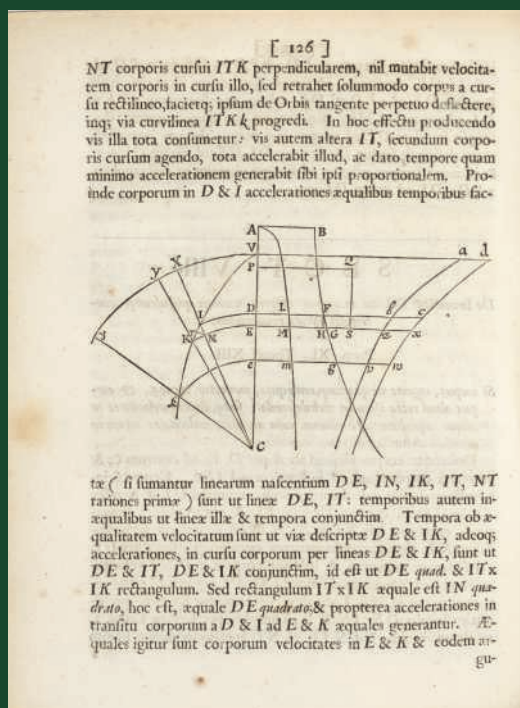
Halley encouraged Newton to write the *Principia* (Newton acknowledges his contribution in the preface) and saw the work through the press, even bearing the cost of printing, since the Royal Society's funds had been depleted. The printing history of the *Principia* is well documented, and two issues are distinguished, based on the two states of the title-page: one with a 2-line imprint, as here, and one with a 3-line imprint naming the bookseller Samuel Smith, each reflecting domestic versus foreign distribution. The Braune copy belongs to the issue for distribution in Britain (two-line imprint), traditionally designated the first; Halley and Newton sold it through a number of unnamed booksellers. The other, smaller, issue was largely turned over to Samuel Smith for distribution on the continent and required a cancel-title (three-line imprint). The edition was divided between two compositors working concurrently, one setting the first two books, the other setting the third. W. Todd has identified a number of stop-press corrections, but they cannot be related to either issue. **A fine, fresh copy.**

Babson 10; Dibner 11; Grolier/Horblit 78 ('the most influential scientific publication of the seventeenth century'); PMM 161; A.N.L. Munby, 'The two title-pages of Newton's Principia' in *Notes and Records of the Royal Society* 10 (1952); W. Todd's bibliography in Koyré & Cohen's ed. of Newton's *Principia* II, 851-3; Norman 1586 (3-line imprint title); PMM 161; Wallis 6; Wing N-1048.

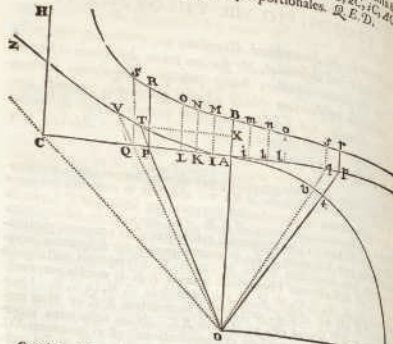
Quarto (238 x 183mm). Folding engraving of cometary orbit tipped to p.296, numerous woodcut diagrams. Title in first state, uncancelled; P4 cancel correcting orientation of the diagram on verso, errata inserted before final blank Ooo4 (occasional light stain or spotting). Contemporary vellum, endleaves watermarked with tower and initials WK similar to Piccard on-line 101453 [Schweinfurt, 1688], title written at spine head, blue edges. *Provenance:* stamp and inscription removed from title.

£250,000-350,000

US\$320,000-440,000  
€290,000-400,000



res absolute AC, IC, KC, LC, &c. erunt in progressionem Geometricam. Q. E. D. Et simili argumento, in ascensu corporum, descendendo, ad contrariam partem puncti A, aequales areas AB, BC, CD, DE, &c. constabit quod vires absolute AC, IC, KC, LC, &c. sunt continue proportionales. Ideoque si spatia omnia in ascensu & descensu capiuntur aequalia, omnes vires absolute IC, KC, LC, &c. erunt continue proportionales. Q. E. D.



Corol. 1. Hinc si spatium descriptum exponatur per arcam Hyperbolicam ABNK, exponi possunt vis gravitatis, velocitas temporis & resistentia Medii per lineas AC, AP & AK respective.  
Corol. 2. Et velocitatis maximae, quam corpus in infinitum descendendo potest unquam acquirere, exponens est linea AC.  
Corol. 3. Igitur si in data aliqua velocitate cognoscatur resistentia Medii, invenietur velocitas maxima, sumendo ipsam ad velocitatem

visorem illam datam in subduplicata ratione, quam habet vis Gravitatis ad Medii resistentiam illam cognitam.

PROPOSITIO IX. THEOREMA VII.

Propositio jam demonstrata, dico quod si Tangentes angularum sectoris Circularis & sectoris Hyperbolici sumantur velocitatibus proportionalibus, existente radio justae magnitudinis: erit tempus omne ascensus futuri ut sector Hyperbolae, & tempus omne descensus praeteriti ut sector Hyperbolae.

Rectae AC, qua vis gravitatis exponitur, perpendicularis & equalis ducatur AD. Centro D semidiametro AD describatur cum Circulo quadrans ATE, tum Hyperbola rectangularis AVZ axem habens AX, verticem principalem A & Asymptotum DC. Jungatur DP, & erit sector Circularis ATD ut tempus ascensus omnis futuri, & sector Hyperbolicus ATD ut tempus descensus omnis praeteriti. Si modo sectorum Tangentes Ap, AP sint ut velocitates.

Cor. 1. Agatur enim Dvq abscindens sectoris ADt & trianguli ADp momenta, seu particulae illae, ob angulum commune tDv & pDq. Cum particulae laterum, erit particula tDv nempe Dv, sunt in duplicata ratione laterum, erit particula tDv ut qDp. Sed pD quad. est AD quad + Ap quad. id est, AD quad + AD x Ak seu AD x Ck, & qDp est AD x p q. Ergo sectoris particula tDv est ut p q, id est, ut velocitatis decrementum quam minimum pq directe & vis illa Ck quae velocitatem diminuit inverle, atque adeo ut particula temporis momento respondens. Et componendo fit summa particularum temporum tDv in sectoris ADt, ut summa particularum p q responsum tDv usque dum velocitas illa in nihilum diminuta evadentur, hoc est, sector totus ADt est ut ascensus totius futuri temporis. Q. E. D.

Cur.

0311

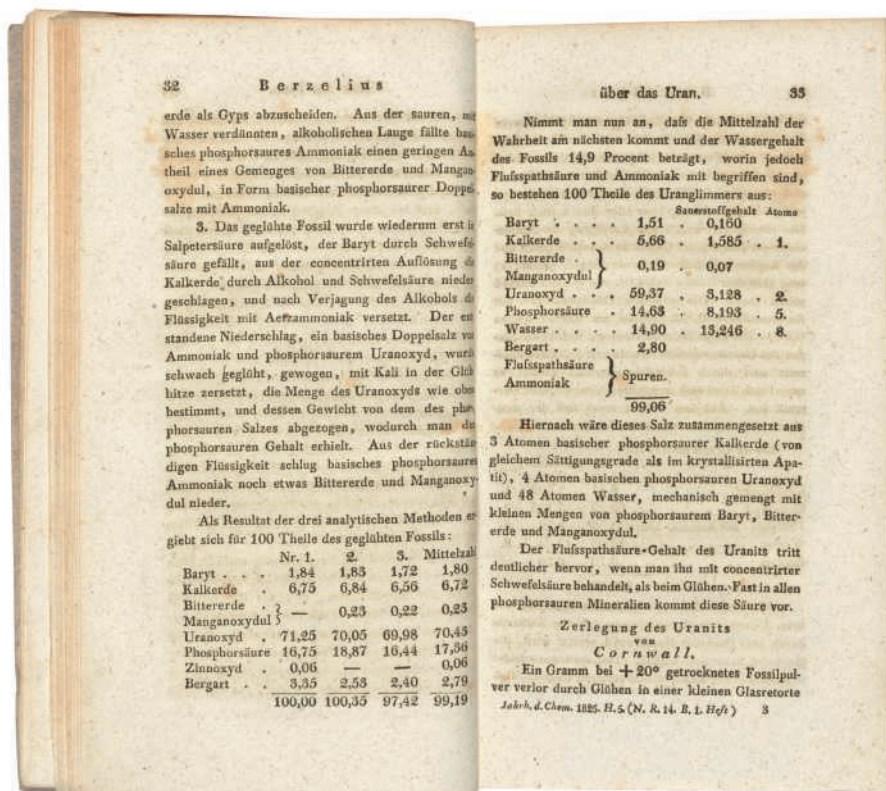
NEWTON, Sir Isaac (1642-1727). *Philosophiae naturalis principia mathematica. Editio secunda*, edited by Roger Cotes (1682-1716). Cambridge: [printed by Cornelius Crownfield at the University Press], 1713.

Second edition of Newton's great mathematical work, substantially revised and enlarged, and including the first appearance of Newton's General Scholium, in which he 'sums up the purpose and accomplishment of the work' (Babson). It was edited by Roger Cotes, first Plumian professor of astronomy and experimental philosophy at Cambridge, and the two men examined afresh 'virtually all aspects of Newton's work' (ODNB). Among other important additions are Cotes's own preface attacking Cartesian philosophy and greatly expanded chapters on lunar theory and the theory of comets. Babson 12; Wallis II, 8; ESTC T93210.

Quarto (233 x 189mm). Title with engraved printer's device, folding engraved plate of cometary orbit, numerous woodcut diagrams in the text (a few small spots in quire C, small marginal repairs in title and b1). Modern vellum, red sprinkled edges.

£8,000-12,000

US\$11,000-15,000  
€9,200-14,000



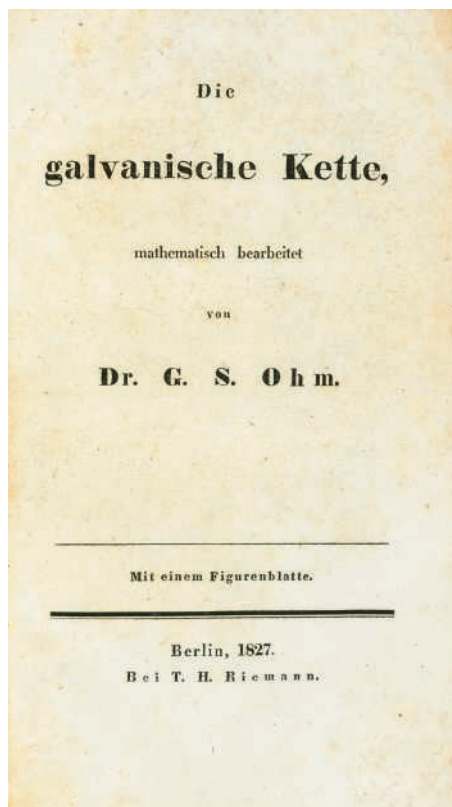
**0312**

OHM, Georg Simon (1789-1854). 'Vorläufige Anzeige des Gesetzes, nach welchem Metalle die Contact-Electricität leiten'. In: *Jahrbuch der Chemie und Physik*, Volume 14, pp.110-118. Halle: 1825.

**First edition of Ohm's first scientific paper and an important step towards the discovery of Ohm's law.** This article relates the first in a series of experiments on the galvanic circuit that lead towards his great work *Die galvanische Kette* (1827). 'In it he sought a functional relationship between the decrease in the electromagnetic force exerted by a current-carrying wire and the length of the wire' (DSB).

Octavo (213 x 124mm). (A few faint spots.) Contemporary marbled boards, spine label titled in manuscript (faint vertical split along spine).

£1,000-1,500 US\$1,300-1,900  
€1,200-1,700



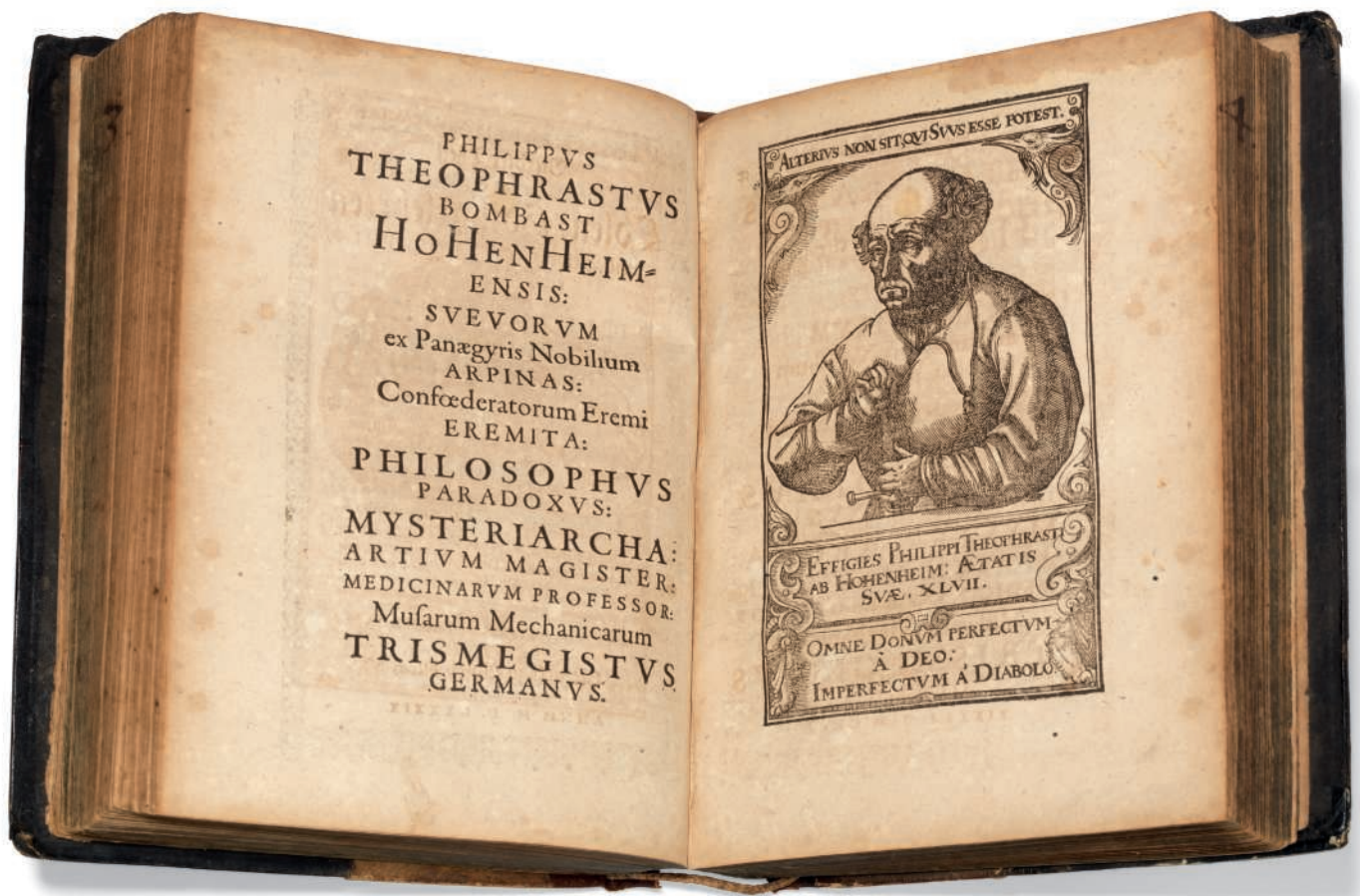
**0313**

OHM, Georg Simon (1789-1854). *Die galvanische Kette, mathematisch bearbeitet*. Berlin: T. H. Riemann, 1827.

**First edition of a pioneering work in the development of electrical science, containing the first fully developed presentation of Ohm's theory of electricity.** *Die galvanische Kette* establishes the basis for Ohm's Law, the 'fundamental law of electrical circuits' (Dibner), which states that the current passing through a conductor is proportional to the voltage over the resistance (electromotive force equals current times resistance). Dibner *Heralds* 63; Grolier/Horblit 81; Norman 1607; PMM 289.

Octavo (204 x 121mm). Folding engraved plate, advertisement leaf (faint scattered spots). Contemporary half sheep over marbled boards, green lettering piece gilt (small chip at head of spine, extremities lightly rubbed); housed in a modern green cloth box. *Provenance*: 19th-century owner inscription erased on endpaper.

£5,000-8,000 US\$6,400-10,000  
€5,700-9,100



**0314**

PARACELSUS, Theophrastus (Bombast von Hohenheim, Philippus Aureolus, called: 1493-1541). *Erster [- Achter] Theil der Bücher und Schrifften, des edlen, hochgelehrten und bewehrten Philosophi unnd Medici*. Edited by Johannes Huser (c.1545-1601). Basel: Conrad Waldkirch, 1589-1590.

**First collected edition of Paracelsus's medical and natural-philosophical works, edited by Huser from the author's original manuscripts.** Few of his works were published in his lifetime, due to his determined condemnation of traditional science, which brought him into frequent conflict with the medical profession and university authorities. 'There is no doubt of Paracelsus' essential influence, both direct and indirect, on medical reform... what is in the end most remarkable in Paracelsus' work is that he achieved real advances in chemistry and medicine through the revival and original development of lore that had been kept alive only at a very low level... it is difficult to overrate the effect of Paracelsus' achievement on the development of medicine and chemistry' (DSB). The present set includes the first 8 volumes of this monumental edition, which extended to 10 volumes altogether.

8 volumes in 4, quarto (241 x 165mm). Title printed in red and black, woodcut portrait of the author repeated 8 times (some browning and spotting, occasional faint waterstains, lacking portrait of the author in vol.1, 8 leaves restored affecting printed area with some portions of text supplied in manuscript, a few other marginal repairs). Contemporary quarter blindstamped pigskin over boards, vols. numbered in early MS on fore-edge later printed spine labels (3 covers detached with 2 other joints splitting, vol.2 lacking backstrip, old restorations to spine, upper cover of vol.4 restored with cloth, spines darkened, somewhat rubbed). *Provenance*: copiously underlined and annotated in an early hand - 'Sigismund Thiess' (inscription on title dated May 1609, gifting the book to: - 'Jeremiah Beckwaldt'? - early MS index on pastedown of vol.3. (4)

£5,000-8,000

US\$6,400-10,000  
€5,700-9,100



**0315**

PASTEUR, Louis (1822-1895). *Etudes sur la maladie des vers soie, moyen pratique assuré de la combattre et d'en prévenir le retour*. Paris: Gauthier-Villars, 1870.

**First edition, in fine condition, uncut and in original wrappers.** In 1865 Pasteur was asked to consider the disease of silkworms that had plagued France for almost 20 years, and which had cut silk production dramatically. Pasteur discovered that two diseases, *pbrine* and *flacherie*, were responsible, and that both were hereditary and contagious. He was able to introduce practical preventative measures, with considerable, if not total, success. Cushing P140; Garrison-Morton 2481; *Heirs of Hippocrates* 1897; Osler 1549; Norman 1657.

2 volumes, octavo (236 x 155mm). Photogravure frontispiece and 36 plates (21 engravings, of which 12 hand-colored, and 15 photographic plates), with some tissue guards, and 13 illustrations in text (Vol.I); heliogravure plate (Vol.II) (faint spotting on half-title). Original blue-grey printed wrappers (short split in each spine).

(2)

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700



**0316**

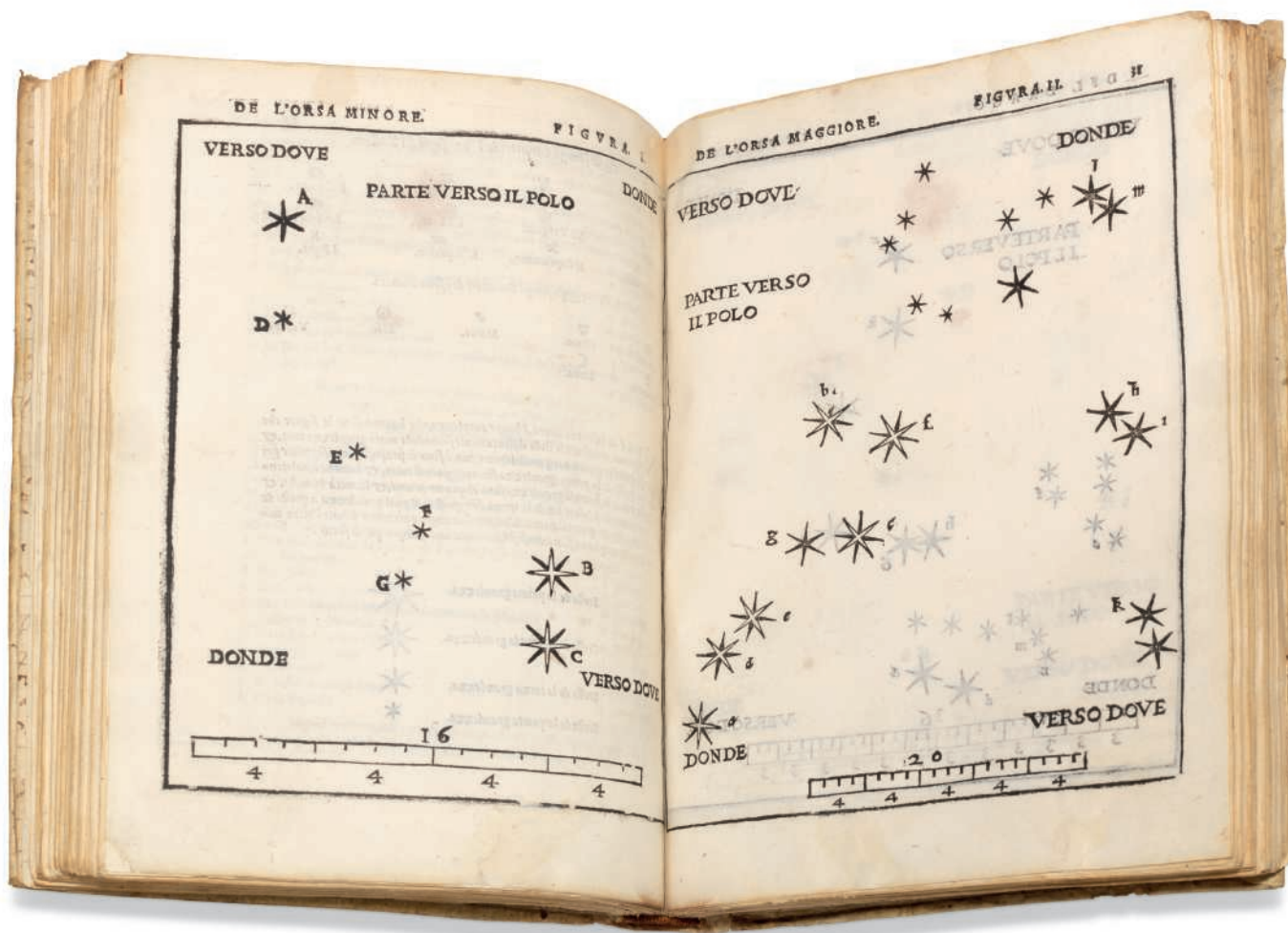
[PICCOLOMINI, Alessandro (1508-1578)]. *De la sfera del mondo. Libri quattro ... De le stelle fisse. Libro uno*. Venice: Giovanni Antonio and Domenico Volpini for Andrea Arrivabene, 1540.

