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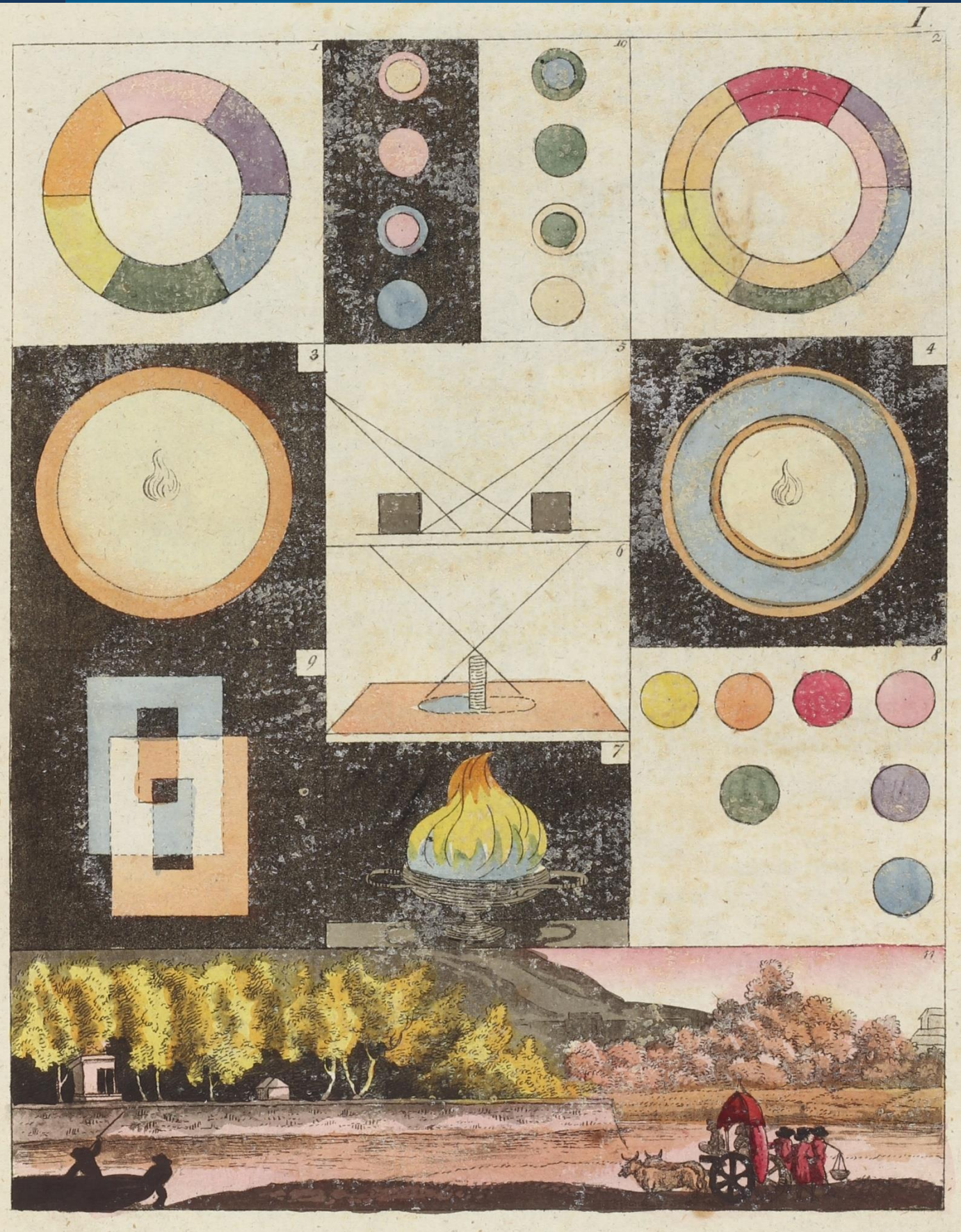