**First edition of the first star atlas published in the West.** *De la sfera del mondo* is a traditional Ptolemaic-Aristotelian geocentric cosmography, but its appendix, *De le stelle fisse*, 'represents the first printed star atlas, containing maps of the stars as opposed to simple pictures of constellations, and introducing the practice of identifying stars by letter, a method later adopted and expanded by Bayer' (Norman). Houzeau and Lancaster 2491; Riccardi I(ii) 269.

Quarto (209 x 150mm). Woodcut device on titles, 47 woodcut star maps, numerous woodcut diagrams, a composite copy joining the 2 parts (occasional faint marginal waterstains, a few tiny marginal wormholes and associated repairs). Modern vellum, spine lettered in gilt. *Provenance*: early inscription on second title.

£700-1,000

US\$890-1,300  
€800-1,100



0317

PICCOLOMINI, Alessandro (1508-1578). *Della sfera del mondo. - delle stelle fisse libro uno*. Venice: Nicolò de Bascarini, 1552.

**Third edition** of Piccolomini's *De la sfera del mondo*, which was originally published in 1540. The first part is a traditional Ptolemaic-Aristotelian geocentric cosmography, but the appendix, entitled *De le stelle fisse*, contains the first star atlas to be published. It also introduces the practice of identification of stars by letter, which would later be adopted and expanded by Bayer. Adams P-1108; Houzeau and Lancaster 2491; Riccardi I(ii) 269.

2 parts in one, quarto (210 x 151mm). Woodcut printer's device on both titles, 47 full-page woodcut star maps (numbered I-XLVIII, no number XXIV), numerous diagrams, historiated initials (occasional wormhole/track mostly marginal, occasional marginal repairs, light stain or spots). 17/18th-century flexible vellum (spine repaired). *Provenance*: Giovanni Andrea Fasano, priest at Sant' Angelo dei Lombardi, convent of Santa Maria delle Grazie (17th-century title inscription) and another priest of the same convent (inscription on title verso, presumably his extensive notes on saying mass on endpapers) - some contemporary and later annotations.

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700

*Zur Theorie des Gesetzes  
der Energieverteilung im Normalspectrum;  
von M. Planck.*

(Vorgetragen in der Sitzung vom 14. December 1900.)

(Vgl. oben S. 235.)

M. H.! Als ich vor mehreren Wochen die Ehre hatte, Ihre Aufmerksamkeit auf eine neue Formel zu lenken, welche mir geeignet schien, das Gesetz der Verteilung der strahlenden Energie auf alle Gebiete des Normalspectrums auszudrücken<sup>1)</sup>, gründete sich meine Ansicht von der Brauchbarkeit der Formel, wie ich schon damals ausführte, nicht allein auf die anscheinend gute Uebereinstimmung der wenigen Zahlen, die ich Ihnen damals mitteilen konnte, mit den bisherigen Messungsergebnissen<sup>2)</sup>, sondern hauptsächlich auf den einfachen Bau der Formel und insbesondere darauf, dass dieselbe für die Abhängigkeit der Entropie eines bestrahlten monochromatisch schwingenden Resonators von seiner Schwingungsenergie einen sehr einfachen logarithmischen Ausdruck ergibt, welcher die Möglichkeit einer allgemeinen Deutung jedenfalls eher zu versprechen schien, als jede andere bisher in Vorschlag gebrachte Formel, abgesehen von der WIEN'schen, die aber durch die Thatsachen nicht bestätigt wird.

Entropie bedingt Unordnung, und diese Unordnung glaubte ich erblicken zu müssen in der Unregelmässigkeit, mit der auch im vollkommen stationären Strahlungsfelde die Schwingungen des Resonators ihre Amplitude und ihre Phase wechseln, sofern man Zeitepochen betrachtet, die gross sind gegen die Zeit einer Schwingung, aber klein gegen die Zeit einer Messung. Die constante Energie des stationär schwingenden Resonators

1) M. PLANCK, Verhandl. der Deutschen Physikal. Gesellsch. 2. p. 202. 1900.

2) Inzwischen haben die Herren H. RUBENS und F. KURBAUM (Sitzungsber. d. k. Akad. d. Wissensch. zu Berlin vom 25. October 1900, p. 929) für sehr lange Wellen eine directe Bestätigung gegeben.

### 0318

PLANCK, Max (1858-1947). 'Zur Theorie des Gesetzes der Energieverteilung im Normalspectrum.' In: *Verhandlungen der Deutschen Physikalischen Gesellschaft* 2, no.17, (1900), pp.237-245. Leipzig: Johann Ambrosius Barth, 1900.

**The first appearance of Planck's quantum theory.** 'In this important paper he stated that energy flowed not in continuous, indefinitely divisible currents, but in pulses or bursts of action [or *quanta*]' (Dibner). Planck determined a unit of energy in a system showing a natural frequency in definite quanta and proposed a constant of angular momentum, the value of which is known as "Planck's constant." This unit of energy enabled the explanation of wave-length, specific heat of solids, photo-chemical effects of light, the

orbits of electrons in the atom, the wave lengths of the lines of the spectrum, or Röntgen rays, the velocity of rotating gas molecules, and the distances between the particles of a crystal. 'It contradicted the mechanics of Newton and the electromagnetics of Faraday and Maxwell. Moreover it challenged the notion of the continuity of nature' (PMM). The volume also includes two other articles by Planck. Dibner *Heralds* 166; Grolier/Horblit 26a; Norman 1713; PMM 391a.

Octavo (224 x 145mm). Contemporary black half cloth over marbled boards.

£7,000-10,000

US\$8,900-13,000

€8,000-11,000





0319

PLINIUS Secundus, Gaius (23-79). *Historia naturalis*. Edited by Johannes Baptista Palmarius. Venice: Bernardinus Benaluis, '1497' [not before 13 February 1498].

The *Historia naturalis* is a great encyclopedia containing all knowledge of the ancient world. It covers geography, cosmology, medicine, zoology, botany, history, philology, mineralogy and the arts and literature. It is also an important source for the study of ancient art, as it discusses the development of sculpture and painting and details techniques of metalworking and silversmithing. The *Historia naturalis* remained a standard reference work into the Renaissance and formed the basis for medieval encyclopedias such as the *Catholicon* by Balbus and the *Etymologiae* by Isidore of Seville. This edition incorporates readings from the Castigationes Plinianae of Hermolaus Barbarus. HC \*13101; BMC V, 377; BSB-Ink P-609; CIBN P-468; IGI 7891; Klebs 786.14; Goff P-799.

L IBER  
C II PLINII SECVNDI NATVRALIS HISTORIAE LIBER SECVNDVS. Cap. i.



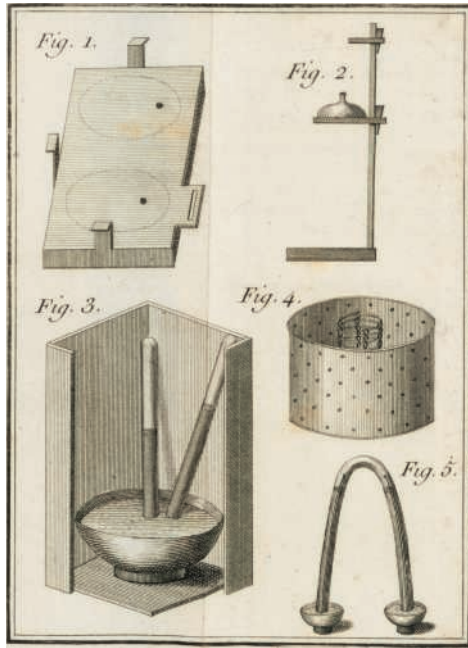
AVNDVMETHOC QVOD NOMEALIO CAELVM  
appellat libuit cuius exordium reguntur...

...caelum hic intelligitur praeferunt operi...  
...omnium in seculum...  
...quod non possit figurari...  
...de motu Finis...  
...An ergo formam constantem & inextinguibilem...  
...Quidem & consensus gentium...  
...Ex deae...  
...Ex actibus...  
...M. Varro...  
...Ex actibus...  
...M. Varro...  
...Ex actibus...  
...M. Varro...



Royal folio (350 x 235mm). 268 leaves. Greek and Roman types. First initial decorated with floral motives in orange, green, blue and pink, 2- to 10-line initial spaces with guide-letter and initials alternating in red or blue, red or blue paragraph marks, upper part of a coloured coat of arms within natural and architectural surroundings on the lower margin of c1r (occasional leaves affected by a few small holes, filled in, one or two instances of ink corrosion touching a few letters, minute stain on the decorated initial, the coat of arms cropped). 20th-century red morocco gilt by Brugalla (signed and dated 1947), vellum doublure (light rubbing to the edges). *Provenance*: upper part only of a contemporary coat of arms incorporating three bull's heads on blue - three early inscriptions on title, obscured in ink at an early stage, and several cropped early marginalia.

£8,000-12,000  
US\$11,000-15,000  
€9,200-14,000



0320

PRIESTLEY, Joseph (1733-1804). *Expériences et observations sur différentes branches de la physique*. Paris: Nyon, 1782-1783.

**First edition in French of an important account of Priestley's experiments into the nature of air.** In 1779, the first volume of Priestley's *Experiments and observations relating to various branches of natural philosophy* was published as a continuation of his *Experiments and observations on different kinds of air* (1774-1777). A second volume was published in 1781, before the final volume was issued in 1786, after the publication of the present lot. Cf. Norman 1750.

3 volumes, 12mo (163 x 95mm). Half-titles in vols.1 and 2 only, as issued, 2 folding engraved plates (one plate lightly stained). Contemporary mottled calf, red morocco lettering pieces, spine gilt (very lightly rubbed, minor split to upper joint of vol.3). (3)

£2,000-3,000

US\$2,600-3,800  
€2,300-3,400

0321

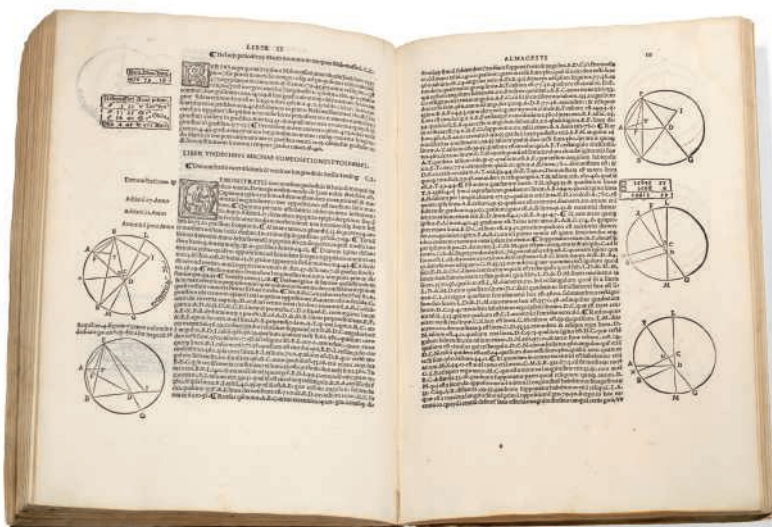
PTOLEMAEUS, Claudius (ca.100-ca.170). *Almagestum seu magnae constructionis mathematicae opus*. Translated from Greek into Latin by Georgius Trapezuntius, edited by Luca Garurico. Venice: Luc'antonio Giunta, 1528.

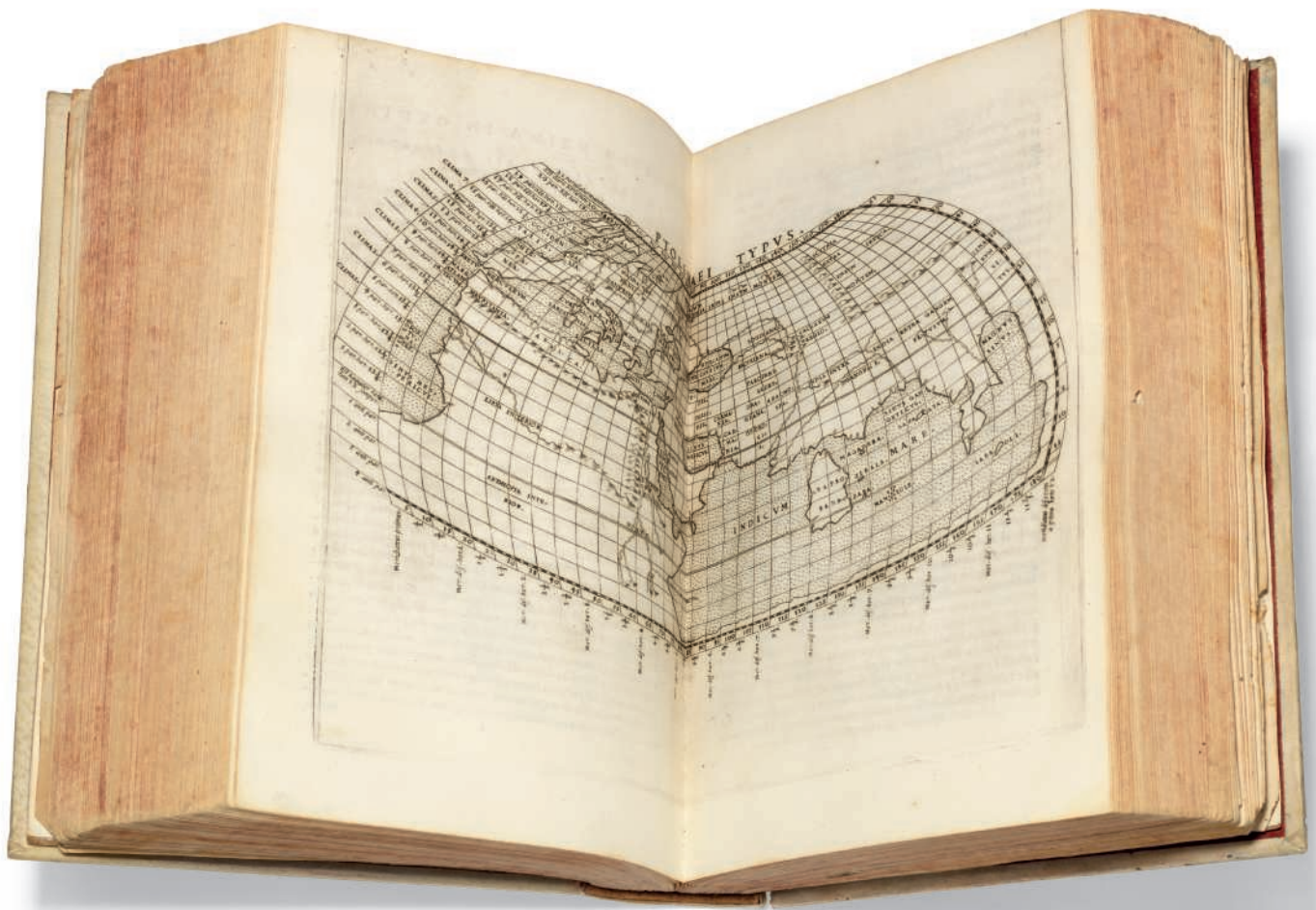
**The first published Latin translation** made from the original Greek text of Ptolemy's most important astronomical and mathematical work. 'Until the innovative work of Tycho Brahe and Kepler in the late sixteenth and early seventeenth centuries, that is, for nearly fifteen hundred years, the *Almagest* was the basis of all sophisticated astronomy, a longevity exceeded only by Euclid's *Elements*' (Swerdlow). Instruments mentioned or described include the equatorial armillary, the plinth, the meridional armillary, the triquetrum and the armillary astrolabon. The *Almagest* had been translated into Arabic and was known to the later Middle Ages in a Latin translation from the Arabic by Gerard of Cremona; that version was first published in Venice in 1515. Adams P-2214; Norman 1760; See Stillwell 97; Swerdlow, *Rome Reborn*, Washington 1993, p. 144; Wellcome 5281.

Folio (320 x 220mm). Title printed in red and black, woodcut diagrams throughout (faint marginal dampstaining and occasional light spotting). Contemporary vellum, spine titled in manuscript (head of upper joint cracked, a little wear along edges, some soiling). *Provenance*: faded inscription on title.

£6,000-9,000

US\$7,700-11,000  
€6,900-10,000





**0322**

PTOLEMAEUS, Claudius (2nd century). *Geographia*. Venice: Vincenzo Valgrisi, 1562.

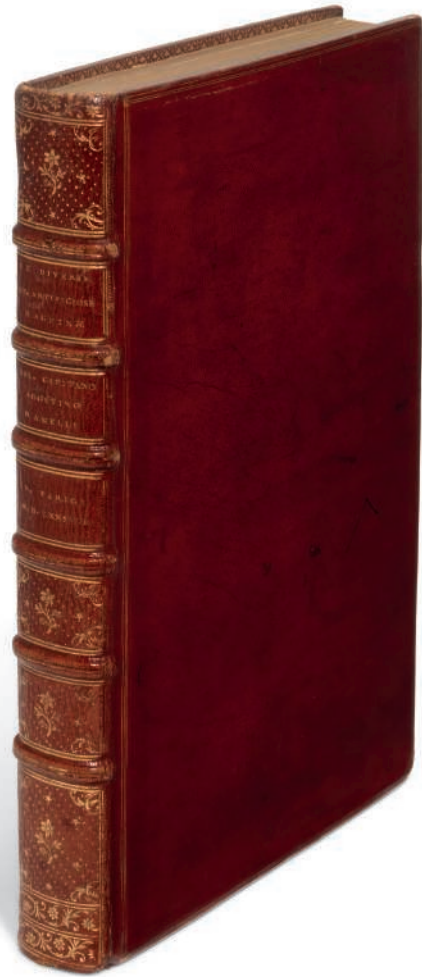
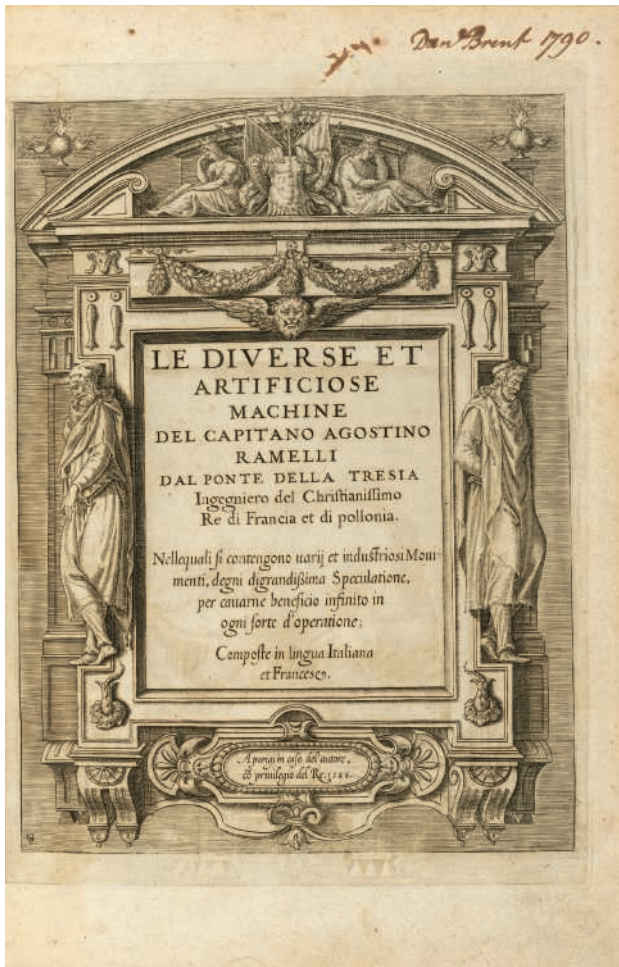
**First edition** of Giuseppe Moletto's Latin re-translation of Ptolemy, based on that of Bilibald Pirckheimer of 1525. The maps are largely the same plates as appeared the previous year, with a few minor details changed. Six maps relate to the Americas, in addition to the two modern world maps, and 19 maps relate to Asia. Other maps include South Africa, the Arctic, after the famous Zeno map first published in 1558, and Scandinavia, after Jakob Ziegler, 1532. Nordenskiöld Collection 2, 217; Phillips *Atlases* 372; Sabin 66489.

3 parts in one volume, quarto (230 x 161mm). 64 double-page engraved maps after Giacomo Gastaldi and others, woodcut printer's device on title-page, numerous woodcut illustrations (small, light dampstain in some lower margins, short wormhole/track just extending into plate edge in maps 11-32). 20th-century vellum (short split at lower joint). *Provenance*: 'valeror[um]' on title - a few marginal annotations.

£1,000-1,500

US\$1,300-1,900

€1,200-1,700



0323

RAMELLI, Agostino (c.1531-after 20 August 1608). *Le diverse et artificiose machine ... nelle quali si contengono uarij et artificiosi mouimenti, degni di grandissima speculatione, per cauarne beneficio in ogni sorte d'operatione. Composte in lingua italiana et francese.* Paris: by the author, 1588.

**First edition of one of the greatest illustrated books of the 16th century and a landmark in book design.** 'Ramelli's book on machinery, one of the most elegantly produced of all technological treatises, emphasized and explored the unlimited possibilities of machines [...] The plates in Ramelli's treatise are artistically as well as technologically superb, the bilingual text beautifully printed, and both plates and text surrounded by handsome borders of typographic ornaments. The reasons for this sumptuousness were twofold: first Ramelli had dedicated the book to his patron Henri III; and second, he had previously had several designs stolen from him by a trusted associate (probably Ambroise Bachot, later engineer to Henri IV), who published them in corrupt and mutilated form and claimed them as his own. As a result of this experience Ramelli planned his treatise as a particularly lavish work that would be difficult to counterfeit, and produced and published it from his own house where he could maintain absolute control over the project' (Norman). The work is a very fine example of the exquisite craftsmanship of late 16th-century French printers and artists. Ramelli's work

had a great influence on later mechanical engineering. Mortimer *French* 452; Norman 1777; Dibner *Heralds* 173.

Folio (325 x 214mm). Roman (French) and italic (Italian) types. Engraved title within architectural frame by Leonard Gaultier, each leaf of text printed within a border of typographical fleurons, engraved portrait of Ramelli by Gaultier on title-page verso, 194 engravings (174 full-page, 20 full-sheet) numbered I-CXCV (CXLVIII and CXLIX combined on a single engraving), three signed with the cipher 'JG' (CL-CLII) (A5 faintly waterstained in margin, R1 restored in margin at bottom corner, occasional browning and light spotting, browning heavier in margins of quires T and V, a few discreet paper infills to last leaf in blank margin and printed area). 18th-century red morocco, with later attribution on the flyleaf to Derome, covers framed with gilt triple fillet, spine elegantly gilt with floral and star motifs, all edges gilt (a few minor marks and abrasions, extremities very lightly rubbed). *Provenance*: Paul Girardot de Préfond (French bibliophile, 1722-c.1785; label on pastedown; this copy possibly no.485 in his sale in 1757) - 'Dan[iel] Brent 1790' (according to a later pencil inscription, this was the successful shipbuilder, 1764-1834; inscription).

£30,000-40,000

US\$39,000-51,000  
€35,000-46,000



**0324**

REGIOMONTANUS (Johannes MÜLLER, 1436-76) and Georgius PURBACHIUS (1423-61). *Epitoma in Almagestum Ptolemaei*. Edited by Caspar Grosch and Stephan Römer. Venice: Johannes Hamman for the editors, 31 August 1496.

**First edition and the first appearance in print of Ptolemy's *Almagest* in any form.** The *Almagest*, or *Mathematical syntaxis*, was the chief astronomical work from its composition in the 2nd century A.D. until the end of the 16th century. It was largely known in the Western Middle Ages through the 12th-century Latin translation by Gerard of Cremona, but neither Gerard's version nor the original Greek were printed until 1515 and 1538, respectively. Cardinal Bessarion, then papal legate to the Holy Roman Empire, persuaded the Austrian astronomer Georg Peurbach to compose this epitome of Ptolemy's great work as part of his publishing programme to promote anew the writings of ancient Greek authors in the Latin West. Peurbach died in 1461, only one year after beginning work on the *Epitome* and after completing book VI; his friend and colleague Regiomontanus took over the work, dedicating the completed manuscript (which survives at the Institut de France) to Bessarion before 28 April 1463. The work was inexplicably not published until 1496, although, as a surviving printed advertisement makes clear (H \*13807), Regiomontanus had intended to publish it himself at his short-lived Nuremberg press (active 1473-1475). Valuable as making Ptolemy's *Almagest* accessible to Renaissance astronomers, the Peurbach-Regiomontanus *Epitome* is also important for the 'observations, revised computations, and critical reflections' made by its compilers. This edition was almost certainly the text which provided Copernicus with his knowledge of the Ptolemaic system, since he had largely completed writing *De revolutionibus* before

publication of the next edition in 1515 (Gingerich, *Eye of Heaven* p.164). One of Peurbach-Regiomontanus's corrections sparked Copernicus to question the Ptolemaic system, which had formed the basis of astronomy for more than one millennium, and to 'lay the foundations of modern astronomy with his revolutionary heliocentric system' (DSB 11, p.349). **A tall, fresh copy.** HC \*13806; BMC V, 427; CIBN R-60; BSB-Ink R-67; Bod-inc R-040; IGI 5326; Klebs 841.1; Essling 895; Sander 6399; Stillwell *Science*, 103; Dibner *Heralds* 1; Grolier/Horblit 89; Norman 1565; Schäfer/Arnim 192; PMM 40; Goff R-111.

Super-chancery folio (314 x 218mm). Gothic and some Greek types. 108 leaves, with final blank (without the bifolium containing Johannes Baptista Abiusius's letter dated 15 August 1496, inserted in a minority of copies between al and 2). Xylographic title, full-page woodcut of an armillary sphere with Ptolemy and Regiomontanus studying below, 279 woodcut marginal diagrams (including repeats), **an additional diagram added and one annotated by an early reader on fo. f2**, woodcut ornamental initials in several sizes, printer's device (Kristeller 231). (Small marginal wormtrack or wormhole just touching a few letters from quire g to end, light marginal dampstain in quires l, n-p.) 16th-century Italian vellum over flexible boards reusing a leaf from a 13th-century Italian manuscript glossed copy of Justinian's *Digest*, remains of 4 ties (rubbed, a little loss at spine). *Provenance*: inscription dated 1601 recording a debt on rear flyleaf - 20th-century shelflabel on front pastedown.

£30,000-50,000

US\$39,000-64,000  
€35,000-57,000



**0325**

RICCIOLI, Giambattista (1598-1671). *Almagestum novum astronomiam veterem novamque complectens observationibus aliorum*. Bologna: heirs of Vittorio Benatio, 1651.

**First edition of one of the most important anti-Copernican works.** 'Riccioli's scientific career epitomized the conflict between the old astronomy and the new: as a Jesuit committed to church doctrine, Riccioli was among the most vehement opponents of Copernican and Galilean theory, but as an astronomer, Riccioli recognized that Copernican theory provided the simplest and best mathematical model of the solar system' (Norman). His *Almagestum novum* was the first to state that no water existed on the moon and it also introduced the tradition of naming lunar formations after prominent scientists and philosophers. The topography of the moon is illustrated by two fine selenographic engravings. Houzeau & Lancaster 9223; Norman 1826.

2 volumes, folio (355 x 237mm). Engraved frontispiece by Francesco Curti in each volume, engraved arms on dedication leaves, double column, 2 fine engraved folding lunar maps by Domenico Fontana after Francesco Maria Grimaldi, numerous woodcut diagrams in text (vol.1 with repaired tears in frontispiece and occasional faint waterstaining in fore-margin, vol.2 with some waterstaining in inner margin, small wormtrack in frontispiece and first few leaves). Contemporary blindstamped calf, spine gilt, paper shelfmark labels on spines (joints split, a few light stains, some restoration at joints and spine). (2)

£4,000-6,000

US\$5,100-7,600  
€4,600-6,800

**0326**

RICCIOLI, Giambattista (1598-1671). *Astronomiae reformatae tomi duo*. Bologna: heirs of Vittorio Benatio, 1665.

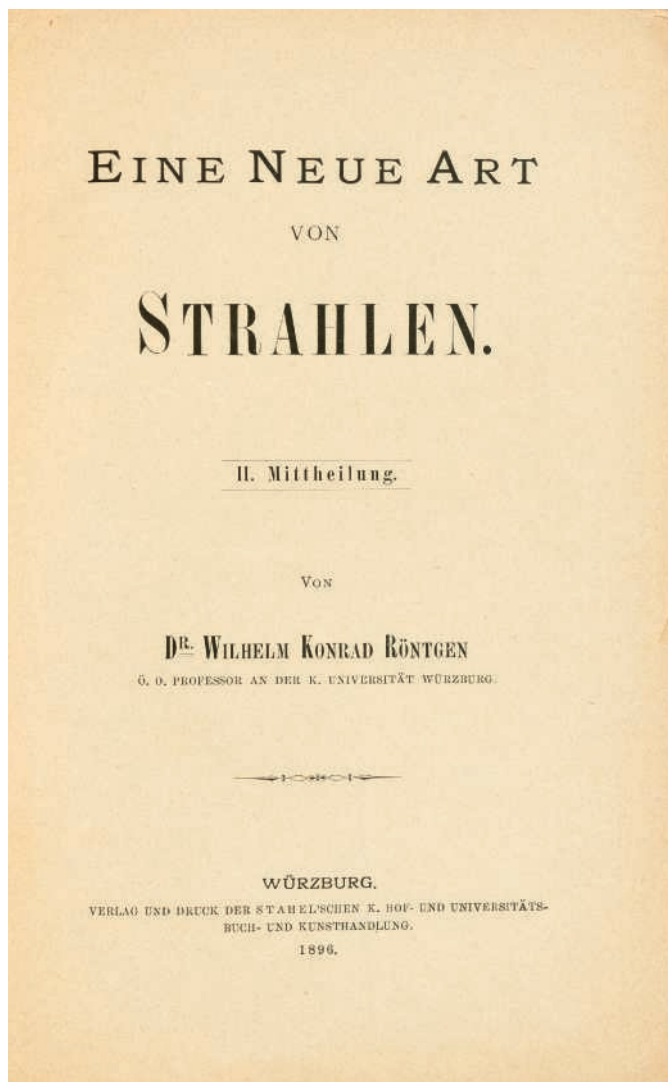
**First edition.** Intended as a third and supplementary part of the *Almagestum novum*, the work presents a series of individual treatises on the bodies of the solar system and the fixed stars. Riccioli 'noted the colored bands parallel to the equator of Jupiter and made observations of Saturn that, if he had had better instruments, might have led him to recognize its rings' (DSB). Although he knew of Huygens' *Systema saturnia* (1659), he disagreed with Huygens' ring theory. Houzeau & Lancaster 9230; Wellcome IV, p. 519; Norman 1827.

Folio (370 x 247mm). General title printed in red and black with engraved arms of Ferdinand Maria, Prince Elector of Bavaria, 2 engraved folding plates by Domenico Fontana after Francisco Maria Grimaldi (previously used in the *Almagestum novum*) and numerous woodcut text illustrations. (Marginal wormtrack in vol. 2, touching one or two letters in a handful of pages.) Contemporary blind-stamped calf, paneled sides with two triple-fillet borders enclosing rolls of interlocking foliage, central panel with triple-fillet partitions, paneled spine decorated and lettered in gilt, red edges (joints cracked, spine chipped at foot, rubbed and worn, extremities rubbed, upper side with a few dents and abrasions).

£2,000-3,000

US\$2,600-3,800  
€2,300-3,400





### 0327

RÖNTGEN, Wilhelm Konrad (1845-1923). 'Eine neue Art von Strahlen. II. Mitteilung.' Offprint from: *Sitzungsberichte der Würzburger Physik.-medic. Gesellschaft*, 1896, [nos. 1-2]. Würzburg: Verlag und Druck der Stahel'schen k. Hof.-und Universitäts- Buch- und Kunsthandlung, 1896.

**First edition, offprint issue, of the announcement of the discovery of the x-ray.** In the autumn of 1885, Röntgen undertook a series of experiments with William Crookes's version of the 'Geisslertube,' a form of vacuum tube sealed at the ends with platinum terminals to permit the passage of an electric current through the tube. 'Röntgen found that X-rays are emitted by the part of the glass wall of the tube that is opposite the cathode and that receives the beam of cathode rays. He spent six weeks in absolute concentration, repeating and extending his observations on the properties of the new rays. He found that they travel in straight lines, cannot be refracted or reflected, are not deviated by a magnet, and can travel about two meters in air. He soon discovered the penetrating properties of the rays' (DSB).

This quick dissemination of Röntgen's discovery was made possible by the custom of sending offprints of articles to colleagues. To ensure priority

for his discovery, Röntgen immediately submitted a *Vorläufige Mitteilung* (preliminary notification) to the editors of the Physical and Medical Society of Würzburg in the last week of December, 1895. The present offprint was an updated 'notification' published in March 1896. '[This] reported his latest findings: that x-rays render air conductive..., and that the target of rays does not have to be simultaneously the anode of the cathode-ray tube. He described a scale for measuring x-ray intensity, along with other innovations in equipment designed for the optimal production of x-rays' (Norman). Röntgen was awarded the first Nobel Prize for physics, received in 1901, for this work. Dibner, *Heralds* 162; Garrison-Morton 2683; Norman 1842; See Grolier/Horblit 90; Grolier Medicine 83A-B; PMM 380 (the last three references are to the periodical issue).

Octavo (228 x 150mm). Original orange printed wrappers (worn with corners chipped, knife score to upper margin of front wrapper but without loss); housed in later black boards. *Provenance*: Ernst Schwalbe (1871-1920; German pathologist and professor at Rostock; blind and ink stamps on upper cover).

£1,000-2,000

US\$1,300-2,500  
€1,200-2,300



0328

RÖSEL VON ROSENHOF, August Johann (1705-1759). *Der monatlich-herausgegebenen Insecten-Belustigung*. Nuremberg: Fleischmann, 1746-1761.

**First edition of an important entomological work**, profusely illustrated with a total of 286 hand-coloured engraved plates. Nissen ZBI 3466.

4 volumes, quarto (203 x 163mm). 3 hand-coloured engraved titles and 286 hand-coloured engraved plates [Nissen calls for 287 but most copies appear to be complete with 286], of which 4 folding (2 letterpress titles restored at lower outer corner, one laid down with loss to corner, variable staining or browning). Contemporary calf, red morocco lettering-pieces, spine gilt (vols.1-3 rebacked preserving original spine, vol.4 restored at head). *Provenance*: traces of bookplate in vol.1. (4)

£2,500-3,500

US\$3,200-4,400  
€2,900-4,000



0329

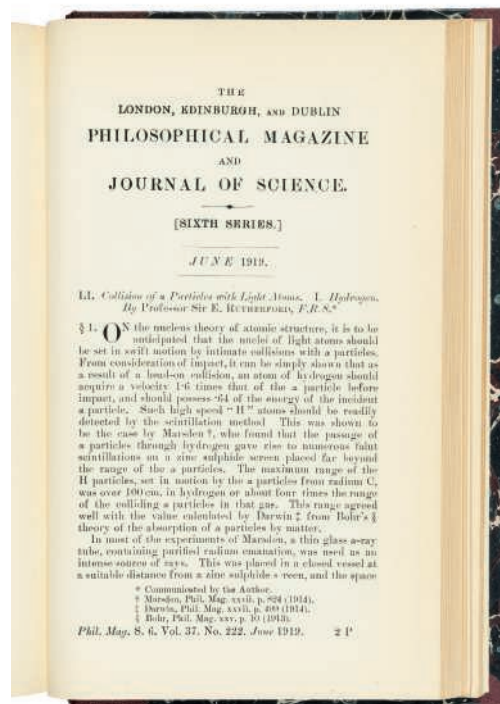
RUTHERFORD, Ernest (1871-1937). 'Collision of a particles with light atoms. I: Hydrogen.' In: *The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science*, sixth series, vol. 37, no. 222 (June 1919), pp.[537]-586. London: Taylor and Francis, 1919.

**First edition, journal issue, of the first announcement of the splitting of the atom.** In 1911, as a result of bombarding gold foil with alpha particles, Rutherford formulated the hypothesis of the atom's nuclear construction on which all subsequent work in atomic physics and chemistry is based. He observed that while most of the alpha particles passed straight through the foil, some bounced back from it. Rutherford interpreted the bouncing in terms of his hypothesis and determined those that went through had passed through the planetary systems of electrons, while those that bounced back had hit, or interacted with, a nucleus. In 1919, as reported in this paper, Rutherford found that alpha particles in collision with nitrogen atoms liberated from them nuclei of hydrogen atoms, causing artificial transmutation or the splitting of the atom. Norman 1873; PMM 411.

Octavo (213 x 135mm). (First and last quires reinforced at gutter.) Contemporary burgundy half cloth over marbled boards. *Provenance:* AEG Forschungs Institut Bucherei (library stamps on title).

£1,500-2,000

US\$2,000-2,500  
€1,800-2,300



0330

SAINT-FOND, M. Faujas de (1743-1819). *Description des expériences de la machine aérostatique de MM. de Montgolfier*. Paris: Cuchet, 1783. [with:] — *Première suite de la description des expériences aérostatique de MM. Montgolfier*. Tome second. Paris: Cuchet, 1784.

**A fine copy of the earliest account of the first aerial voyage.** First edition, second issue of the first volume, with the 4pp. supplement; first edition of the second volume. Etienne and Joseph Montgolfier were pioneers in the field of aerostatics and made history in November 1783 with the first hot air balloon to carry passengers. Saint-Fond, a notable French geologist, was their financier and supporter; his chronicle became 'the first serious treatise on aerostation as a practical possibility' (PMM). Norman 769; PMM 229.

2 volumes, octavo (196 x 120mm). Vol. 1: 9 engraved plates including frontispiece, one folding table, with the 4pp. supplement; vol. 2: 5 engraved plates including frontispiece, errata leaf. Contemporary speckled calf, red and green morocco lettering-pieces, spines gilt. *Provenance:* 'L.H.' (bookplate with 'Opima spolia' motto). (2)

£2,000-3,000

US\$2,600-3,800  
€2,300-3,400





0331

SCHEELE, Carl Wilhelm (1742-1786). *Chemische Abhandlungen von der Luft und dem Feuer*, introduction by Torbern Bergman. Uppsala and Leipzig: M. Swederus for S.L. Crusius, 1777. [Bound with:] *Bemerkungen der Kuhrpälzischen Physikalisch-Ökonomischen Gesellschaft, vom Jahr 1774*. Lautern: 1776 [and:] RUTHERFORD, Daniel (1749-1819). *Dissertatio inauguralis de aere fixo dicto, aut mephitico*. Edinburgh: 1772.

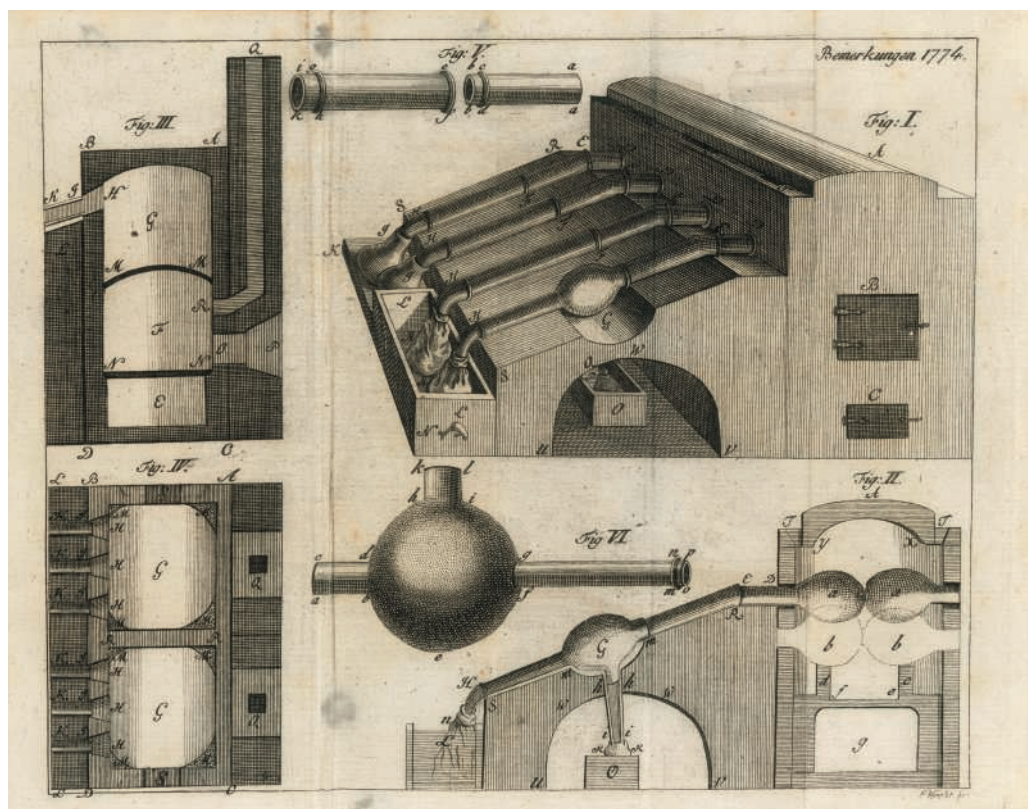
**First edition of the discovery of oxygen by Scheele, its 'true discover' (Norman), bound with the first edition on nitrogen.** Scheele's work, made independently of Priestley, was delayed in publication by two years, waiting for the preface by Torbern Bergman, thus permitting Priestley to publish the first account of the isolation of oxygen. Scheele identified carbon dioxide, oxygen and nitrogen in air and investigated its combustibility. Also in this work is his account of 'hydrogen sulfide gas, which he was the first to describe correctly and the first to synthesize' (Norman). It is bound with Rutherford's dissertation on 'fixed air' (carbon dioxide). Although both Cavendish and Carl Wilhelm Scheele, a Swedish chemist, had isolated nitrogen previously, this is the first published description of a gas that could extinguish both life and combustion, but which was recognizably not carbon dioxide. Even Rutherford did not recognize this gas to be a separate entity, but thought it only a combination of common air and phlogiston. The second work in the volume is a volume of the proceedings of the learned society of Lautern. Among the scientific papers it includes are those by the physicist and mining engineer, G.A. Sukow, on quicksilver, Stork on the cultivation of flax, and Schmid on pruning dwarf trees. I: Norman 1905 (stating that the half-title, sometimes found, it a later addition); Dibner 41; Grolier/Horblit 92; Gedeon pp.120-23. II: VD-18 90293479. III: Garrison-Morton 921; Norman 1869.

3 works in one volume, octavo (174 x 102mm). I: engraved vignette on title, folding engraved plate (occasional faint browning); 2: engraved vignette on title, folding engraved plate (first work with occasional faint spotting, and small stain on C8, ink deletion on title, 3rd work title folded up at bottom edge). Contemporary marbled calf, gilt edges, red leather spine label, red edges (a few small wormholes at spine); modern box. *Provenance*: inscription deleted in ink from first title.

£20,000-30,000

US\$26,000-38,000

€23,000-34,000







0333

SCHOTT, Gaspar (1608-1666). *Technica curiosa, sive mirabilia artis, libris XII comprehensa*. Nuremberg: Johann Andreas Endter, 1664.

**First edition of a work which includes 'much useful knowledge, descriptions of scientific instruments and mechanical technology.** The first two sections of *Technica curiosa* are devoted to the aerostatic researches of Guericke and Boyle, and the treatise 'Mirabilia chronometrica' gives the first description of a universal joint and a classification of gear teeth' (Norman). Norman 1911.

Small quarto (205 x 160mm). Engraved title, letterpress title in red and black, full-page engraved portrait of the dedicatee on title verso, full-page engraved coat-of-arms and 60 plates on 59 sheets, some folding (short tear in plate 3, a few minor marginal repairs). Modern vellum, blue edges. *Provenance:* Stadtbibliothek Königsberg (stamp on title).

£1,500-2,000

US\$2,000-2,500  
€1,800-2,300



0334

SCHOTT, Gaspar (1608-1666). *Physica curiosa*. Würzburg and Nuremberg: J. Hertz and J.A. Endter, 1667.

**Second edition.** Student and later associate of Athanasius Kircher, Schott became a mathematician, scientist, and natural philosopher. He observed Otto von Guericke's experiments with the vacuum pump and, after extensive correspondence with Guericke published the first description of his work in 1657. As the title indicates, the *Physica curiosa* is an encyclopaedia of the natural sciences, setting out and illustrating magical, mechanical and natural history knowledge to date. Among the curiosities it discusses and depicts are conjoined and deformed humans and anthropomorphic monsters. Caillet III, 10004; Nissen ZBI 3746; NLM/Krivatsy 10626; VD-17 39:1200529P.

2 volumes, quarto (208 x 155mm). Letterpress title in red and black, half-title, engraved title by Sandrart, and 60 engraved plates, of which 6 folding (browned as usual, spotted, neat tear in one engraving and one text leaf, small wormhole in first quire just into engraved title). ?18th-century vellum ruled in gilt, red spine label, speckled edges (spines a little darkened). (2)

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700



0335

SINNER, Basilius (1745-1827). *Beschreibung des Telegraphen*. Füssen: Benedikt Mayr, 1795.