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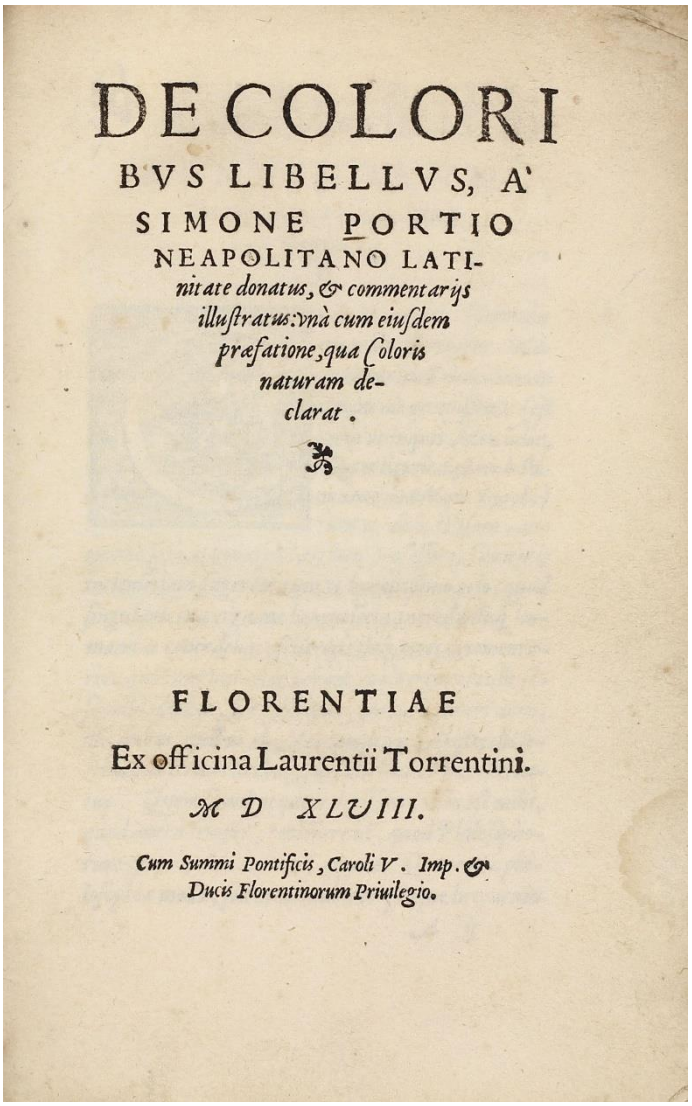
1 **ARISTOTELES [THEOPHRASTUS]**. *De coloribus libellus, a Simone Portio Neapolitano latinitate donatus, & commentariis illustratus: una cum eiusdem praefatione, qua coloris naturam declarat*. Florence: Lorenzo Torrentini, 1548. 4to (207 x 137 mm). 197 [1], [2, errata] pp. Text in latin and greek. Bound in contemporary limp vellum, spine titled in manuscript, ties gone (soiling, browning and minor spotting of vellum, old repair to spine, small hole in lower cover). Internally quite crisp and clean, small dampstain to fore-margin of first two gatherings, few pages with contemporary ink annotations, first flyleaf with long commentary in manuscript. A fine, wide-margined copy. (#002939) € 3300

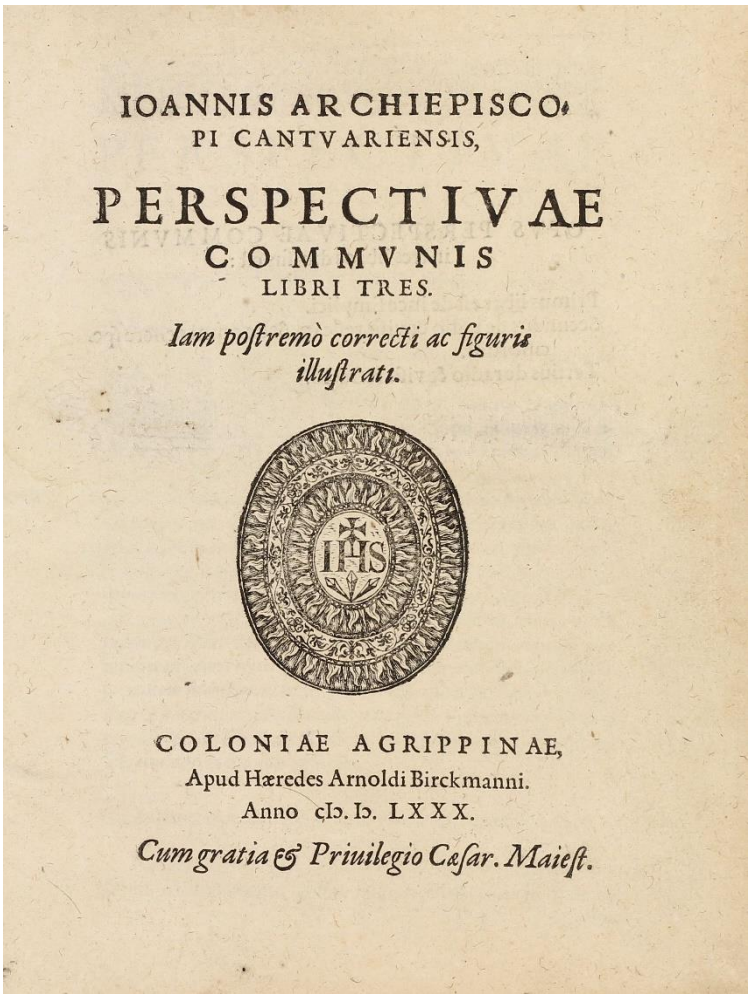

DE COLORI
BVS LIBELLVS, A'
SIMONE PORTIO
NEAPOLITANO LATI-
nitate donatus, & commentarijs
illustratus: vnà cum eiusdem
præfatione, qua Coloris
naturam de-
clarat.

FLORENTIAE
Ex officina Laurentii Torrentini.
M D XLVIII.

Cum Summi Pontificis, Caroli V. Imp. &
Ducis Florentinorum Priuilegio.

Adams A 1787; Cranz (IA) 108.139; Graesse V, 419; Hoffmann I, 307, 4; Honeyman 143; Schweiger I, 52. FIRST EDITION of a work now attributed to Theophrastus being one of the earliest printed books on color, with the Latin translation and commentary by the Neapolitan physician and philosopher Simone Porzio. It is generally agreed that *De coloribus* was not written by Aristotle; but can now be ascribed to Theophrastus or Strato. There is no evidence upon which to determine the authorship. It probably emanates from one of the Peripatetic School. *De coloribus* outlines the theory that all colors (yellow, red, purple, green, and blue) are derived from mixtures of black and white. It had a pronounced impact on subsequent color theories and remained influential until Isaac Newton's experiments with light refraction. The author states at the end of the book that he rather intends to provide data for a detailed examination into the scientific theory of color than to expound a complete thesis. He realised that the development of color in plants and animals depends to some extent on heat, suggesting that heat and moisture are the controlling factors. The treatise is therefore of more value as a collection of observed facts than for any theory of the origin and development of color in physical life. There is no knowledge of the part played by chemical action, but the author distinguishes primary and secondary colors and raises doubt whether black is a color at all.

2 **PECKHAM, John**. *Perspectivae communis libri tres. Iam postremo correcti ac figuris illustrati*. Cologne: Agrippinae, apud haeredes A. Birckmanni, 1580. 4to (194 x 152 mm). [1], 47 (i.e. 46), [1] leaves. Title with woodcut printer's device, several woodcut illustrations in text. Signatures: A-M^4, including final blank. Bound in contemporary limp vellum, front board lettered in manuscript (vellum soiled and stained, ties gone, boards somewhat bowed). Text generally crisp and clean with only very minor spotting in places. Near fine copy. (#002937) € 2900


IOANNIS ARCHIEPISCO-
PI CANTVARIENSIS,

PERSPECTIVAE
COMMVNIS
LIBRI TRES.