**First edition, describing a major event in the history of telecommunications.** Mathematician, scientist, linguist and Benedictine, Sinner began experimenting with telegraphy already as a young man. He built a private optical telegraph system independent from – and very likely earlier than – the French system invented by Claude Chappe and premiered in 1791. Sinner had contented himself with demonstrating his system at the Benedictine monastery of St. Mangen at Füssen for some time, and decided to write the present scientific description of telegraphy to satisfy widespread curiosity arising from news of the successful transmission of a message by telegraphy from Paris to Lille on 15 August 1794. **Very rare on the market;** no copy recorded at auction by ABPC or RBH, and WorldCat cites 9 institutional copies, only one (Strasbourg) outside Germany. VD-18 10697977.

Quarto (214 x 175mm). Engraved title vignette by Müller, 5 folding engraved plates. Contemporary blue-grey paper wrappers.

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700

suono, ma il senso è di cose ordinarie, quali erano nella bocca d'ognuno per le trombe son posti i corni torti, per il suono delle Baccanti *Mimallones bombos*, per Penteo *vitulum superbum*, per Agaue *Bassarys*, e per Bacco *Euion*. Si descrivono in questi versi i sacrificij di Bacco pieni di tuoni, e di strepiti. *Mimallones* erano le Donne Baccanti, che faceuano i sacrificij a Bacco, così dette da Mima monte della Ionia prouincia dell'Asia minore, doue s'adoraua Bacco, & ogni anno vi si celebrauano le sue feste; se bene Suida vuole che sia monte della Tracia.

**Bassarys.** Agaue Sacerdotessa di Bacco, detta Bessarida da Bessaredo, che è Bacco, e dalle vesti lunghe che portauano le sue Sacerdotesse dette Bassare da' Traci, o perche stauano in Bassara Città di Lidia. Prop.lib.3, eleg.xvij.

*Cinget Bassaricas Lydia mitra comas.*

Fù Agaue figlia di Cadmo, e moglie di Echione, la quale nelle feste di Bacco uccise Penteo suo figlio Rè di Tebe; & auuenne questo a Penteo per hauer voluto vedere da vn luogo eminente del monte Citerone i sacrificij che faceuano le Donne al Dio Bacco: morto poi apparue alla madre in forma di Cinghiale, e non di Vitello, come dice Persio. Leggasi Ouidio nelle *Metamorf.* al lib.3.



**Lynceum.** è la Lince quell'Animale da noi detto Lupoceruiero, se bene non so perche con nome di Lupo chiamato, mentre per somiglianza, e per natura si può collocare fra il Leopardo, & il Gatto, e non ha cosa alcuna di Lupo, nè di Ceruo, se pur non viene così appellato per la preda che fa de Cerui, o per somigliarli alquanto nel pelo. è di grandezza molto maggiore della Volpe, & ha la pelle punteggiata di alcune macchie nere come la Tigre, & il Leopardo. *Virg.Aen.1. maculosa tegmine Lynceis.* Ha poca coda.

### 0336

STELLUTI, Francesco (1577-1653, editor and translator) - PERSIUS FLACCUS, Aulus (34-62). *Persio tradotto in verso sciolto e dichiarato*. Rome: G. Mascardi, 1630.

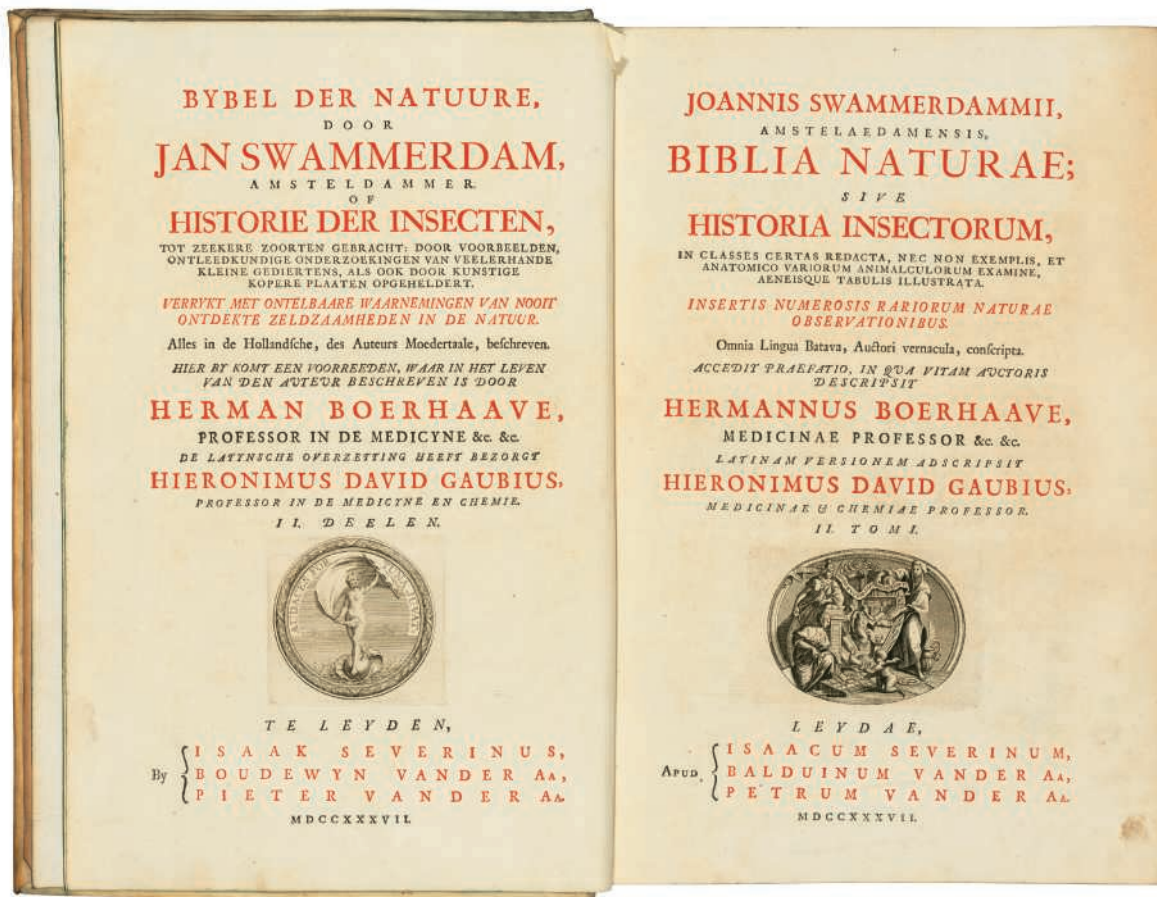
**The first book to contain illustrations of natural objects seen through the microscope.** The Braune copy was given by a member of the Stelluti family to a named but unidentified recipient. 'The work includes the Latin text of the *Satyræ VI* of Aulus Persius Flaccus together with an Italian translation and notes by Stelluti' (Garrison-Morton). Stelluti was a friend of Galileo, and a founding member of the renowned *Accademia dei Lincei*. Galileo was also a member of the academy, and it was his microscope that Stelluti used for his observations. His microscopic illustrations of the honey bee appeared in an extremely rare broadside by Federigo Cesi in 1625 (two copies recorded by Wellcome), but the *Persio* contains the first such illustrations to appear in a book. Carli-Favaro 121; Cinti 86; Cole 403; Garrison and Morton 259; Nissen *ZBI* 3988; Krivatsy 8806; Wellcome I.4917.

Quarto (214 x 152mm). Latin and Italian text, engraved allegorical title by Matthäus Greuter, engraved portrait of Persius, one full-page engraved plate depicting a bee as seen under a microscope, and 5 smaller engravings, woodcut initials and tailpieces, with final blank (waterstaining to the preliminaries and to mostly the margins of another few quires, some quires browned, clean tear to g1 without loss, some spotting). Contemporary limp vellum, manuscript title on spine (stained). *Provenance:* 'Ex dono p. Hieronimi Stelluti mihi [...?Meclin.]' (contemporary inscription on front flyleaf and exlibris inscription 'Johannis Meclin.?' to title).

£1,000-1,500

US\$1,300-1,900

€1,200-1,700



0337

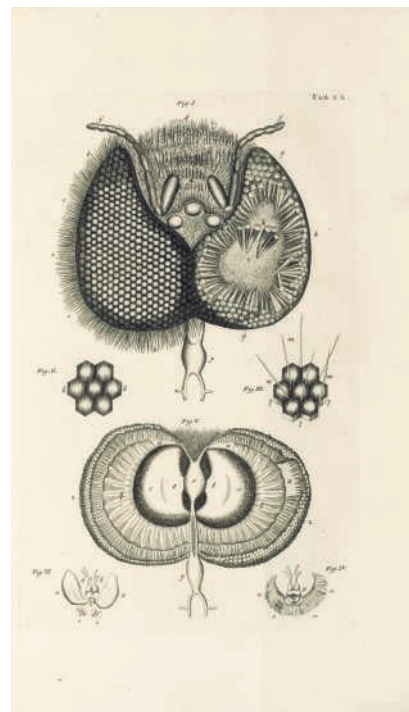
SWAMMERDAM, Jan (1637-1680). *Bybel der natuure... of historie der insecten* / *Biblia naturae, sive historia insectorum...* Edited by Hermann Boerhaave, translated from Latin by Hieronimus David Gaubius. Leiden: Isaak Severinus, Boudewyn and Pieter vander Aa, 1737-1738.

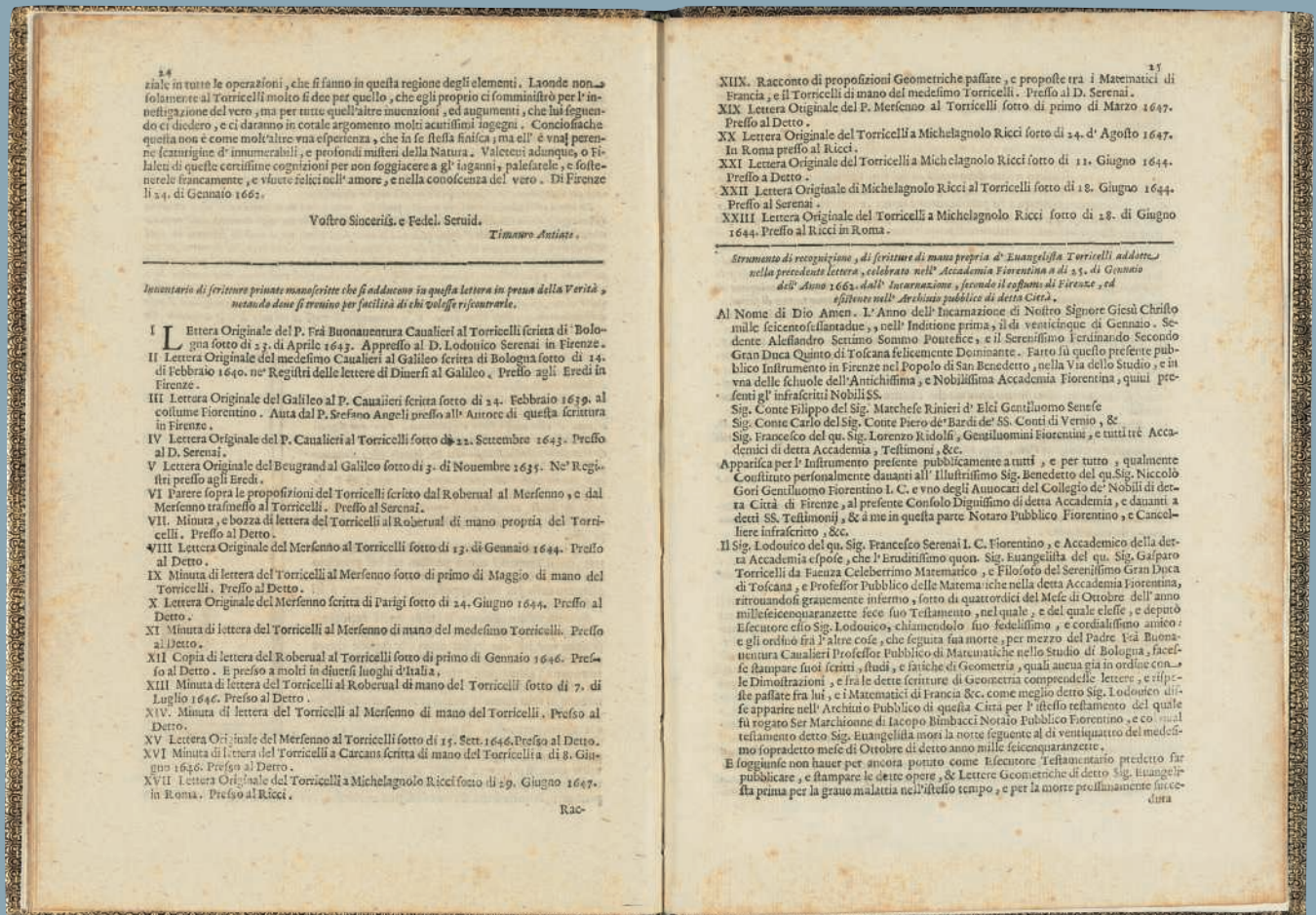
**First edition.** This work was published by the physician Boerhaave 57 years after its author's death. This early collection of microscopical observations is based on Swammerdam's own collection of over 3000 species of insects. He gave up his medical training to devote himself to the study of minute anatomy, and so intense were his efforts that he injured his sight and health. To the advantages of the microscope he added his own manipulative skill and a series of fine dissecting instruments which he made under a magnifying glass. With Redi, he rejected spontaneous generation and proposed that the process of decay in organic matter was the result of living organisms' (Dibner). Dibner *Heralds* 191; Nissen *ZBI* 4055; Norman 2037.

2 volumes, folio (355 x 233mm). Text in Dutch and Latin in parallel columns. Titles printed in red and black, engraved title vignettes and 53 folding engraved plates, by Johannes van der Spyk (occasional faint and unobtrusive spotting). Contemporary vellum, blue edges, spines with manuscript titles (faintly soiled). *Provenance*: small paper library spine labels. (2)

£3,000-5,000

US\$3,900-6,400  
€3,500-5,700





0338

[TORRICELLI, Evangelista (1608-1647)]. [Carlo DATI (1619-1676), pseudonym, 'Timauro Antiatae']. *Lettera a Filaleti di Timauro Antiatae della vera storia della cicloide, e della famosissima esperienza dell'argento vivo*. Florence: all'Insegna della Stella, 1663.

**Extremely rare first edition of Torricelli's description of his experimental proof of barometric pressure.** The only other copy to appear in auction records over the past 50 years is the Norman copy sold by Christie's in 1998. Torricelli had described his experiment and his interpretation of it in a letter to Michelangelo Ricci dated 11 June 1644. Nearly 20 years later, the philologist Carlo Dati published in this short pamphlet important extracts from Torricelli's correspondence, including the letter to Ricci, Ricci's reply, and Torricelli's answer of 28 June 1644. A list of Torricelli's manuscript letters and notes, with their locations at the time, is printed at the end.

Torricelli is best known for his discovery that liquids are pushed up in a tube by the pressure of the atmosphere on the surface outside the tube. Galileo had shown experimentally the weight of atmospheric air in 1613, but had failed to recognize the source of the suction phenomena as the weight of the air, instead invoking a 'force of vacuum'. Torricelli, who conducted his experiments with progressively heavier liquids, culminating in mercury, both clearly proved and correctly interpreted the existence of atmospheric pressure. Although Torricelli's early death prevented him from completing his experiments, he had stated in his first letter his hope to devise a means to measure the density

XIX. Racconto di proporzioni Geometriche passate, e proposte tra i Matematici di Francia, e il Torricelli di mano del medesimo Torricelli. Preflo al D. Serenai.  
 XX. Lettera Originale del P. Merfeno al Torricelli foto di primo di Marzo 1647. Preflo al Detto.  
 XXI. Lettera Originale del Torricelli a Michelagnolo Ricci foto di 24. d' Agosto 1647. In Roma preflo al Ricci.  
 XXII. Lettera Originale del Torricelli a Michelagnolo Ricci foto di 11. Giugno 1644. Preflo al Detto.  
 XXIII. Lettera Originale di Michelagnolo Ricci al Torricelli foto di 18. Giugno 1644. Preflo al Serenai.  
 XXIV. Lettera Originale del Torricelli a Michelagnolo Ricci foto di 28. di Giugno 1644. Preflo al Ricci in Roma.

*Strumento di recognizione, di scritture di mano propria d' Evangelista Torricelli addetto nella precedente lettera, celebrato nell' Accademia Fiorentina il 25. di Gennaio dell' Anno 1662. dall' Incarnazione, secondo il reghiam di Firenze, ed esistente nell' Archivio pubblico di detta Città.*

Al Nome di Dio Amen. L' Anno dell' Incarnazione di Nostro Signore Gesù Christo mille seicentesimoquarantesimo, e nell' Indictione prima, à di venticinque di Gennaio. Sedente Alessandro Senimo Sommo Pontefice, e il Serenissimo Ferdinando Secondo Gran Duca Quinto di Toscana felicemente Dominante. Fatto in questo presente publico Instrumento in Firenze nel Popolo di San Benedetto, nella Via dello Studio, e in vna delle scuole dell' Antichissima, e Nobilissima Accademia Fiorentina, quini presenti gli infrascripti Nobili SS. Sig. Conte Filippo del Sig. Marchese Rinieri d' Elci Gentiluomo Senefé Sig. Conte Carlo del Sig. Conte Piero de' Bardi de' SS. Conti di Vermo, &c. Sig. Francesco del qu. Sig. Lorenzo Kidolfi, Gentiluomini Fiorentini, e tutti tre Accademici di detta Accademia, Testimoni, &c. Apparita per l' Instrumento presente pubblicamente a tutti, e per tutto, qualmente Constituto personalmente dauanti all' Illustrissimo Sig. Benedetto del qu. Sig. Niccolò Gori Gentiluomo Fiorentino L. C. e vno degli Auocati del Collegio de' Nobili di detta Città di Firenze, al presente Consolo Dignissimo di detta Accademia, e dauanti a detti SS. Testimoni, & à me in questa parte Notaro Publico Fiorentino, e Cancelliere infrascripto, &c. Il Sig. Lodouico del qu. Sig. Francesco Serenai L. C. Fiorentino, e Accademico della detta Accademia epòse, che l' Emendissimo quon. Sig. Euangelista del qu. Sig. Gasparo Torricelli da Faenza Celeberrimo Matematico, e Filosofo del Serenissimo Gran Duca di Toscana, e Professore Publico delle Matematiche nella detta Accademia Fiorentina, ritrouandosi graueamente infermo, foto di quattordici del Mese di Ottobre dell' anno milleseicentesimquarantesimo, nel quale, e del quale elese, e deputò Esecutore suo Sig. Lodouico, chiamandolo suo fedelissimo, e cordialissimo amico: e gli ordinò fra l' altre cose, che seguita sua morte, per mezzo del Padre Vniuersita' Buonenura Cauallieri Professore Publico di Matematiche nello Studio di Bologna, facesse stampare suoi scritti, studi, e fatiche di Geometria, quali auena già in ordine con le Dimostrazioni, e fra le dette scritture di Geometria comprendesse lettere, e risposte passate fra lui, e i Matematici di Francia &c. come meglio detto Sig. Lodouico disse apparire nell' Archivio Publico di questa Città per l' istesso testamento del quale fu rogato Ser Marchionne di Iacopo Bimbacci Notaro Publico Fiorentino, e col qual testamento detto Sig. Euangelista morì la notte seguente al di venticinque del medesimo sopradetto mese di Ottobre di detto anno mille seicentesimquarantesimo. E loggante non hauer per mostra ponuto come Esecutore Testamentario predetto far pubblicare, e stampare le dette opere, & Lettere Geometriche di detto sig. Euangelista prima per la graue malattia nell' istesso tempo, e per la morte profumamente succeduta

£40,000-60,000

US\$51,000-76,000  
 €46,000-68,000



# LETTERA A FILALETI

DI TIMAVRO ANTIATE

Della Vera Storia della Cicloide, e della Famofiffima  
Esperienza dell' Argento Viuo.

## CARISSIMI FILALETI

**S**criuo il vero à chi l' ama , e perciò senz' ornamenti , e senza lifci , fendo la verità tanto più bella , quanto più fchieta , e più nuda . Socrate , che amana quefta nobil Donzella rifiutò la Difefa di Lifia , non come bugiarda , mà come troppo ornata . E Voi , o Filaleti , vi fdegnerefte di sentir difendere il vero con artifizii fimigliantiffimi alla bugia . Difendo il Vero , mà senza maledicenze , perche la Verità fi contenta d'effere impenetrabile , e rinunzia alla Menzogna le faette annelenate del rancore , e della malignità . Imita ella generofamente la grauità imperturbabile degli Efori , quando fù loro , per racconto d' Eliano , e di Plutarco , bruttata di lordure la magiftral refidenza dalla infolente sfacciatezza de' Clazomeni , o de' Chij , ch' e' fi foffero . Non s'adirarono effi , mà fecero per bando pubblico promulgar quefto editto . Sia lecito a' Clazomeni operar bruttamente . O che bella vendetta ! Così parmi adelfo d'afcoltare la Verità oltraggiata sì , mà non irritata , che tranquilla , e ridente esclami ad alta voce . Trattì meco , e co' miei fequaci inciuilmente , e bugiardamente chi vuole , fopra di lui tornerà la vergogna , e l' offefa , come ricadono fopra la tefta degli empi le faette , che s'auuentano contro al Cielo .

Dico adunque che agli anni à dietro vfei alla Luce vn libretto fritto in Franzefe , e intitolato , *Hiftoire De la Roulette* , e poi tradotto in latino , *Historia Trochoidis , fuae Cycloidis* , Gallicè *la Roulette* , nel quale , a dire il vero , con maniere poco ciuili , e mal fondati argomenti , fendo intaccata l'ingenuità , la dottrina , e la riputazione , d'Euangelifta Torricelli , Matematico , e Filofofò infigne del noftro fecolo , e mio caro amico , e maeftro , non potetti senza amarezza tollerare lo sfrontato ardire dello Storico , e poco mancò , che di subito io non prendeffi la penna per redarguire fallacie così patenti . Mà poſcia confiderando , che tanti amici , e ſcolari del Torricelli , eguali d'affetto , e ſuperiori di ſcienza poteuano ciò fare meglio di mè , mi ritirai per allora dall'imprefa , alla quale ritorno adelfo dubitando , che il ſilenzio rechi pregiudicio alla Verità , la quale è così chiara , e ben foudata , che non ha biſogno d'altra difefa , ſe non che chi la ſa la difueli , acciò non reſti adombrata dalle menzogne . Perciò fare non porterò ſoſſimi , e chimere , mà testimonianze fedeli , ſcritture pubbliche per le ſtampe , e private originali , e autentiche , le quali faranno ſempre eſpoſte alla curioſità di chi voſſe vederle ; laſciandole conſiderare al retto , e ſpaſſionato giudicio degl'intelligenti , e de buoni , perche ne dieno diſſinitua ſentenza . E mi proteſto , che quando lo Storico , o altri replicaffero a queſta mia ſcrittura , per ſoſtenere oſtinatamente le loro propoſizioni , io non farò giammai altra riſpoſta , che queſta , ſe però non mi capitaffe qualche ſcrittura , o notizia di nuouo a fauor della Verità .