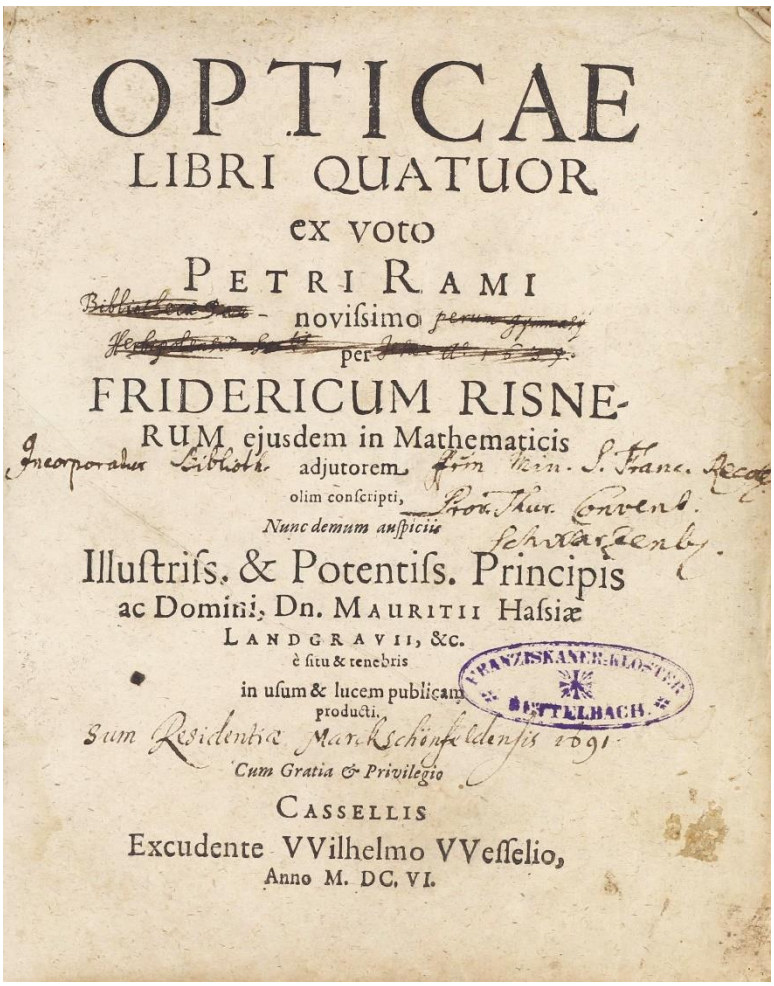
Iam poſtremò correcti ac figuris illuſtrati.

COLONIAE AGRIPPINAE,
Apud Hæredes Arnoldi Birckmanni.
Anno cIↃ. IↃ. LXXX.

Cum gratia & Priuilegio Cæſar. Maieſt.

VD 16, J 679; Adams P-536; Houzeau-Lancaster 1714; DSB X, p.476. - First Cologne edition by Birckmann. "The *Perspectiva communis* was the most wideley used of all optical texts from the early 14th until the close of the sixteenth century, and it remains today the best index of what was known to the scientific community in general on the subject." (DSB). It was written in about the 1270s and proved very influential; the first printed edition appeared around 1482 by Petrus de Corneno in Milan. John Peckham, English theologian, mathematician, and physicist, was a member of the Franciscan order, and became Archbishop of Canterbury from 1279-1292. "His *'Perspectiva Communis*' is ... divided in three parts, of which the second and third deal respectively with reflection and refraction ... Peckham's Optics was largely derived from Ibn al-Haitham (Alhazen c. 965-1039; 'one of the greatest students of optics of all times'). Hence it is not surprising to find in it references to the camera obscura, even as we find them in the contemporary works of Bacon and Witelo. There is a description of the eye, and the printed editions contain a diagram of it which was probably the earliest to appear in print." (Sarton: *Hist. of Science*, II, p. 1029).

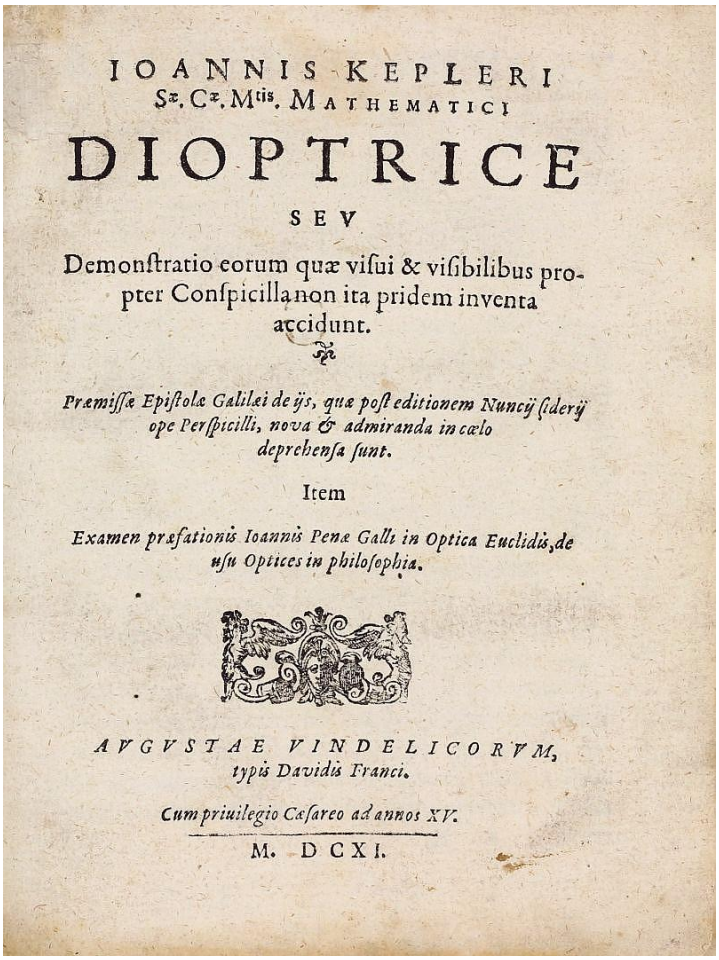
3 **RISNER, Friedrich**. *Opticae libri quatuor ex voto Petri Rami novissimo*... Kassel: Wilhelm Wessel, 1606. 4to (188 x 148 mm). [26], 259 [1] pp. Several woodcut text illustrations and diagrams, woodcut initials, head- and tailpieces. Contemporary limp vellum, spine with ink hand-lettering and old shelf-mark paper label at foot, untouched original endpapers, red sprinkled edges (vellum browned, soiled and spotted, covers warped). Text somewhat browned throughout, occasional minor dust-soiling and spotting, pale dampstaining to few pages. Provenance: Franciscan convent of Dettelbach (ink stamp to title-page), old ownership inscriptions on title and last page, partly cancelled. Still very good copy in untouched binding. (#003461) € 12,000


OPTICAE
LIBRI QUATUOR
ex voto
PETRI RAMI
novissimo
per
FRIDERICUM RISNE-
RUM, ejusdem in Mathematicis
adjutorem
olim conscripti,
Nunc demum auspiciis
Illustriss. & Potentiss. Principis
ac Domini, Dn. MAURITII Hassiæ
LANDGRAVII, &c.
è situ & tenebris
in usum & lucem publicam
producti.
FRANZISKANER-KLOSTER
DETTELBACH
Cum Gratia & Privilegio
CASSELLIS
Excudente VVilhelmo VVesselio,
Anno M. DC. VI.

VD 17 39:121946R; DSB XI, 468. EXCEPTIONALLY RARE FIRST EDITION. Published posthumously at the instigation of the Landgrave of Hesse. Risner was a student of Petrus Ramus and, as his successor, held the chair of mathematics at the Collège Royale de France in Paris. But a short time later he returned to his birthplace in Hersfeld. Important results of the collaboration between Ramus and Risner is the 1572 edition of two basic optical writings of the Arabic and Latin Middle Ages, namely the *'Opticae'* by Ibn al-Haitam (Latin: Alhazen) and the *'Perspectiva'* by Witelo. Risner's edition received a lot of attention and influenced Johannes Kepler in particular. The *'Opticae libri quatuor'* was also created in collaboration with Ramus; the conception probably goes back to Ramus, while Risner worked out the details and the evidence. The main source of this writing was Witelo's *'Perspectiva'*. Only the first book was fully worked out "(see NDB XXI, 646). Risner's *'Opticae libri quatuor'* "later influenced Snell. It seems that the book was begun during the early years of Ramus and Risner's association; and it is probable that the basic outline was Ramus', while Risner was given the task of providing appropriate demonstrations and discussion . . . The work depends primarily on Witelo, although other ancient and medieval authors are also cited." (DSB).