Comincia per tanto l'Autore della Storia Cicloidale .

*Inter infinitas linearum curuarum species , ſi vnã circularem excipias nulla eſt , qua nobis frequentius occurrat , quam Trochoides , Gallicè , la Roulette . Vt mirum ſit , quod illa priſcorum ſeculorum Geometras latuerit , apud quos de tali linea nihil prorsus reperiri certum eſt .*



**0339**

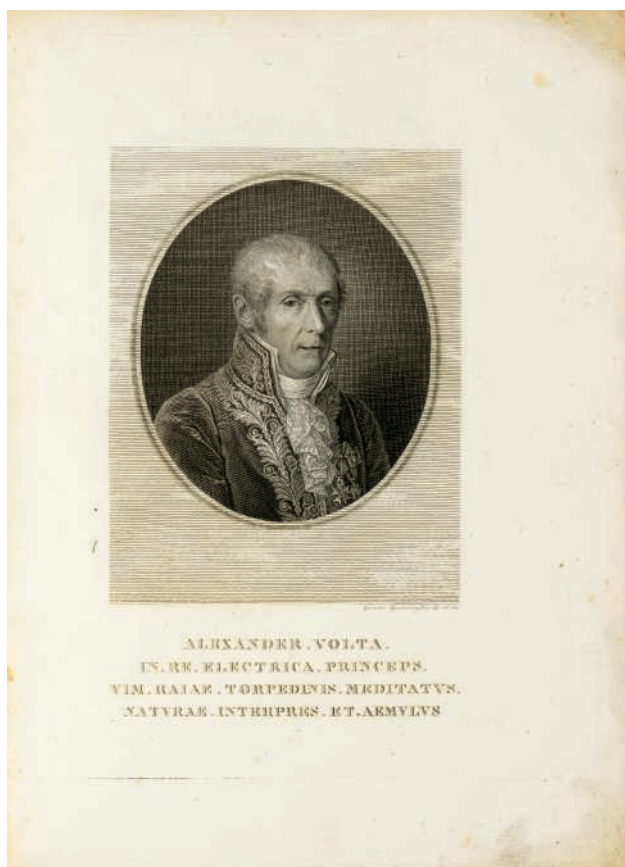
VITRUVIUS POLLIO, Marcus (c.80-70 BCE- c.15 BCE). *De architectura libri decem*. Commentary by Daniele Barbaro. Venice: Franciscus Senensis, 1567.

**First Latin edition of Barbaro's commentary on Vitruvius' work on architecture**, a very influential text of Classical revival in the European Renaissance. The plates, portraying mechanical apparatuses, clocks, antiquities as well as classical buildings including Roman and Greek theatres and architectural elements, are reduced copies of those found in the Marcolini edition, with the exception of the birds-eye view of Venice. Adams V-909; Cicognara 716; Fowler 409; Mortimer, *Harvard Italian* 550; Millard *Italian* 161

Folio (290 x 191mm). Printer's device on title and final leaf, large architectural woodcut on verso of title and 135 woodcuts to text (3 preliminary leaves lightly soiled). Spanish 18th-century tree calf, paneled spine with half raised bands filleted and tooled in gilt, red morocco lettering-piece (rebacked preserving the original spine, extremities a little rubbed). *Provenance*: abbey of Sacro Monte, Granada (18th-century inscription on title).

£1,500-2,000

US\$2,000-2,500  
€1,800-2,300



**0340**

VOLTA, Alessandro. *L'identità del Fluido Elettrico col così detto Fluido Galvanico vittoriosamente dimostrata*. Pavia: Giovanni Capelli, 1814.

**Large-paper copy of the first edition of Volta's last memoir on galvanism**, 'a lengthy review of his reasons for identifying galvanic and common electricity' (DSB). Volta had published his experiments in 1799. His finding, the voltaic pile, had immediately enabled a rapid succession of other discoveries which accelerated technological process: the electrolysis of water into oxygen and hydrogen by William Nicholson and Anthony Carlisle (1800), the chemical elements sodium (1807), potassium (1807), calcium (1808), boron (1808), barium (1808), strontium (1808), and magnesium (1808) by Sir Humphry Davy. Printed at the end is a bibliography of Volta's publications. Wheeler Gift 726.

Quarto (330 x 234mm). Uncut, with deckle edges; engraved portrait frontispiece (title a little soiled, marginal soiling on last leaf, without the addenda slip tipped to the last page in some copies). Modern boards. *Provenance*: Bergamo seminary (oval ink stamp on title).

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700

## MOLECULAR STRUCTURE OF NUCLEIC ACIDS

### A Structure for Deoxyribose Nucleic Acid

WE wish to suggest a structure for the salt of deoxyribose nucleic acid (D.N.A.). This structure has novel features which are of considerable biological interest.

A structure for nucleic acid has already been proposed by Pauling and Corey<sup>1</sup>. They kindly made their manuscript available to us in advance of publication. Their model consists of three inter-twined chains, with the phosphates near the fibre axis, and the bases on the outside. In our opinion, this structure is unsatisfactory for two reasons: (1) We believe that the material which gives the X-ray diagrams is the salt, not the free acid. Without the acidic hydrogen atoms it is not clear what forces would hold the structure together, especially as the negatively charged phosphates near the axis will repel each other. (2) Some of the van der Waals distances appear to be too small.

Another three-chain structure has also been suggested by Fraser (in the press). In his model the phosphates are on the outside and the bases on the inside, linked together by hydrogen bonds. This structure as described is rather ill-defined, and for this reason we shall not comment on it.

We wish to put forward a radically different structure for the salt of deoxyribose nucleic acid. This structure has two helical chains each coiled round the same axis (see diagram). We have made the usual chemical assumptions, namely, that each chain consists of phosphate di-ester groups joining  $\beta$ -D-deoxyribofuranose residues with 3',5' linkages. The two chains (but not their bases) are related by a dyad perpendicular to the fibre axis. Both chains follow right-handed helices, but owing to the dyad the sequences of the atoms in the two chains run in opposite directions. Each chain loosely resembles Furberg's<sup>2</sup> model No. 1; that is, the bases are on the inside of the helix and the phosphates on the outside. The configuration of the sugar and the atoms near it is close to Furberg's 'standard configuration', the sugar being roughly perpendicular to the attached base. There is a residue on each chain every 3.4 Å. in the z-direction. We have assumed an angle of 36° between adjacent residues in the same

#### 6341

WATSON, James Dewey (1928-) and Francis Harry Compton CRICK (1916-2004). 'Molecular Structure of Nucleic Acids.' Offprint from: *Nature*, vol. 171. London: Fisher, Knight & Co. Ltd., for Macmillan & Co., April 25, 1953.

**The important first announcement of the discovery of DNA, the single most important work in the history of the life sciences.** This paper, with its memorable opening 'We wish to suggest a structure for the salt of deoxyribose nucleic acid (DNA). This structure has novel features which are of considerable biological evidence,' correctly interpreted the crystalline structure of DNA. This discovery explained how heredity messages could be encoded in a crystalline structure that was stable in the latter sense and yet allowed for both replication and mutation. Their published paper was a complete work – they did not reveal their work to the scientific community in stages – and

thus its impact was all the greater. The publication of their joint paper in *Nature* revolutionised biochemistry and the other life sciences, and profoundly affected the study of molecular biology.

Octavo (210 x 139mm). 6 conjugate leaves and one half-leaf 7, 4 text illustrations including the double helix. Comprising 'A Structure for Deoxyribose Nucleic Acid' by Watson and Crick, 'Molecular Structure of Deoxypentose Nucleic Acids' by Maurice Wilkins, Alec Stokes and Herbert Wilson, and 'Molecular Configuration in Sodium Thymonucleate' by Rosalind Franklin and Ray Gosling. Self wrapper, stapled with the last leaf tipped at left edge onto preceding page as issued.

£6,000-8,000

US\$7,700-10,000  
€6,900-9,100



0342

WILLUGHBY, Francis (1635-1672). *Ornithologiae Libri Tres ... Totum opus recognovit, digessit, supplevit Joannes Raius*. London: Impensis Joannis Martyn, 1676.

**First edition of this 'cornerstone of modern systematic ornithology, being the first book on the classification of birds without respect to geographical boundaries' (Zimmer).** Wing W2879; Anker 532; Nissen IVB 991; Zimmer II, 677.

Folio (361 x 230mm). Imprimatur leaf, title printed in red and black with the Arms of the Royal Society, 77 engraved plates by Emma Willughby, 2 folding letterpress tables (variable spotting and browning throughout, heavy in the margins of a couple of plates, short marginal tear in H4). 20th-century vellum (extremities lightly rubbed).

£2,500-3,500

US\$3,200-4,400  
€2,900-4,000

0343

ZAHN, Johann (1641-1707). *Specula physico-mathematico-historica notabilium ac mirabilium sciendorum*. Nuremberg: Johann Christoph Lochner, 1696.

**First edition of this superbly illustrated compendium of mathematics and natural history** by Zahn, a member of the Premonstratensian order of Oberzell near Würzburg. It includes celestial maps after Hevelius, maps of the sun and moon after Eimmart, and world maps, one after Kircher.

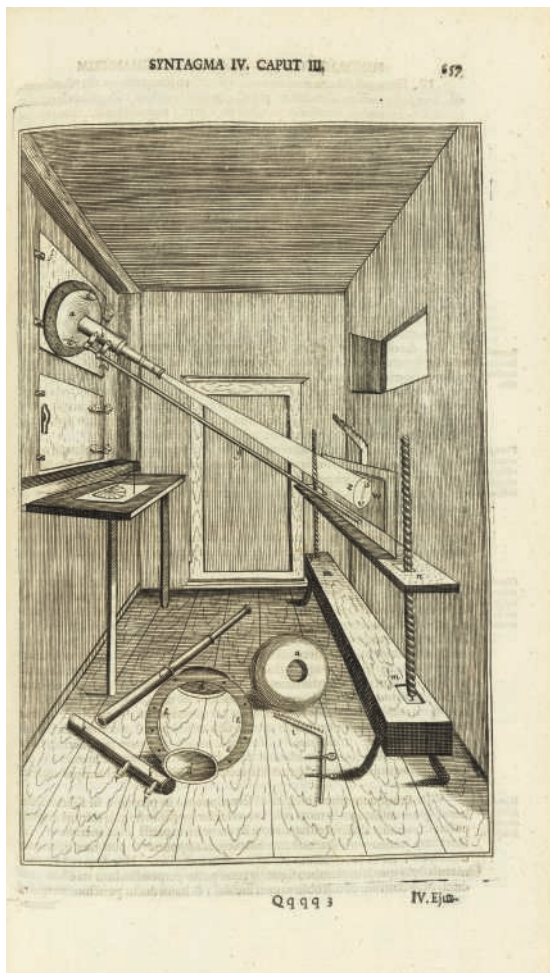
The pagination of different copies appears to be irregular. Our volume I has 27 unnumbered preliminary leaves: the number called for by VD-17 (only 20 recorded in the Macclesfield copy, hereafter M); 8 unnumbered end leaves to vol. I called for by VD (in addition to the index and errata), are not found here or in M. Our vol. II has 7 preliminaries compared to 9 called for by VD-17 and 12 in the M copy; VD-17 also calls for 13 unnumbered end leaves in vol. II, not found in either this or M copies. Vol. III has 5 preliminary leaves (7 called for by VD, 8 recorded in M); VD-17 also calls for 6 unnumbered leaves at the end, not found here or in M. In our volume I, the total of 25 engraved plates (15 double-page, one folding, and 9 single-page), exceeds the M total by one while VD-17 calls for only 22 plates in vol. I. In vols. II-III the plate counts conform. BL/STC German, IV Z16; Brunet V, 1519; VD-17 39:125300D; Shirley 583 & 584 (the world map and hemispheres); McLaughlin, *California as an Island*, 122 (plate in vol. II depicting western hemisphere).



3 volumes in one, folio (392 x 241 mm). 3 engraved frontispieces, 3 engraved portraits, 55 engraved plates, of which 26 are double-page, one folding, 16 double-page letterpress tables. Titles in red and black (some browning and staining to text, double-plate bound at p. 30 with a clean tear, one preliminary leaf with internal closed tear, short closed tear to the folding map in vol. I, further minor marginal tears or chips, occasional marginal staining). Contemporary Austrian/German pigskin over wooden boards, tooled in blind with stamps and rolls around a central lozenge, manuscript title on spine (rubbed, lightly stained, one clasp missing and one defective, new front flyleaf). *Provenance*: Steyr, Austria, Kloster Gleink, Benedictine monastery (contemporary inscription on first title) – Linz, Austria, Jesuit college (18th-century inscription and later faint stamp on first title).

£3,000-5,000

US\$3,900-6,400  
€3,500-5,700



0344

ZAHN, Johann (1641-1707). *Oculus artificialis teledioptricus sive telescopium*. Nuremberg: Johann Christoph Lochner, 1702.

**Second edition of Zahn's treatise on the microscope and the telescope.**

The work is particularly valuable for its illustrations of both simple and compound microscopes of the period, including the type of compound instrument used by Robert Hooke. It contains many descriptions and diagrams, illustrations and sketches of both the camera obscura and magic lantern, along with various other lanterns, slides, projection types, peepshow boxes, microscopes, telescopes, reflectors, and lenses. Cf. first edition: Garrison and Morton 263: 'includes the first complete history of early microscopes'; NLM/Krivatsy 13208; Norman 2278.

Folio (327 x 196mm). Additional engraved title, title printed in red and black, engraved portrait, 4 engraved plates (1 folding and 3 double-page), 7 double-page tables, 26 full-page engraved illustrations, further woodcut illustrations to the text (lightly and uniformly toned, faint marginal waterstaining to a few quires, very mild occasional marginal spotting). Contemporary vellum, panelled spine with morocco label lettered in ink (label chipped, a few stains on the binding).

£2,500-3,500

US\$3,200-4,400  
€2,900-4,000



0345

ZONCA, Vittorio (1568-1602). *Novo teatro di machine et edificii*. Padua: Francesco Bertelli, 1656.

**Fourth and last edition**, with the same plates as the first (1607), of this outstanding work on early machinery: a graphic description of how technology helps man in the performance of work compiled by Zonca from the unpublished 'Trattato di architettura' of the fifteenth-century Siennese architect-engineer Francesco di Giorgio Martini. Vittorio Zonca's compendium illustrates machines powered by men, animals or water for tasks such as the lifting of weights, weaving, printing, etc. Berlin Kat. 1776; Riccardi II, 669.

Folio (305 x 217mm). Engraved architectural title, 42 engraved full-page illustrations (uniform light browning, a few quires slightly loose, some marginal soiling, instances of offsetting from the plates, which are in good, dark impression, one plate with print fault deriving from crease, two labels with letters j and B glued to one plate). 19th-century paste-paper boards, spine lettered in ink (faded). *Provenance*: remains of paper shelfmark label on the spine.

£1,000-1,500

US\$1,300-1,900  
€1,200-1,700

# CONDITIONS OF SALE • BUYING AT CHRISTIE'S

## CONDITIONS OF SALE

These Conditions of Sale and the Important Notices and Explanation of Cataloguing Practice set out the terms on which we offer the **lots** listed in this catalogue for sale. By registering to bid and/or by bidding at auction you agree to these terms, so you should read them carefully before doing so. You will find a glossary at the end explaining the meaning of the words and expressions coloured in **bold**. Unless we own a **lot** (▲ symbol), Christie's acts as agent for the seller.

## A BEFORE THE SALE

### 1 DESCRIPTION OF LOTS

(a) Certain words used in the catalogue description have special meanings. You can find details of these on the page headed 'Important Notices and Explanation of Cataloguing Practice' which forms part of these terms. You can find a key to the Symbols found next to certain catalogue entries under the section of the catalogue called 'Symbols Used in this Catalogue'.

(b) Our description of any **lot** in the catalogue, any **condition** report and any other statement made by us (whether orally or in writing) about any lot, including about its nature or **condition**, artist, period, materials, approximate dimensions or **provenance** are our opinion and not to be relied upon as a statement of fact. We do not carry out in-depth research of the sort carried out by professional historians and scholars. All dimensions and weights are approximate only.

### 2 OUR RESPONSIBILITY FOR OUR DESCRIPTION OF LOTS

We do not provide any guarantee in relation to the nature of a **lot** apart from our **authenticity warranty** contained in paragraph E2 and to the extent provided in paragraph I below.

### 3 CONDITION

(a) The **condition** of **lots** sold in our auctions can vary widely due to factors such as age, previous damage, restoration, repair and wear and tear. Their nature means that they will rarely be in perfect **condition**. **Lots** are sold 'as is', in the **condition** they are in at the time of the sale, without any representation or warranty or assumption of liability of any kind as to condition by Christie's or by the seller.

(b) Any reference to **condition** in a catalogue entry or in a **condition** report will not amount to a full description of **condition**, and images may not show a **lot** clearly. Colours and shades may look different in print or on screen to how they look on physical inspection. **Condition** reports may be available to help you evaluate the **condition** of a **lot**. **Condition** reports are provided free of charge as a convenience to our buyers and are for guidance only. They offer our opinion but they may not refer to all faults, inherent defects, restoration, alteration or adaptation because our staff are not professional restorers or conservators. For that reason they are not an alternative to examining a **lot** in person or taking your own professional advice. It is your responsibility to ensure that you have requested, received and considered any **condition** report.

### 4 VIEWING LOTS PRE-AUCTION

(a) If you are planning to bid on a **lot**, you should inspect it personally or through a knowledgeable representative before you make a bid to make sure that you accept the description and its **condition**. We recommend you get your own advice from a restorer or other professional adviser.

(b) Pre-auction viewings are open to the public free of charge. Our specialists may be available to answer questions at pre-auction viewings or by appointment.

### 5 ESTIMATES

**Estimates** are based on the **condition**, rarity, quality and **provenance** of the **lots** and on prices recently paid at auction for similar property. **Estimates** can change. Neither you, nor anyone else, may rely on any **estimates** as a prediction or guarantee of the actual selling price of a **lot** or its value for any other purpose. **Estimates** do not include the **buyer's premium** or any applicable taxes.

### 6 WITHDRAWAL

Christie's may, at its option, withdraw any **lot** at any time prior to or during the sale of the **lot**. Christie's has no liability to you for any decision to withdraw.

### 7 JEWELLERY

(a) Coloured gemstones (such as rubies, sapphires and emeralds) may have been treated to improve their look, through methods such as heating and oiling. These methods are accepted by the international jewellery trade but may make the gemstone less strong and/or require special care over time.

(b) All types of gemstones may have been improved by some method. You may request a gemmological report for any item which does not have a report if the request is made to us at least three weeks before the date of the auction and you pay the fee for the report.

(c) We do not obtain a gemmological report for every gemstone sold in our auctions. Where we do get gemmological reports from internationally accepted gemmological laboratories, such reports will be described in the catalogue. Reports from American gemmological laboratories will describe any improvement or treatment to the gemstone. Reports from European gemmological laboratories will describe any improvement or treatment only if we request that they do so, but will confirm when no improvement or treatment has been made. Because of differences in approach and technology, laboratories may not agree whether a particular gemstone has been treated, the amount of treatment or whether treatment is permanent. The gemmological laboratories will only report on the improvements or treatments known to the laboratories at the date of the report.

(d) For jewellery sales, **estimates** are based on the information in any gemmological report or, if no report is available, assume that the gemstones may have been treated or enhanced.

### 8 WATCHES & CLOCKS

(a) Almost all clocks and watches are repaired in their lifetime and may include parts which are not original. We do not give a **warranty** that any individual component part of any watch or clock is **authentic**. Watchbands described as 'associated' are not part of the original watch and may not be **authentic**. Clocks may be sold without pendulums, weights or keys.

(b) As collectors' watches and clocks often have very fine and complex mechanisms, a general service, change of battery or further repair work may be necessary, for which you are responsible. We do not give a **warranty** that any watch or clock is in good working order. Certificates are not available unless described in the catalogue.

(c) Most watches have been opened to find out the type and quality of movement. For that reason, watches with water resistant cases may not be waterproof and we recommend you have them checked by a competent watchmaker before use.

Important information about the sale, transport and shipping of watches and watchbands can be found in paragraph H2(g).

## B REGISTERING TO BID

### 1 NEW BIDDERS

(a) If this is your first time bidding at Christie's or you are a returning bidder who has not bought anything from any of our salerooms within the last two years you must register at least 48 hours before an auction to give us enough time to process and approve your registration. We may, at our option, decline to permit you to register as a bidder. You will be asked for the following:

(i) for individuals: Photo identification (driving licence, national identity card or passport) and, if not shown on the ID document, proof of your current address (for example, a current utility bill or bank statement);

(ii) for corporate clients: Your Certificate of Incorporation or equivalent document(s) showing your name and registered address together with documentary proof of directors and beneficial owners; and

(iii) for trusts, partnerships, offshore companies and other business structures, please contact us in advance to discuss our requirements.

(b) We may also ask you to give us a financial reference and/or a deposit as a condition of allowing you to bid. For help, please contact our Credit Department on +44 (0)20 7839 9060.

### 2 RETURNING BIDDERS

We may at our option ask you for current identification as described in paragraph B1(a) above, a financial reference or a deposit as a condition of allowing you to bid. If you have not bought anything from any of our salerooms in the last two years or if you want to spend more than on previous occasions, please contact our Credit Department on +44 (0)20 7839 9060.

### 3 IF YOU FAIL TO PROVIDE THE RIGHT DOCUMENTS

If in our opinion you do not satisfy our bidder identification and registration procedures including, but not limited to completing any anti-money laundering and/or anti-terrorism financing checks we may require to our satisfaction, we may refuse to register you to bid, and if you make a successful bid, we may cancel the contract for sale between you and the seller.

### 4 BIDDING ON BEHALF OF ANOTHER PERSON

(a) **As authorised bidder.** If you are bidding on behalf of another person, that person will need to complete the registration requirements above before you can bid, and supply a signed letter authorising you to bid for him/her.

(b) **As agent for an undisclosed principal:** If you are bidding as an agent for an undisclosed principal (the ultimate buyer(s)), you accept personal liability to pay the **purchase price** and all other sums due, unless it has been agreed in writing with Christie's before commencement of the auction that the bidder is acting as an agent on behalf of a named third party acceptable to Christie's and that Christie's will only seek payment from the named third party.

### 5 BIDDING IN PERSON

If you wish to bid in the saleroom you must register for a numbered bidding paddle at least 30 minutes before the auction. You may register online at [www.christies.com](http://www.christies.com) or in person. For help, please contact the Credit Department on +44 (0)20 7839 9060.

### 6 BIDDING SERVICES

The bidding services described below are a free service offered as a convenience to our clients and Christie's is not responsible for any error (human or otherwise), omission or breakdown in providing these services.

#### (a) Phone Bids

Your request for this service must be made no later than 24 hours prior to the auction. We will accept bids by telephone for lots only if our staff are available to take the bids. If you need to bid in a language other than in English, you must arrange this well before the auction. We may record telephone bids. By bidding on the telephone, you are agreeing to us recording your conversations. You also agree that your telephone bids are governed by these Conditions of Sale.