4 **KEPLER, Johannes.** *Dioptrice seu Demonstratio eorum quse visui & visi-bilibus propter Conspicilla non ita pridem inventa accidunt; praemissa epistola GALILAEI de iis, quae post editionem Nuncii Siderii ope Per-spicilli ... deprehensa sunt.* 2 parts in one volume. Augsburg: David Frank, 1611. 4to (198 x 152 mm). [8], 28, 80, [4] pp., including errata and addendum leaf to fol. 27 at end, 2 tail pieces, and 42 woodcut diagrams in text. Signatures:)(⁴ a-c⁴ d² A-K⁴ chi². Text printed in Roman and italic type. pp. 15-27 with four letters of Galileo (13 Nov. 1610 - 26 March 1611) in Italian, with Latin translation. Bound in antique-style three-quarter calf, spine with gilt-lettered morocco label and gilt ruling. Internally crisp and clean without visible staining or spotting, the title-page slightly dust-soiled and with a small nearly invisible flaw at the top gutter. Provenance: J.R.K. (tiny stamp "ex Coll. J.R.K." to rear pastedown); Hartung & Karl Auction (sold 1974, Lot 370). An exceptional copy with wide margins preserving all oversized diagrams unshaved (most copies known have at least two illustrations shaved). Collated complete. (#002859) € 43,000

RARE FIRST EDITION OF THE FOUNDATION WORK ON MODERN OPTICS. In this work Kepler explained the theory of refraction by lenses, enlarged his system of geometrical and instrumental optics, and expounded the principle of the inverting telescope.


IOANNIS KEPLERI
Sæ. Cæ. Mtis. MATHEMATICI
DIOPTRICE
SEV
Demonstratio eorum quæ visui & visibilibus propter Conspicilla non ita pridem inventa accidunt.
Præmissæ Epistolæ Galilæi de ijs, quæ post editionem Nuncij sidery ope Perspicilli, nova & admiranda in cælo deprehensa sunt.
Item
Examen præfationis Ioannis Penæ Galli in Optica Euclidis, de usu Optices in philosophia.
AVGVSTAE VINDELICORVM, typis Davidis Franci.
Cum priuilegio Cæsareo ad annos XV.
M. D CXI.