#### (b) Internet Bids on Christie's Live™

For certain auctions we will accept bids over the Internet. For more information, please visit <https://www.christies.com/buying-services/buying-guide/register-and-bid/>. As well as these Conditions of Sale, internet bids are governed by the Christie's LIVE™ Terms of Use which are available on <https://www.christies.com/LiveBidding/OnlineTermsOfUse>.

#### (c) Written Bids

You can find a Written Bid Form at the back of our catalogues, at any Christie's office or by choosing the sale and viewing the **lots** online at [www.christies.com](http://www.christies.com). We must receive your completed Written Bid Form at least 24 hours before the auction. Bids must be placed in the currency of the saleroom. The **auctioneer** will take reasonable steps to carry out written bids at the lowest possible price, taking into account the **reserve**. If you make a written bid on a **lot** which does not have a **reserve** and there is no higher bid than yours, we will bid on your behalf at around 50% of the **low estimate** or, if lower, the amount of your bid. If we receive written bids on a **lot** for identical amounts, and at the auction these are the highest bids on the **lot**, we will sell the **lot** to the bidder whose written bid we received first.

## C CONDUCTING THE SALE

### 1 WHO CAN ENTER THE AUCTION

We may, at our option, refuse admission to our premises or decline to permit participation in any auction or to reject any bid.

### 2 RESERVES

Unless otherwise indicated, all lots are subject to a **reserve**. We identify **lots** that are offered without **reserve** with the symbol • next to the **lot** number. The reserve cannot be more than the **lot's low estimate**.

### 3 AUCTIONEER'S DISCRETION

The **auctioneer** can at his sole option:

(a) refuse any bid;

(b) move the bidding backwards or forwards in any way he or she may decide, or change the order of the **lots**;

(c) withdraw any **lot**;

(d) divide any **lot** or combine any two or more **lots**;

(e) reopen or continue the bidding even after the hammer has fallen; and

(f) in the case of error or dispute related to bidding and whether during or after the auction, to continue the bidding, determine the successful bidder, cancel the sale of the **lot**, or reoffer and resell any **lot**. If you believe that the **auctioneer** has accepted the successful bid in error, you must provide a written notice detailing your claim within 3 business days of the date of the auction. The **auctioneer** will consider such claim in good faith. If the **auctioneer**, in the exercise of his or her discretion under this paragraph, decides after the auction is complete, to cancel the sale of a **lot**, or reoffer and resell a **lot**, he or she will notify the successful bidder no later than by the end of the 7th calendar day following the date of the auction. The **auctioneer's** decision in exercise of this discretion is final. This paragraph does not in any way prejudice Christie's ability to cancel the sale of a **lot** under any other applicable provision of these Conditions of Sale, including the rights of cancellation set forth in section B(3), E(2)(i), F(4) and J(1).

### 4 BIDDING

The **auctioneer** accepts bids from:

(a) bidders in the saleroom;

(b) telephone bidders, and internet bidders through 'Christie's LIVE™' (as shown above in Section B6); and

(c) written bids (also known as absentee bids or commission bids) left with us by a bidder before the auction.

### 5 BIDDING ON BEHALF OF THE SELLER

The **auctioneer** may, at his or her sole option, bid on behalf of the seller up to but not including the amount of the **reserve** either by making consecutive bids or by making bids in response to other bidders. The **auctioneer** will not identify these as bids made on behalf of the seller and will not make any bid on behalf of the seller at or above the **reserve**. If **lots** are offered without **reserve**, the **auctioneer** will generally decide to open the bidding at 50% of the **low estimate** for the **lot**. If no bid is made at that level, the **auctioneer** may decide to go backwards at his or her sole option until a bid is made, and then continue up from that amount. In the event that there are no bids on a **lot**, the **auctioneer** may deem such **lot** unsold.

### 6 BID INCREMENTS

Bidding generally starts below the **low estimate** and increases in steps (bid increments). The **auctioneer** will decide at his or her sole option where the bidding should start and the bid increments. The usual bid increments are shown for guidance only on the Written Bid Form at the back of this catalogue.

### 7 CURRENCY CONVERTER

The saleroom video screens (and Christie's LIVE™) may show bids in some other major currencies as well as sterling. Any conversion is for guidance only and we cannot be bound by any rate of exchange used. Christie's is not responsible for any error (human or otherwise), omission or breakdown in providing these services.

### 8 SUCCESSFUL BIDS

Unless the **auctioneer** decides to use his or her discretion as set out in paragraph C3 above, when the **auctioneer's** hammer strikes, we have accepted the last bid. This means a contract for sale has been formed between the seller and the successful bidder. We will issue an invoice only to the registered bidder who made the successful bid. While we send out invoices by post and/or email after the auction, we do not accept responsibility for telling you whether or not your bid was successful. If you have bid by written bid, you should contact us by telephone or in person as soon as possible after the auction to get details of the outcome of your bid to avoid having to pay unnecessary storage charges.

### 9 LOCAL BIDDING LAWS

You agree that when bidding in any of our sales that you will strictly comply with all local laws and regulations in force at the time of the sale for the relevant sale site.

## D THE BUYER'S PREMIUM, TAXES AND ARTIST'S RESALE ROYALTY

### 1 THE BUYER'S PREMIUM

In addition to the **hammer price**, the successful bidder agrees to pay us a **buyer's premium** on the **hammer price** of each **lot** sold. On all **lots** we charge 25% of the **hammer price** up to and including £225,000, 20% on that part of that **hammer price** over £225,000 and up to and including £3,000,000, and 13.5% of that part of the **hammer price** above £3,000,000. VAT will be added to the **buyer's premium** and is payable by you. The VAT may not be shown separately on our invoice because of tax laws. You may not be eligible to have a VAT refund in certain circumstances if the **lot** is exported. Please see the "VAT refunds: what can I reclaim?" section of "VAT Symbols and Explanation" for further information.

## 2 TAXES

The successful bidder is responsible for all applicable tax including any VAT, sales or compensating use tax or equivalent tax wherever such taxes may arise on the **hammer price** and the **buyer's premium**. VAT charges and refunds depend on the particular circumstances of the buyer. It is the buyer's responsibility to ascertain and pay all taxes due. VAT is payable on the **buyer's premium** and, for some lots, VAT is payable on the **hammer price**. EU and UK VAT rules will apply on the date of the sale.

**Brexit:** If the UK withdraws from the EU without an agreed transition deal relating to the import or export of **property**, then UK VAT rules only will apply. If your purchased **lot** has not been shipped before the UK withdraws from the EU, your invoiced VAT position may retrospectively change and additional import tariffs may be due on your purchase if imported into the EU. Further information can be found in the **VAT Symbols and Explanation** section of our catalogue. For **lots** Christie's ships to the United States, sales or use tax may be due on the **hammer price**, **buyer's premium** and/or any other charges related to the **lot**, regardless of the nationality or citizenship of the purchaser. Christie's will collect sales tax where legally required. The applicable sales tax rate will be determined based upon the state, county, or locale to which the **lot** will be shipped. Successful bidders claiming an exemption from sales tax must provide appropriate documentation to Christie's prior to the release of the **lot**. For shipments to those states for which Christie's is not required to collect sales tax, a successful bidder may be required to remit use tax to that state's taxing authorities. Christie's recommends you obtain your own independent tax advice with further questions.

## 3 ARTIST'S RESALE ROYALTY

In certain countries, local laws entitle the artist or the artist's estate to a royalty known as 'artist's resale right' when any **lot** created by the artist is sold. We identify these **lots** with the symbol  $\lambda$  next to the **lot** number. If these laws apply to a **lot**, you must pay us an extra amount equal to the royalty. We will pay the royalty to the appropriate authority on the seller's behalf.

The artist's resale royalty applies if the **hammer price** of the **lot** is 1,000 euro or more. The total royalty for any **lot** cannot be more than 12,500 euro. We work out the amount owed as follows:

*Royalty for the portion of the hammer price*

(in euros)

4% up to 50,000

3% between 50,000.01 and 200,000

1% between 200,000.01 and 350,000

0.50% between 350,000.01 and 500,000

over 500,000, the lower of 0.25% and 12,500 euro.

We will work out the artist's resale royalty using the euro to sterling rate of exchange of the European Central Bank on the day of the auction.

## E WARRANTIES

### 1 SELLER'S WARRANTIES

For each **lot**, the seller gives a **warranty** that the seller:

(a) is the owner of the **lot** or a joint owner of the **lot** acting with the permission of the other co-owners or, if the seller is not the owner or a joint owner of the **lot**, has the permission of the owner to sell the **lot**, or the right to do so in law; and

(b) has the right to transfer ownership of the **lot** to the buyer without any restrictions or claims by anyone else.

If either of the above **warranties** are incorrect, the seller shall not have to pay more than the **purchase price** (as defined in paragraph F1(a) below) paid by you to us. The seller will not be responsible to you for any reason for loss of profits or business, expected savings, loss of opportunity or interest, costs, damages, **other damages** or expenses. The seller gives no **warranty** in relation to any **lot** other than as set out above and, as far as the seller is allowed by law, all **warranties** from the seller to you, and all other obligations upon the seller which may be added to this agreement by law, are excluded.

## 2 OUR AUTHENTICITY WARRANTY

We warrant, subject to the terms below, that the **lots** in our sales are authentic (our **authenticity warranty**). If, within five years of the date of the auction, you give notice to us that your **lot** is not **authentic**, subject to the terms below, we will refund the **purchase price** paid by you. The meaning of **authentic** can be found in the glossary at the end of these Conditions of Sale. The terms of the **authenticity warranty** are as follows:

(a) It will be honoured for claims notified within a period of five years from the date of the auction. After such time, we will not be obligated to honour the **authenticity warranty**.

(b) It is given only for information shown in **UPPERCASE type** in the first line of the **catalogue description** (the **Heading**). It does not apply to any information other than in the **Heading** even if shown in **UPPERCASE type**.

(c) The **authenticity warranty** does not apply to any **Heading** or part of a **Heading** which is **qualified**. **Qualified** means limited by a clarification in a **lot's catalogue description** or by the use in a **Heading** of one of the terms listed in the section titled **Qualified Headings** on the page of the catalogue headed 'Important Notices and Explanation of Cataloguing Practice'. For example, use of the term 'ATTRIBUTED TO...' in a **Heading** means that the **lot** is in Christie's opinion probably a work by the named artist but no **warranty** is provided that the **lot** is the work of the named artist. Please read the full list of **Qualified Headings** and a **lot's full catalogue description** before bidding.

(d) The **authenticity warranty** applies to the **Heading** as amended by any **Saleroom Notice**.

(e) The **authenticity warranty** does not apply where scholarship has developed since the auction leading to a change in generally accepted opinion. Further, it does not apply if the **Heading** either matched the generally accepted opinion of experts at the date of the sale or drew attention to any conflict of opinion.

(f) The **authenticity warranty** does not apply if the **lot** can only be shown not to be **authentic** by a scientific process which, on the date we published the catalogue, was not available or generally accepted for use, or which was unreasonably expensive or impractical, or which was likely to have damaged the **lot**.

(g) The benefit of the **authenticity warranty** is only available to the original buyer shown on the invoice for the **lot** issued at the time of the sale and only if, on the date of the notice of claim, the original buyer is the full owner of the **lot** and the **lot** is free from any claim, interest or restriction by anyone else. The benefit of this **authenticity warranty** may not be transferred to anyone else.

(h) In order to claim under the **authenticity warranty**, you must:

(i) give us written notice of your claim within five years of the date of the auction. We may require full details and supporting evidence of any such claim;

(ii) at Christie's option, we may require you to provide the written opinions of two recognised experts in the field of the **lot** mutually agreed by you and us in advance confirming that the **lot** is not **authentic**. If we have any doubts, we reserve the right to obtain additional opinions at our expense; and

(iii) return the **lot** at your expense to the saleroom from which you bought it in the **condition** it was in at the time of sale.

(i) Your only right under this **authenticity warranty** is to cancel the sale and receive a refund of the **purchase price** paid by you to us. We will not, in any circumstances, be required to pay you more than the **purchase price** nor will we be liable for any loss of profits or business, loss of opportunity or value, expected savings or interest, costs, damages, **other damages** or expenses.

(j) **Books**. Where the **lot** is a book, we give an additional **warranty** for 14 days from the date of the sale that if on collation any **lot** is defective in text or illustration, we will refund your **purchase price**, subject to the following terms:

(a) This additional **warranty** does not apply to:

(i) the absence of blanks, half titles, tissue guards or advertisements, damage in respect of bindings, stains, spotting, marginal tears or other defects not affecting completeness of the text or illustration;

(ii) drawings, autographs, letters or manuscripts, signed photographs, music, atlases, maps or periodicals;

(iii) books not identified by title;

(iv) **lots** sold without a printed estimate;

(v) books which are described in the catalogue as sold not subject to return; or

(vi) defects stated in any **condition** report or announced at the time of sale.

(b) To make a claim under this paragraph you must give written details of the defect and return the **lot** to the saleroom at which you bought it in the same **condition** as at the time of sale, within 14 days of the date of the sale.

(k) **South East Asian Modern and Contemporary Art and Chinese Calligraphy and Painting**.

In these categories, the **authenticity warranty** does not apply because current scholarship does not permit the making of definitive statements. Christie's does, however, agree to cancel a sale in either of these two categories of art where it has been proven the **lot** is a forgery. Christie's will refund to the original buyer the purchase price in accordance with the terms of Christie's authenticity warranty, provided that the original buyer notifies us with full supporting evidence documenting the forgery claim within twelve (12) months of the date of the auction. Such evidence must be satisfactory to us that the **lot** is a forgery in accordance with paragraph E2(h)(ii) above and the **lot** must be returned to us in accordance with E2(h)(ii) above. Paragraphs E2(b), (c), (d), (e), (f) and (g) and (i) also apply to a claim under these categories.

## 3 YOUR WARRANTIES

(a) You **warrant** that the funds used for settlement are not connected with any criminal activity, including tax evasion, and you are neither under investigation, nor have you been charged with or convicted of money laundering, terrorist activities or other crimes.

(b) where you are bidding on behalf of another person, you warrant that:

(i) you have conducted appropriate customer due diligence on the ultimate buyer(s) of the **lot(s)** in accordance with all applicable anti-money laundering and sanctions laws, consent to us relying on this due diligence, and you will retain for a period of not less than 5 years the documentation evidencing the due diligence. You will make such documentation promptly available for immediate inspection by an independent third-party auditor upon our written request to do so;

(ii) the arrangements between you and the ultimate buyer(s) in relation to the **lot** or otherwise do not, in whole or in part, facilitate tax crimes;

(iii) you do not know, and have no reason to suspect, that the funds used for settlement are connected with, the proceeds of any criminal activity, including tax evasion, or that the ultimate buyer(s) are under investigation, or have been charged with or convicted of money laundering, terrorist activities or other crimes.

## F PAYMENT

### 1 HOW TO PAY

(a) Immediately following the auction, you must pay the **purchase price** being:

(i) the **hammer price**; and

(ii) the **buyer's premium**; and

(iii) any amounts due under section D3 above; and

(iv) any duties, goods, sales, use, compensating or service tax or VAT. Payment is due no later than by the end of the seventh calendar day following the date of the auction (the **due date**).

(b) We will only accept payment from the registered bidder. Once issued, we cannot change the buyer's name on an invoice or re-issue the invoice in a different name. You must pay immediately even if you want to export the **lot** and you need an export licence.

(c) You must pay for **lots** bought at Christie's in the United Kingdom in the currency stated on the invoice in one of the following ways:

(i) Wire transfer

You must make payments to:

Lloyds Bank Plc, City Office, PO Box 217, 72 Lombard Street, London EC3P 3BT. Account number: 00172710, sort code: 30-00-02 Swift code: LOYDGB2LCTY. IBAN (international bank account number): GB81 LOYD 3000 0200 1727 10.

(ii) Credit Card.

We accept most major credit cards subject to certain conditions. You may make payment via credit card in person. You may also make a 'cardholder not present' (CNP) payment by calling Christie's Post-Sale Services Department on +44 (0)20 7752 3200 or for some sales, by logging into your MyChristie's account by going to: www.christies.com/mychristies. Details of the conditions and restrictions applicable to credit card payments are available from our Post-Sale Services Department, whose details are set out in paragraph (e) below.

If you pay for your purchase using a credit card issued outside the region of the sale, depending on the type of credit card and account you hold, the payment may incur a cross-border transaction fee. If you think this may apply to you, please check with your credit card issuer before making the payment.

Please note that for sales that permit online payment, certain transactions will be ineligible for credit card payment.

(iii) Cash

We accept cash subject to a maximum of £5,000 per buyer per year at our Cashier's Department Department only (subject to conditions).

(iv) Banker's draft

You must make these payable to Christie's and there may be conditions.

(v) Cheque

You must make cheques payable to Christie's. Cheques must be from accounts in pounds sterling from a United Kingdom bank.

(d) You must quote the sale number, lot number(s), your invoice number and Christie's client account number when making a payment. All payments sent by post must be sent to: Christie's, Cashiers Department, 8 King Street, St James's, London, SW1Y 6QT.

(e) For more information please contact our Post-Sale Service Department by phone on +44 (0)20 7752 3200 or fax on +44 (0)20 752 3300.

## 2. TRANSFERRING OWNERSHIP TO YOU

You will not own the **lot** and ownership of the **lot** will not pass to you until we have received full and clear payment of the **purchase price**, even in circumstances where we have released the **lot** to the buyer.

## 3 TRANSFERRING RISK TO YOU

The risk in and responsibility for the **lot** will transfer to you from whichever is the earlier of the following:

(a) When you collect the **lot**; or

(b) At the end of the 30th day following the date of the auction or, if earlier, the date the **lot** is taken into care by a third party warehouse as set out on the page headed 'Storage and Collection', unless we have agreed otherwise with you in writing.

## 4 WHAT HAPPENS IF YOU DO NOT PAY

(a) If you fail to pay us the **purchase price** in full by the **due date**, we will be entitled to do one or more of the following (as well as enforce our rights under paragraph F5 and any other rights or remedies we have by law):

(i) to charge interest from the **due date** at a rate of 5% a year above the UK Lloyds Bank base rate from time to time on the unpaid amount due;

(ii) we can cancel the sale of the **lot**. If we do this, we may sell the **lot** again, publicly or privately on such terms we shall think necessary or appropriate, in which case you must pay us any shortfall between the **purchase price** and the proceeds from the resale. You must also pay all costs, expenses, losses, damages and legal fees we have to pay or may suffer and any shortfall in the seller's commission on the resale;

(iii) we can pay the seller an amount up to the net proceeds payable in respect of the amount bid by your default in which case you acknowledge and understand that Christie's will have all of the rights of the seller to pursue you for such amounts;

(iv) we can hold you legally responsible for the **purchase price** and may begin legal proceedings to recover it together with other losses, interest, legal fees and costs as far as we are allowed by law;

(v) we can take what you owe us from any amounts which we or any company in the **Christie's Group** may owe you (including any deposit or other part-payment which you have paid to us);

(vi) we can, at our option, reveal your identity and contact details to the seller;

(vii) we can reject at any future auction any bids made by or on behalf of the buyer or to obtain a deposit from the buyer before accepting any bids;

(viii) to exercise all the rights and remedies of a person holding security over any property in our possession owned by you, whether by way of pledge, security interest or in any other way as permitted by the law of the place where such property is located. You will be deemed to have granted such security to us and we may retain such property as collateral security for your obligations to us; and

(ix) we can take any other action we see necessary or appropriate.

(b) If you owe money to us or to another **Christie's Group** company, we can use any amount you do pay, including any deposit or other part-payment you have made to us, or which we owe you, to pay off any amount you owe to us or another **Christie's Group** company for any transaction.

(c) If you make payment in full after the **due date**, and we choose to accept such payment we may charge you storage and transport costs from the date that is 30 calendar days following the auction in accordance with paragraphs Gd(i) and (ii). In such circumstances paragraph Gd(iv) shall apply.

## 5 KEEPING YOUR PROPERTY

If you owe money to us or to another **Christie's Group** company, as well as the rights set out in F4 above, we can use or deal with any of your property we hold or which is held by another **Christie's Group** company in any way we are allowed to by law. We will only release your property to you after you pay us or the relevant **Christie's Group** company in full for what you owe. However, if we choose, we can also sell your property in any way we think appropriate. We will use the proceeds of the sale

against any amounts you owe us and we will pay any amount left from that sale to you. If there is a shortfall, you must pay us any difference between the amount we have received from the sale and the amount you owe us.

## G COLLECTION AND STORAGE

(a) You must collect purchased **lots** within thirty days from the auction (but note that **lots will not be released to you until you have made full and clear payment of all amounts due to us**).

(b) Information on collecting **lots** is set out on the Storage and Collection page and on an information sheet which you can get from the bidder registration staff or Christie's Post-Sale Services Department on +44 (0)20 7752 3200.

(c) If you do not collect any **lot** within thirty days following the auction we can, at our option:

(i) charge you storage costs at the rates set out at [www.christies.com/storage](http://www.christies.com/storage).

(ii) move the **lot** to another Christie's location or an affiliate or third party warehouse and charge you transport costs and administration fees for doing so and you will be subject to the third party storage warehouse's standard terms and to pay for their standard fees and costs.

(iii) sell the **lot** in any commercially reasonable way we think appropriate.

(d) The Storage Conditions which can be found at [www.christies.com/storage](http://www.christies.com/storage) will apply.

## H TRANSPORT AND SHIPPING

### 1 TRANSPORT AND SHIPPING

We will enclose a transport and shipping form with each invoice sent to you. You must make all transport and shipping arrangements. However, we can arrange to pack, transport and ship your property if you ask us to and pay the costs of doing so. We recommend that you ask us for an **estimate**, especially for any large items or items of high value that need professional packing before you bid. We may also suggest other handlers, packers, transporters or experts if you ask us to do so. For more information, please contact Christie's Art Transport on +44 (0)20 7839 9060. See the information set out at [www.christies.com/shipping](http://www.christies.com/shipping) or contact us at [arttransport.london@christies.com](mailto:arttransport.london@christies.com). We will take reasonable care when we are handling, packing, transporting and shipping a **lot**. However, if we recommend another company for any of these purposes, we are not responsible for their acts, failure to act or neglect.

### 2 EXPORT AND IMPORT

Any **lot** sold at auction may be affected by laws on exports from the country in which it is sold and the import restrictions of other countries. Many countries require a declaration of export for property leaving the country and/or an import declaration on entry of property into the country. Local laws may prevent you from importing a **lot** or may prevent you selling a **lot** in the country you import it into. We will not be obliged to cancel your purchase and refund the **purchase price** if your **lot** may not be exported, imported or it is seized for any reason by a government authority. It is your responsibility to determine and satisfy the requirements of any applicable laws or regulations relating to the export or import of any **lot** you purchase.

(a) You alone are responsible for getting advice about and meeting the requirements of any laws or regulations which apply to exporting or importing any **lot** prior to bidding. If you are refused a licence or there is a delay in getting one, you must still pay us in full for the **lot**. We may be able to help you apply for the appropriate licences if you ask us to and pay our fee for doing so. However, we cannot guarantee that you will get one.

For more information, please contact Christie's Art Transport Department on +44 (0)20 7839 9060. See the information set out at [www.christies.com/shipping](http://www.christies.com/shipping) or contact us at [arttransport.london@christies.com](mailto:arttransport.london@christies.com).

#### (b) Lots made of protected species

**Lots** made of or including (regardless of the percentage) endangered and other protected species of wildlife are marked with the symbol - in the catalogue. This material includes, among other things, ivory, tortoiseshell, crocodile skin, rhinoceros horn, whalebone, certain species of coral, and Brazilian rosewood. You should check the relevant customs laws and regulations before bidding on any **lot** containing wildlife material if you plan to import the **lot** into another country. Several countries refuse to allow you to import property containing these materials, and some other countries require a licence from the relevant regulatory agencies in the countries of exportation as well as importation. In some cases, the **lot** can only be shipped with an independent scientific confirmation of species and/or age and you will need to obtain these at your own cost. If a **lot** contains elephant ivory, or any other wildlife material that could be confused with elephant ivory (for example, mammoth ivory, walrus ivory, helmeted hornbill ivory), please see further important information in paragraph (c) if you are proposing to import the **lot** into the USA. We will not be obliged to cancel your purchase and refund the **purchase price** if your **lot** may not be exported, imported or it is seized for any reason by a government authority. It is your responsibility to determine and satisfy the requirements of any applicable laws or regulations relating to the export or import of property containing such protected or regulated material.

#### (c) US import ban on African elephant ivory

The USA prohibits the import of ivory from the African elephant. Any **lot** containing elephant ivory or other wildlife material that could be easily confused with elephant ivory (for example, mammoth ivory, walrus ivory, helmeted hornbill ivory) can only be imported into the US with results of a rigorous scientific test acceptable to Fish & Wildlife, which confirms that the material is not African elephant ivory. Where we have conducted such rigorous scientific testing on a **lot** prior to sale, we will make this clear in the **lot** description. In all other cases, we cannot confirm whether a **lot** contains African elephant ivory, and you will buy that **lot** at your own risk and be responsible for any scientific test or other reports required for import into the USA at your own cost. If such scientific test is inconclusive or confirms the material is from the African elephant, we will not be obliged to cancel your purchase and refund the **purchase price**.

#### (d) Lots of Iranian origin

Some countries prohibit or restrict the purchase and/or import of Iranian-origin 'works of conventional craftsmanship' (works that are not by a recognised artist and/or that have a function, for example: carpets, bowls, ewers, tiles, ornamental boxes). For example, the USA prohibits the import of this type of property and its purchase by US persons (wherever located). Other countries only permit the import of this property in certain circumstances. As a convenience to buyers, Christie's indicates under the title of a **lot** if the **lot** originates from Iran (Persia). It is your responsibility to ensure you do not bid on or import a **lot** in contravention of the sanctions or trade embargoes that apply to you.

#### (e) Gold

Gold of less than 18ct does not qualify in all countries as 'gold' and may be refused import into those countries as 'gold'.

#### (f) Jewellery over 50 years old

Under current laws, jewellery over 50 years old which is worth £39,219 or more will require an export licence which we can apply for on your behalf. It may take up to eight weeks to obtain the export jewellery licence.

#### (g) Watches

Many of the watches offered for sale in this catalogue are pictured with straps made of endangered or protected animal materials such as alligator or crocodile. These **lots** are marked with the symbol **V** in the catalogue. These endangered species straps are shown for display purposes only and are not for sale. Christie's will remove and retain the strap prior to shipment from the sale site. At some sale sites, Christie's may, at its discretion, make the displayed endangered species strap available to the buyer of the **lot** free of charge if collected in person from the sale site within one year of the date of the sale. Please check with the department for details on a particular **lot**.

For all symbols and other markings referred to in paragraph H2, please note that **lots** are marked as a convenience to you, but we do not accept liability for errors or for failing to mark **lots**.

## I OUR LIABILITY TO YOU

(a) We give no **warranty** in relation to any statement made, or information given, by us or our representatives or employees, about any **lot** other than that set out in the **authenticity warranty** and, as far as we are allowed by law, all **warranties** and other terms which may be added to this agreement by law are excluded. The seller's **warranties** contained in paragraph E1 are their own and we do not have any liability to you in relation to those **warranties**.

(b) (i) We are not responsible to you for any reason (whether for breaking this agreement or any other matter relating to your purchase of, or bid for, any **lot**) other than in the event of fraud or fraudulent misrepresentation by us or other than as expressly set out in these Conditions of Sale; or

(ii) We do not give any representation, **warranty** or guarantee or assume any liability of any kind in respect of any **lot** with regard to merchantability, fitness for a particular purpose, description, size, quality, condition, attribution, authenticity, rarity, importance, medium, provenance, exhibition history, literature, or historical relevance. Except as required by local law, any **warranty** of any kind is excluded by this paragraph.

(c) In particular, please be aware that our written and telephone bidding services, Christie's LIVE™, **condition** reports, currency converter and saleroom video screens are free services and we are not responsible to you for any error (human or otherwise), omission or breakdown in these services.

(d) We have no responsibility to any person other than a buyer in connection with the purchase of any **lot**.

(e) If, in spite of the terms in paragraphs (a) to (d) or E2(i) above, we are found to be liable to you for any reason, we shall not have to pay more than the **purchase price** paid by you to us. We will not be responsible to you for any reason for loss of profits or business, loss of opportunity or value, expected savings or interest, costs, damages, or expenses.

## J OTHER TERMS

### 1 OUR ABILITY TO CANCEL

In addition to the other rights of cancellation contained in this agreement, we can cancel a sale of a **lot** if: (i) any of your warranties in paragraph E3 are not correct; (ii) we reasonably believe that completing the transaction is or may be unlawful; or (iii) we reasonably believe that the sale places us or the seller under any liability to anyone else or may damage our reputation.

### 2 RECORDINGS

We may videotape and record proceedings at any auction. We will keep any personal information confidential, except to the extent disclosure is required by law. However, we may, through this process, use or share these recordings with another **Christie's Group** company and marketing partners to analyse our customers and to help us to tailor our services for buyers. If you do not want to be videotaped, you may make arrangements to make a telephone or written bid or bid on Christie's LIVE™ instead. Unless we agree otherwise in writing, you may not videotape or record proceedings at any auction.

### 3 COPYRIGHT

We own the copyright in all images, illustrations and written material produced by or for us relating to a **lot** (including the contents of our catalogues unless otherwise noted in the catalogue). You cannot use them without our prior written permission. We do not offer any guarantee that you will gain any copyright or other reproduction rights to the **lot**.

### 4 ENFORCING THIS AGREEMENT

If a court finds that any part of this agreement is not valid or is illegal or impossible to enforce, that part of the agreement will be treated as being deleted and the rest of this agreement will not be affected.

## 5 TRANSFERRING YOUR RIGHTS AND RESPONSIBILITIES

You may not grant a security over or transfer your rights or responsibilities under these terms on the contract of sale with the buyer unless we have given our written permission. This agreement will be binding on your successors or estate and anyone who takes over your rights and responsibilities.

## 6 TRANSLATIONS

If we have provided a translation of this agreement, we will use this original version in deciding any issues or disputes which arise under this agreement.

## 7 PERSONAL INFORMATION

We will hold and process your personal information and may pass it to another **Christie's Group** company for use as described in, and in line with, our privacy notice at [www.christies.com/about-us/contact/privacy](http://www.christies.com/about-us/contact/privacy).

## 8 WAIVER

No failure or delay to exercise any right or remedy provided under these Conditions of Sale shall constitute a waiver of that or any other right or remedy, nor shall it prevent or restrict the further exercise of that or any other right or remedy. No single or partial exercise of such right or remedy shall prevent or restrict the further exercise of that or any other right or remedy.

## 9 LAW AND DISPUTES

This agreement, and any non-contractual obligations arising out of or in connection with this agreement, or any other rights you may have relating to the purchase of a **lot** will be governed by the laws of England and Wales. Before we or you start any court proceedings (except in the limited circumstances where the dispute, controversy or claim is related to proceedings brought by someone else and this dispute could be joined to those proceedings), we agree we will each try to settle the dispute by mediation following the Centre for Effective Dispute Resolution (CEDR) Model Mediation Procedure. We will use a mediator affiliated with CEDR who we and you agree to. If the dispute is not settled by mediation, you agree for our benefit that the dispute will be referred to and dealt with exclusively in the courts of England and Wales. However, we will have the right to bring proceedings against you in any other court.

## 10 REPORTING ON WWW.CHRISTIES.COM

Details of all **lots** sold by us, including **catalogue descriptions** and prices, may be reported on [www.christies.com](http://www.christies.com). Sales totals are **hammer price plus buyer's premium** and do not reflect costs, financing fees, or application of buyer's or seller's credits. We regret that we cannot agree to requests to remove these details from [www.christies.com](http://www.christies.com).

## K GLOSSARY

**auctioneer**: the individual auctioneer and/or Christie's.

**authentic**: a genuine example, rather than a copy or forgery of:

(i) the work of a particular artist, author or manufacturer, if the **lot** is described in the **Heading** as the work of that artist, author or manufacturer;

(ii) a work created within a particular period or culture, if the **lot** is described in the **Heading** as a work created during that period or culture;

(iii) a work for a particular origin source if the **lot** is described in the **Heading** as being of that origin or source; or

(iv) in the case of gems, a work which is made of a particular material, if the **lot** is described in the **Heading** as being made of that material.

**authenticity warranty**: the guarantee we give in this agreement that a **lot** is **authentic** as set out in section E2 of this agreement.

**buyer's premium**: the charge the buyer pays us along with the **hammer price**.

**catalogue description**: the description of a **lot** in the catalogue for the auction, as amended by any saleroom notice.

**Christie's Group**: Christie's International Plc, its subsidiaries and other companies within its corporate group.

**condition**: the physical condition of a **lot**.

**due date**: has the meaning given to it in paragraph F1(a).

**estimate**: the price range included in the catalogue or any saleroom notice within which we believe a **lot** may sell. **Low estimate** means the lower figure in the range and **high estimate** means the higher figure. The **mid estimate** is the midpoint between the two.

**hammer price**: the amount of the highest bid the **auctioneer** accepts for the sale of a **lot**.

**Heading**: has the meaning given to it in paragraph E2.

**lot**: an item to be offered at auction (or two or more items to be offered at auction as a group).

**other damages**: any special, consequential, incidental or indirect damages of any kind or any damages which fall within the meaning of 'special', 'incidental' or 'consequential' under local law.

**purchase price**: has the meaning given to it in paragraph F1(a).

**provenance**: the ownership history of a **lot**.

**qualified**: has the meaning given to it in paragraph E2 and **Qualified Headings** means the section headed **Qualified Headings** on the page of the catalogue headed 'Important Notices and Explanation of Cataloguing Practice'.

**reserve**: the confidential amount below which we will not sell a **lot**.

**saleroom notice**: a written notice posted next to the **lot** in the saleroom and on [www.christies.com](http://www.christies.com), which is also read to prospective telephone bidders and notified to clients who have left commission bids, or an announcement made by the **auctioneer** either at the beginning of the sale, or before a particular **lot** is auctioned.

**UPPER CASE type**: means having all capital letters.

**warranty**: a statement or representation in which the person making it guarantees that the facts set out in it are correct.



# VAT SYMBOLS AND EXPLANATION

## IMPORTANT NOTICE:

The VAT liability in force on the date of the sale will be the rules under which we invoice you.

**BREXIT:** If the UK withdraws from the EU without an agreed transition deal relating to the import and export of property, your invoiced VAT position may retrospectively change and additional import tariffs may be due if you import your purchase into the EU. Christie's is unable to provide tax or financial advice to you and recommends you obtain your own independent tax advice.

You can find a glossary explaining the meanings of words coloured in bold on this page at the end of the section of the catalogue headed 'Conditions of Sale' VAT payable

Symbol	
No Symbol	We will use the VAT Margin Scheme. No VAT will be charged on the <b>hammer price</b> . VAT at 20% will be added to the <b>buyer's premium</b> but will not be shown separately on our invoice.
†	We will invoice under standard VAT rules and VAT will be charged at 20% on both the <b>hammer price</b> and <b>buyer's premium</b> and shown separately on our invoice.
θ	For qualifying books only, no VAT is payable on the <b>hammer price</b> or the <b>buyer's premium</b> .
*	These <b>lots</b> have been imported from outside the EU or, if the UK has withdrawn from the EU without an agreed transition deal, from outside of the UK for sale and placed under the Temporary Admission regime. Import VAT is payable at 5% on the <b>hammer price</b> . VAT at 20% will be added to the <b>buyer's premium</b> but will not be shown separately on our invoice.
Ω	These <b>lots</b> have been imported from outside the EU or, if the UK has withdrawn from the EU without an agreed transition deal, from outside of the UK for sale and placed under the Temporary Admission regime. Customs Duty as applicable will be added to the <b>hammer price</b> and Import VAT at 20% will be charged on the Duty Inclusive <b>hammer price</b> . VAT at 20% will be added to the <b>buyer's premium</b> but will not be shown separately on our invoice.
α	The VAT treatment will depend on whether you have registered to bid with an EU address or, if the UK has withdrawn from the EU without an agreed transition deal, a UK address or non-EU address: <ul style="list-style-type: none"> <li>• If you register to bid with an address <b>within</b> the EU or UK (as applicable above) you will be invoiced under the VAT Margin Scheme (see No Symbol above).</li> <li>• If you register to bid with an address <b>outside</b> of the EU or UK (as applicable above) you will be invoiced under standard VAT rules (see † symbol above)</li> </ul>
‡	For wine offered 'in bond' only. If you choose to buy the wine in bond no Excise Duty or Clearance VAT will be charged on the <b>hammer</b> . If you choose to buy the wine out of bond Excise Duty as applicable will be added to the <b>hammer price</b> and Clearance VAT at 20% will be charged on the Duty inclusive <b>hammer price</b> . Whether you buy the wine in bond or out of bond, 20% VAT will be added to the buyer's premium and shown on the invoice.

## VAT refunds: what can I reclaim? If you are:

Non-VAT registered UK buyer or Non-VAT registered EU buyer (please refer to the below category if you are a Non-VAT registered EU buyer and the UK has withdrawn from the EU without an agreed transition deal)		No VAT refund is possible
UK VAT registered buyer	No symbol and α	<b>The VAT amount in the buyer's premium cannot be refunded.</b> However, on request we can re-invoice you outside of the VAT Margin Scheme under normal UK VAT rules (as if the lot had been sold with a † symbol). Subject to HMRC's rules, you can then reclaim the VAT charged through your own VAT return.
	* and Ω	Subject to HMRC's rules, you can reclaim the Import VAT charged on the <b>hammer price</b> through your own VAT return when you are in receipt of a C79 form issued by HMRC. The VAT amount in the <b>buyer's premium</b> is invoiced under Margin Scheme rules so cannot normally be claimed back. However, if you request to be re-invoiced outside of the Margin Scheme under standard VAT rules (as if the lot had been sold with a † symbol) then, subject to HMRC's rules, you can reclaim the VAT charged through your own VAT return.
EU VAT registered buyer (please refer to the below category if the UK has withdrawn from the EU without an agreed transition deal)	No Symbol and α	<b>The VAT amount in the buyer's premium cannot be refunded.</b> However, on request we can <b>re-invoice</b> you outside of the VAT Margin Scheme under normal UK VAT rules (as if the lot had been sold with a † symbol). See below for the rules that would then apply.
	†	If you provide us with your EU VAT number we will not charge VAT on the <b>buyer's premium</b> . We will also refund the VAT on the <b>hammer price</b> if you ship the lot from the UK and provide us with proof of shipping, within three months of collection.
	* and Ω	<b>The VAT amount on the hammer price and in the buyer's premium cannot be refunded.</b> However, on request we can <b>re-invoice</b> you outside of the VAT Margin Scheme under normal UK VAT rules (as if the lot had been sold with a † symbol). See above for the rules that would then apply.
Non-EU buyer or Non-VAT registered EU buyer (if the UK has withdrawn from the EU without an agreed transition deal) or EU VAT registered buyer (if the UK has withdrawn from the EU without an agreed transition deal)		If you meet <b>ALL</b> of the conditions in notes 1 to 3 below we will refund the following tax charges:
	No Symbol	We will refund the VAT amount in the <b>buyer's premium</b> .
	† and α	We will refund the VAT charged on the <b>hammer price</b> . VAT on the <b>buyer's premium</b> can only be refunded if you are an overseas business. The VAT amount in the <b>buyer's premium</b> cannot be refunded to non-trade clients.
	‡ (wine only)	No Excise Duty or Clearance VAT will be charged on the <b>hammer price</b> providing you export the wine while 'in bond' directly outside the EU or, if the UK has withdrawn from the EU without an agreed transition deal, outside of the UK using an Excise authorised shipper. VAT on the <b>buyer's premium</b> can only be refunded if you are an overseas business. <b>The VAT amount in the buyer's premium cannot be refunded to non-trade clients.</b>
	* and Ω	We will refund the Import VAT charged on the <b>hammer price</b> and the VAT amount in the <b>buyer's premium</b> .

1. We **CANNOT** offer refunds of VAT amounts or Import VAT to buyers who do not meet all applicable conditions in full. If you are unsure whether you will be entitled to a refund, please contact Client Services at the address below **before** you bid.  
 2. No VAT amounts or Import VAT will be refunded where the total refund is under £100.  
 3. To receive a refund of VAT amounts/Import VAT (as applicable) a non-EU or EU

buyer (as applicable) must:  
 (a) have registered to bid with an address outside of the EU (prior to the UK withdrawing from the EU without an agreed transition deal) or UK (after the UK has withdrawn from the EU without an agreed transition deal); **and**  
 (b) provide immediate proof of correct export out of the EU or UK (as applicable) pursuant to (a) above within the required time frames of: 30 days via

a 'controlled export' for \* and Ω lots. All other lots must be exported within three months of collection.  
 4. Details of the documents which you must provide to us to show satisfactory proof of export/shipping are available from our VAT team at the address below.  
 We charge a processing fee of £35.00 per invoice to check shipping/export documents. We will waive this processing fee if

you appoint Christie's Shipping Department to arrange your export/shipping.  
 5. If you appoint Christie's Art Transport or one of our authorised shippers to arrange your export/shipping we will issue you with an export invoice with the applicable VAT or duties cancelled as outlined above. If you later cancel or change the shipment in a manner that infringes the rules outlined above we will issue a

revised invoice charging you all applicable taxes/charges.  
 6. If you ask us to re-invoice you under normal UK VAT rules (as if the lot had been sold with a † symbol) instead of under the Margin Scheme the lot may become ineligible to be resold using the Margin Schemes. Prior to the UK withdrawing from the EU without an agreed transition deal, **movement within the EU must be within 3 months**

**from the date of sale.** You should take professional advice if you are unsure how this may affect you.  
 7. All re-invoicing requests must be received within four years from the date of sale.  
 If you have any questions about VAT refunds please contact Christie's Client Services on info@christies.com  
 Tel: +44 (0)20 7389 2886. 119  
 Fax: +44 (0)20 7839 1611.

## SYMBOLS USED IN THIS CATALOGUE

The meaning of words coloured in **bold** in this section can be found at the end of the section of the catalogue headed 'Conditions of Sale'.

○

Christie's has a direct financial interest in the **lot**. See Important Notices and Explanation of Cataloguing Practice.

△

Owned by Christie's or another **Christie's Group** company in whole or part. See Important Notices and Explanation of Cataloguing Practice.

◆

Christie's has a direct financial interest in the **lot** and has funded all or part of our interest with the help of someone else. See Important Notices and Explanation of Cataloguing Practice.

□

Bidding by interested parties.

λ

Artist's Resale Right. See Section D3 of the Conditions of Sale.

•

**Lot** offered without **reserve** which will be sold to the highest bidder regardless of the pre-sale estimate in the catalogue.

~

**Lot** incorporates material from endangered species which could result in export restrictions. See Section H2(b) of the Conditions of Sale.

Ψ

**Lot** incorporates material from endangered species which is shown for display purposes only and is not for sale. See Section H2(g) of the Conditions of Sale.

†, \*, Ω, α, ‡

See VAT Symbols and Explanation.

■

See Storage and Collection Page.

Please note that **lots** are marked as a convenience to you and we shall not be liable for any errors in, or failure to, mark a **lot**.

## IMPORTANT NOTICES

### CHRISTIE'S INTEREST IN PROPERTY CONSIGNED FOR AUCTION

#### △ **Property Owned in part or in full by Christie's**

From time to time, Christie's may offer a **lot** which it owns in whole or in part. Such property is identified in the catalogue with the symbol △ next to its **lot** number.

#### ○ **Minimum Price Guarantees**

On occasion, Christie's has a direct financial interest in the outcome of the sale of certain lots consigned for sale. This will usually be where it has guaranteed to the Seller that whatever the outcome of the auction, the Seller will receive a minimum sale price for the work. This is known as a minimum price guarantee. Where Christie's holds such financial interest we identify such **lots** with the symbol ○ next to the **lot** number.

#### ◆ **Third Party Guarantees/Irrevocable bids**

Where Christie's has provided a Minimum Price Guarantee it is at risk of making a loss, which can be significant, if the **lot** fails to sell. Christie's therefore sometimes chooses to share that risk with a third party. In such cases the third party agrees prior to the auction to place an irrevocable written bid on the **lot**. The third party is therefore committed to bidding on the **lot** and, even if there are no other bids, buying the **lot** at the level of the written bid unless there are any higher bids. In doing so, the third party takes on all or part of the risk of the **lot** not being sold. If the **lot** is not sold, the third party may incur a loss. **Lots** which are subject to a third party guarantee arrangement are identified in the catalogue with the symbol ◆.

In most cases, Christie's compensates the third party in exchange for accepting this risk. Where the third party is the successful bidder, the third party's remuneration is based on a fixed financing fee. If the third party is not the successful bidder, the remuneration may either be based on a fixed fee or an amount calculated against the final **hammer price**. The third party may also bid for the **lot** above the written bid. Where the third party is the successful bidder, Christie's will report the final **purchase price** net of the fixed financing fee.

Third party guarantors are required by us to disclose to anyone they are advising their financial interest in any **lots** they are guaranteeing. However, for the avoidance of any doubt, if you are advised by or bidding through an agent on a **lot** identified as being subject to a third party guarantee you should always ask your agent to confirm whether or not he or she has a financial interest in relation to the **lot**.

### Other Arrangements

Christie's may enter into other arrangements not involving bids. These include arrangements where Christie's has given the Seller an Advance on the proceeds of sale of the **lot** or where Christie's has shared the risk of a guarantee with a partner without the partner being required to place an irrevocable written bid or otherwise participating in the bidding on the **lot**. Because such arrangements are unrelated to the bidding process they are not marked with a symbol in the catalogue.

### Bidding by parties with an interest

In any case where a party has a financial interest in a **lot** and intends to bid on it we will make a saleroom announcement to ensure that all bidders are aware of this. Such financial interests can include where beneficiaries of an Estate have reserved the right to bid on a **lot** consigned by the Estate or where a partner in a risk-sharing arrangement has reserved the right to bid on a **lot** and/or notified us of their intention to bid.

Please see <http://www.christies.com/financial-interest/> for a more detailed explanation of minimum price guarantees and third party financing arrangements.

Where Christie's has an ownership or financial interest in every **lot** in the catalogue, Christie's will not designate each **lot** with a symbol, but will state its interest in the front of the catalogue.

### BOOKS

If, on collation, any named item in this catalogue proves defective in text or illustration, the lot may be returned within 14 days of the sale with the defect stated in writing. This proviso shall not apply to defects stated in the catalogue or announced at the time of sale; nor to the absence of blanks, half titles, tissue guards or advertisements, damage in respect of bindings, stains, spotting, marginal tears, or other defects not affecting completeness of text or illustration; nor to drawings, autographs, letters or manuscripts, signed photographs, music, atlases, maps or periodicals; nor to books not identified by title; nor to lots sold without printed estimates or described in the catalogue as sold not subject to return.

Buyers are advised to clear their lots within ten days of the sale or storage charges will be incurred.

Please note the Conditions of Sale printed at the end of this catalogue.

### COLLECTION AND CONTACT DETAILS

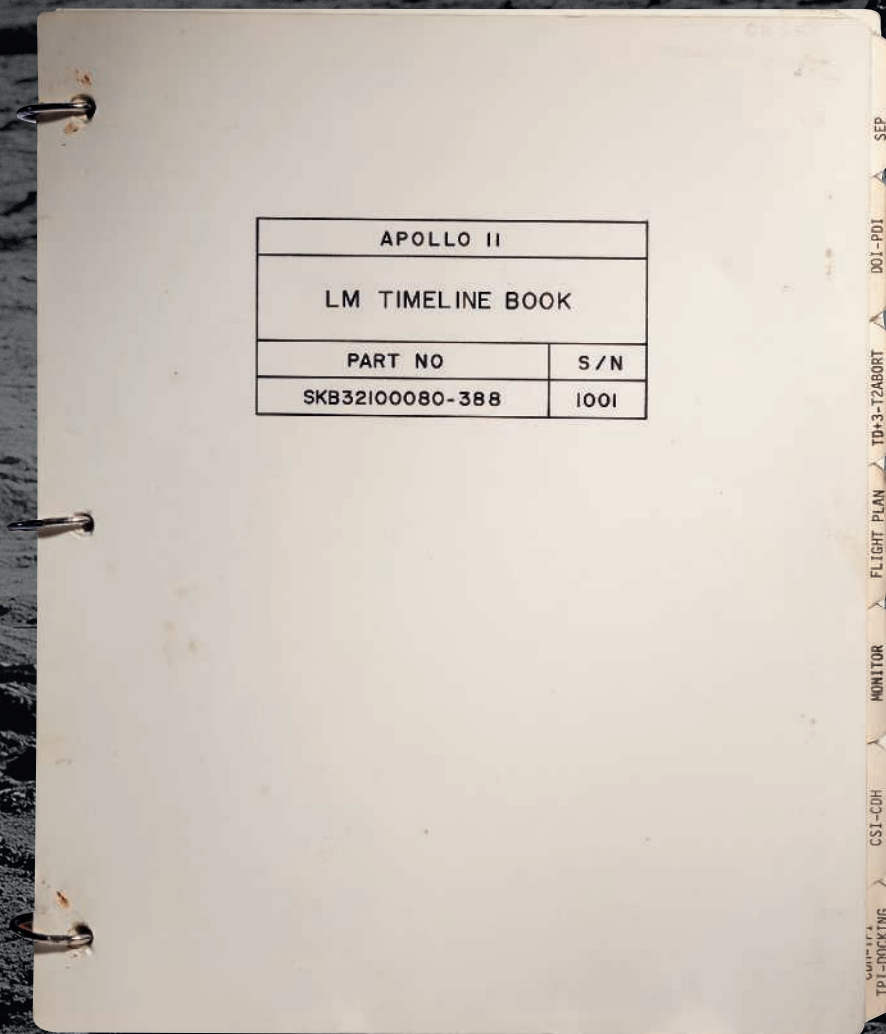
**Lots** will only be released on payment of all charges due and on production of a **Collection Form** from Christie's. Charges may be paid in advance or at the time of collection. We may charge fees for storage if your **lot** is not collected within thirty days from the sale. Please see paragraph G of the Conditions of Sale for further detail.

Tel: +44 (0)20 7839 9060  
Email: [cscollectionsuk@christies.com](mailto:cscollectionsuk@christies.com)

### SHIPPING AND DELIVERY

Christie's Post-Sale Service can organise local deliveries or international freight. Please contact them on +44 (0)20 7752 3200 or [PostSaleUK@christies.com](mailto:PostSaleUK@christies.com).

*The Apollo 11 Lunar Module Timeline Book.*  
[Houston:] Manned Spacecraft Center, Flight Planning Branch, June 19-July 12, 1969.  
Flown aboard the Lunar Module Eagle and annotated by  
Neil Armstrong and Buzz Aldrin as they landed on the moon.  
\$7,000,000-9,000,000



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CELEBRATING SPACE EXPLORATION 50 YEARS AFTER APOLLO 11  
*New York, 18 July 2019*

**VIEWING**  
4-15 May 2019 | 20th-Century Week  
11-17 July 2019  
20 Rockefeller Plaza  
New York, NY 10020

**CONTACT**  
Christina Geiger  
cgeiger@christies.com  
+1 212 636 2667

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COPERNICUS, NICOLAUS (1473-1543)

*De revolutionibus orbium coelestium, libri V.* Nuremberg: Johann Petreius, 1543.

First edition of the most important scientific publication of the 16th century and a "landmark in human thought"

£ 500,000 - £700,000

## VALUABLE BOOKS & MANUSCRIPTS

London, 10 July 2019

### VIEWING

6-9 July 2019  
8 King Street  
London SW1Y 6QT

### CONTACT

Sophie Hopkins  
Shopkins@christies.com  
+44 (0)20 7752 3144

Other fees apply in addition to the hammer price. See Section D of our Conditions of Sale at the back of the Auction Catalogue

CHRISTIE'S

# WRITTEN BIDS FORM

## CHRISTIE'S LONDON

### IMPORTANT SCIENTIFIC BOOKS

TUESDAY 9 JULY AT 2.00 PM

8 King Street, St. James's, London SW1Y 6QT

CODE NAME: BRAHE

SALE NUMBER: 17700

(Dealers billing name and address must agree with tax exemption certificate. Once issued, we cannot change the buyer's name on an invoice or re-issue the invoice in a different name.)

**BID ONLINE FOR THIS SALE AT CHRISTIES.COM**

### BIDDING INCREMENTS

Bidding generally starts below the **low estimate** and increases in steps (bid increments) of up to 10 per cent. The auctioneer will decide where the bidding should start and the bid increments. Written bids that do not conform to the increments set below may be lowered to the next bidding interval.

UK£100 to UK£2,000	by UK£100s
UK£2,000 to UK£3,000	by UK£200s
UK£3,000 to UK£5,000	by UK£200, 500, 800 (eg UK£4,200, 4,500, 4,800)
UK£5,000 to UK£10,000	by UK£500s
UK£10,000 to UK£20,000	by UK£1,000s
UK£20,000 to UK£30,000	by UK£2,000s
UK£30,000 to UK£50,000	by UK£2,000, 5,000, 8,000 (eg UK£32,000, 35,000, 38,000)
UK£50,000 to UK£100,000	by UK£5,000s
UK£100,000 to UK£120,000	by UK£10,000s
Above UK£200,000	at <b>auctioneer's</b> discretion

The **auctioneer** may vary the increments during the course of the auction at his or her own discretion.

- I request Christie's to bid on the stated **lots** up to the maximum bid I have indicated for each **lot**.
  - I understand that if my bid is successful, the amount payable will be the sum of the **hammer price** and the **buyer's premium** (together with any taxes chargeable on the **hammer price** and **buyer's premium** and any applicable Artist's Resale Royalty in accordance with the Conditions of Sale - Buyer's Agreement). The **buyer's premium** rate shall be an amount equal to 25% of the **hammer price** of each **lot** up to and including £225,000, 20% on any amount over £225,000 up to and including £3,000,000 and 13.5% of the amount above £3,000,000. For wine and cigars there is a flat rate of 22.5% of the **hammer price** of each **lot** sold.
  - I agree to be bound by the Conditions of Sale printed in the catalogue.
  - I understand that if Christie's receive written bids on a **lot** for identical amounts and at the auction these are the highest bids on the **lot**, Christie's will sell the **lot** to the bidder whose written bid it received and accepted first.
  - Written bids submitted on 'no reserve' **lots** will, in the absence of a higher bid, be executed at approximately 50% of the **low estimate** or at the amount of the bid if it is less than 50% of the **low estimate**.
- I understand that Christie's written bid service is a free service provided for clients and that, while Christie's will be as careful as it reasonably can be, Christie's will not be liable for any problems with this service or loss or damage arising from circumstances beyond Christie's reasonable control.

**Auction Results: +44 (0)20 7839 9060**

WRITTEN BIDS MUST BE RECEIVED AT LEAST 24 HOURS BEFORE THE AUCTION BEGINS.

CHRISTIE'S WILL CONFIRM ALL BIDS RECEIVED BY FAX BY RETURN FAX. IF YOU HAVE NOT RECEIVED CONFIRMATION WITHIN ONE BUSINESS DAY, PLEASE CONTACT THE BID DEPARTMENT: TEL: +44 (0)20 7389 2658 • FAX: +44 (0)20 7930 8870 • ON-LINE WWW.CHRISTIES.COM

**17700**

Client Number (if applicable) Sale Number

Billing Name (please print)

Address

Postcode

Daytime Telephone Evening Telephone

Fax (Important) E-mail

Please tick if you prefer not to receive information about our upcoming sales by e-mail

I have read and understood this written bid form and the Conditions of Sale - Buyer's Agreement

Signature

If you have not previously bid or consigned with Christie's, please attach copies of the following documents. Individuals: government-issued photo identification (such as a driving licence, national identity card, or passport) and, if not shown on the ID document, proof of current address, for example a utility bill or bank statement. Corporate clients: a certificate of incorporation. Other business structures such as trusts, offshore companies or partnerships: please contact the Compliance Department at +44 (0)20 7839 9060 for advice on the information you should supply. If you are registering to bid on behalf of someone who has not previously bid or consigned with Christie's, please attach identification documents for yourself as well as the party on whose behalf you are bidding, together with a signed letter of authorisation from that party. New clients, clients who have not made a purchase from any Christie's office within the last two years, and those wishing to spend more than on previous occasions will be asked to supply a bank reference. We also request that you complete the section below with your bank details:

Name of Bank(s)

Address of Bank(s)

Account Number(s)

Name of Account Officer(s)

Bank Telephone Number

### PLEASE PRINT CLEARLY

Lot number (in numerical order)	Maximum Bid £ (excluding buyer's premium)	Lot number (in numerical order)	Maximum Bid £ (excluding buyer's premium)

If you are registered within the European Community for VAT/IVA/TVA/BTW/MWST/MOMS Please quote number below:

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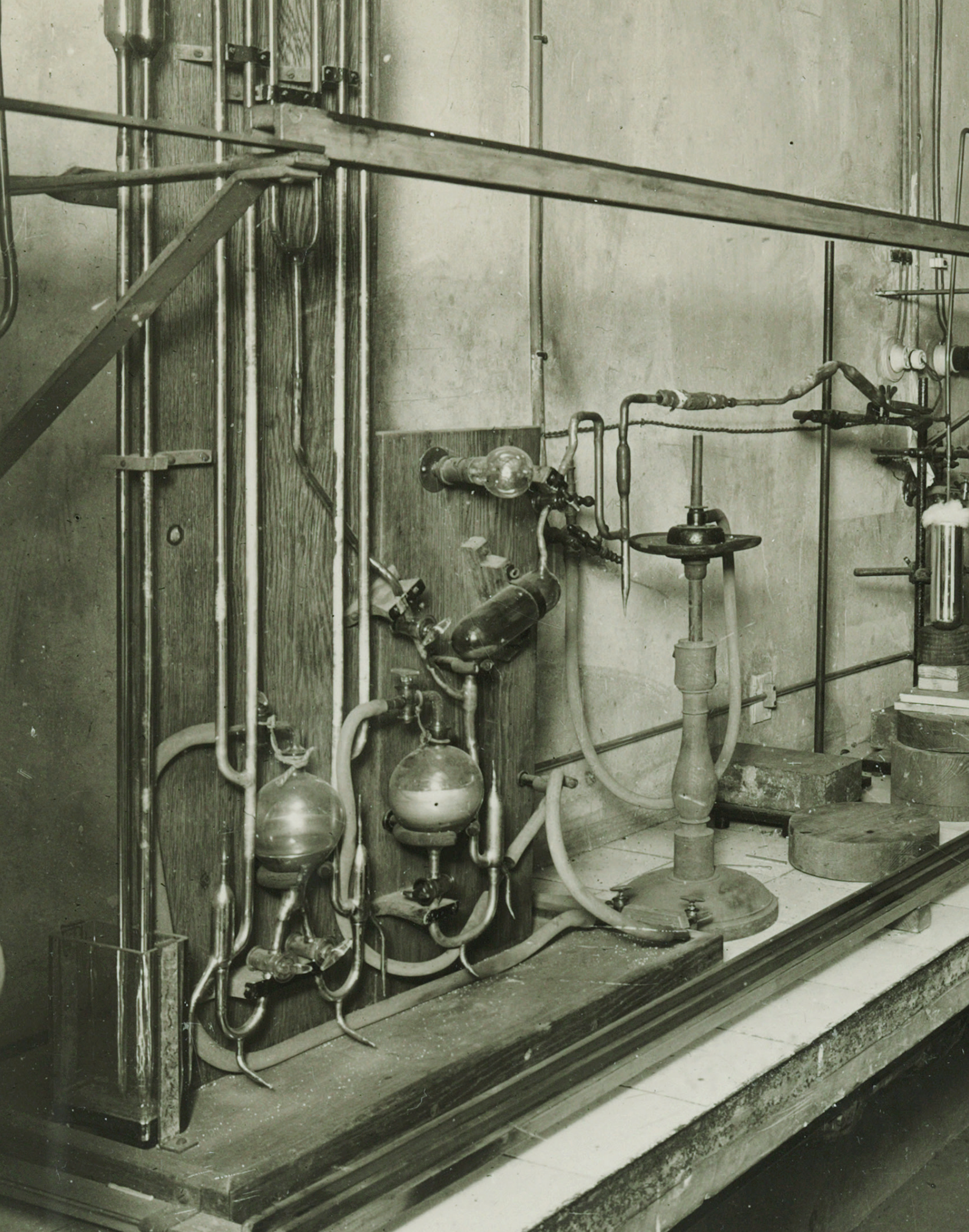
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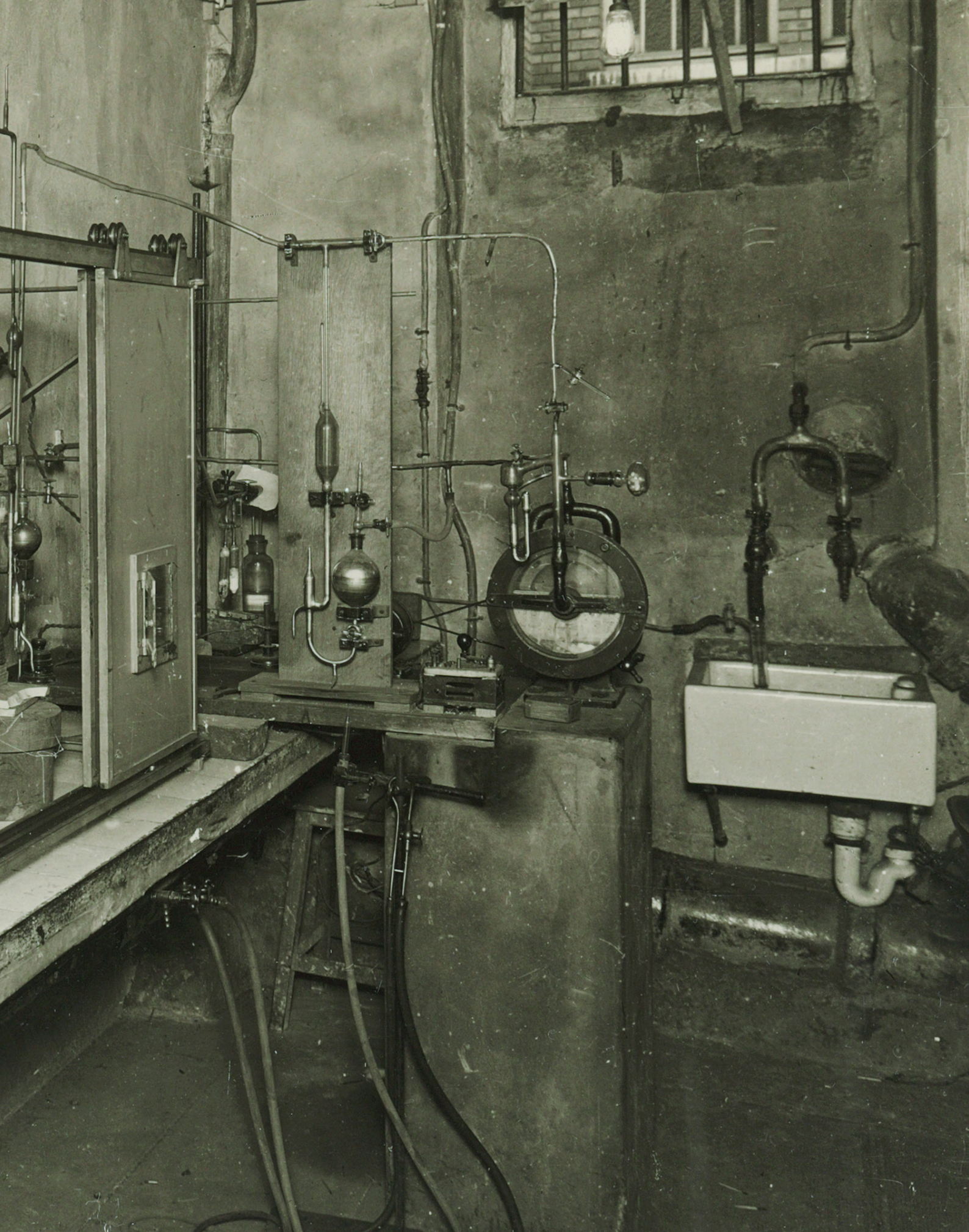
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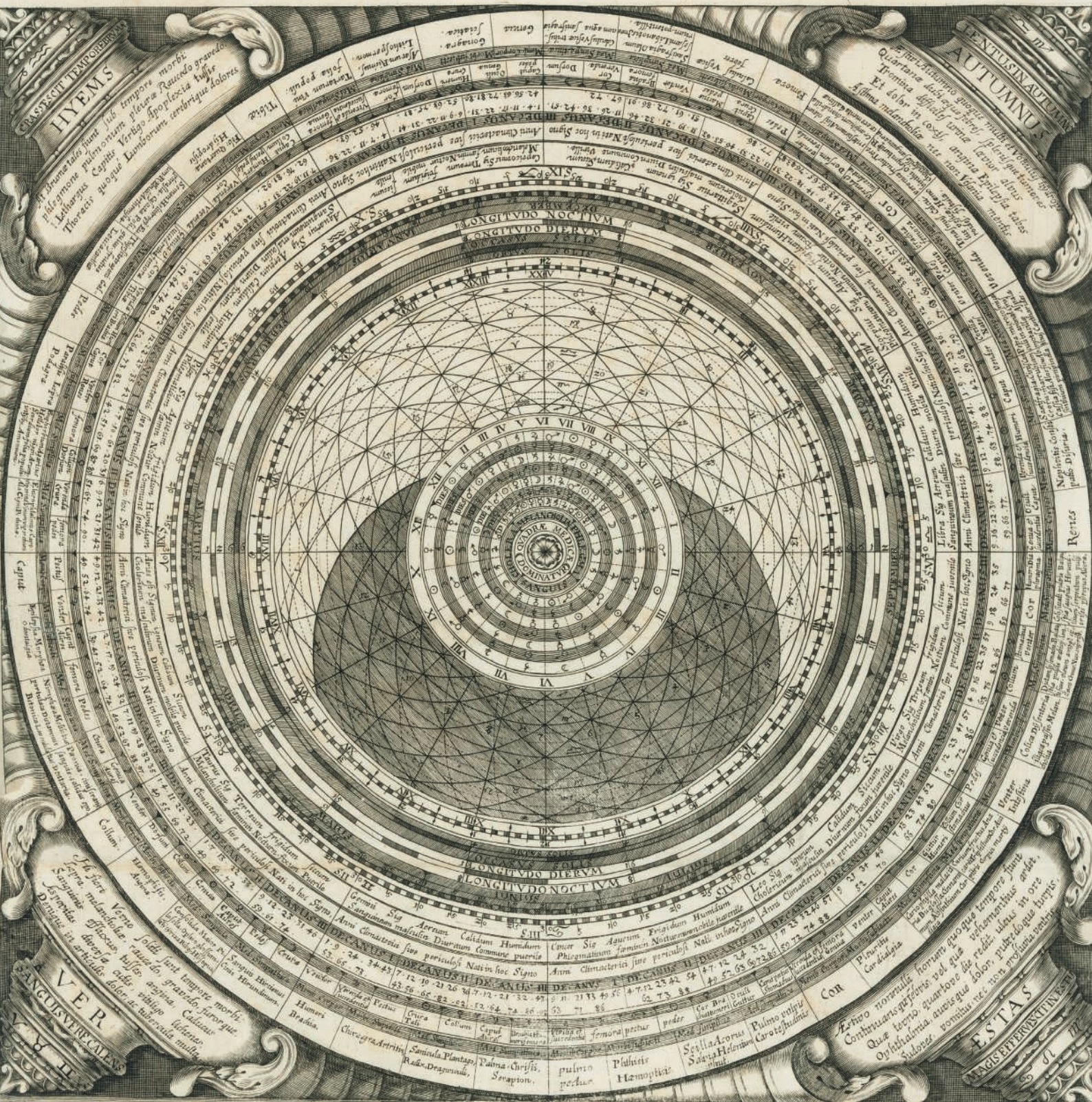
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Tempora labuntur tacitisque serenos Annis  
Et fugiunt freno non remorantis dies  
Ovidius lib. 6 Fast.

**CHRISTIE'S**

8 KING STREET ST. JAMES'S LONDON SW1Y 6QT

Cuncta trahit secum vortique volubile tempus  
Nec patitur certa currere quemque via  
Cornelius Gallus.