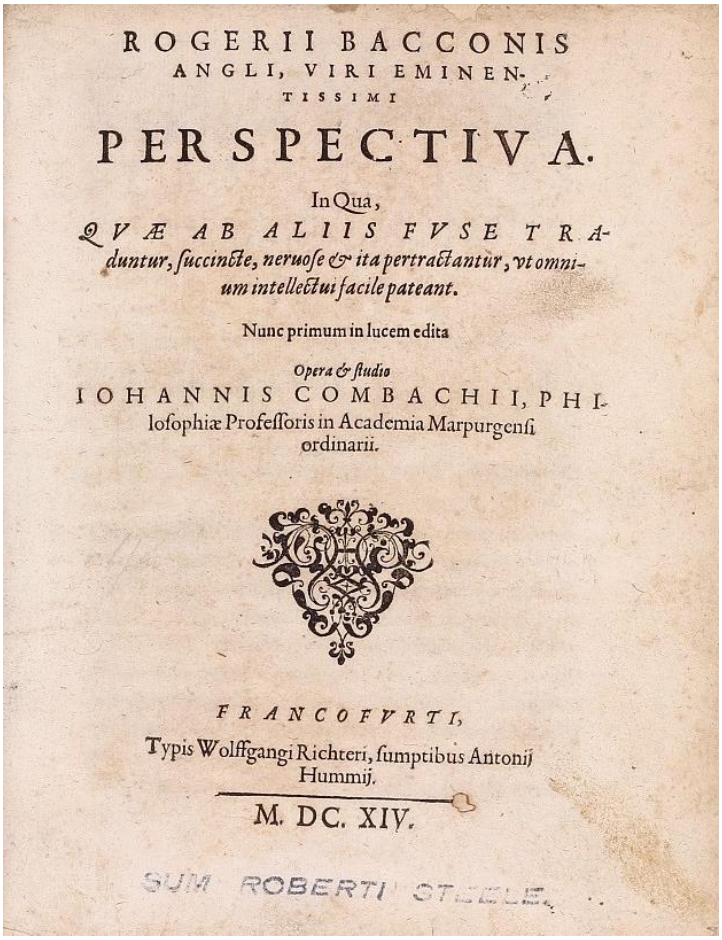
"Kepler obtained a telescope in 1610, a gift from Ernest, Archbishop of Cologne, and in his Dioptrice (1611), Kepler discussed its theory. In this work he enlarged upon his ideas on refraction and wrote about the anatomy of the eye. He described, for the first time, the defect of spherical aberration and stated that it could be overcome by giving optical surfaces hyperboloidal forms ... He showed, also for the first time, that before an object can be seen distinctly, its image must be sharply formed on the retina" (King, *The History of the Telescope*, pp. 44-45).

"The immediate impact of Kepler's optical work was not great; but ultimately it changed the course of optics, especially after his *Dioptrice* (1611), which applied these principles to the telescope. 'Optical tubes' had been discussed in Giambattista della Porta's *Magia naturalis* (1589); but Kepler confessed that 'I disparaged them most vigorously, and no wonder, for he obviously mixes up the incredible with the probable.' Thus Kepler, who himself used spectacles, discussed lenses only in passing in his *Astronomiae pars optica*. Nevertheless, he had set forth the essential background by which the formation of images with lenses could be explained, and so he was able to complete his *Dioptrice* within six months after he had received Galileo's *Sidereus nuncius* (1610). With great thoroughness Kepler described the optics of lenses, including a new kind of astronomical telescope with two convex lenses. The preface declares, 'I offer you, friendly reader, a mathematical book, that is, a book that is not so easy to understand,' but his severely mathematical approach only serves to place the *Dioptrice* all the more firmly in the mainstream of seventeenth-century science." (D.S.B.)

In the long preface, Kepler comments on Galileo's recent discoveries made with the telescope and their importance in supporting the theories of Copernicus. The work also reprints a series of related letters from Galileo to Kepler, from 13 November 1610 to 26 March 1611. The *Dioptrice* is Kepler's only work on optics. "In optics he gave a correct theory of vision, found that the velocity of light is infinite, came very near the correct Jaw of refraction, and described various forms of the newly invented telescope"- PMM 112 (note).

References: Caspar 40; Zinner 4320; Cinti 31; Duncan 6961; Honeyman 1788; D.S.B. VII, p.299; PMM 112 (note).

5 **BACON, Roger**. *Perspectiva ... Nunc primum in lucem edita opera ... Iohannis Combachii.* Frankfurt: Wolfgang Richter for Anton Humm, 1614. 4to (205 x 163 mm). [8], 189 (i.e. 207) [1] pp., 4 plates, numerous woodcut diagrams and woodcut ornaments in text. Signatures:):(⁴ a-cc⁴. 18th century vellum covered boards, new endpapers, original flyleaves bound in (binding restored, vellum extensively soiled and marked). Leaves partially uncut. Text browned throughout, occasional foxing and spotting, title soiled and with small hole not affecting text, occasional dust soiling to outer page margins, small holes in margin of leaf 2c1 repaired, ink scribbling on front flyleaf, contemporary ink note on lower flyleaf, some pencil notes in text. Provenance: Robert Steele* (ink ownership stamp at tail of title); Birkbeck College (blind stamps to title-page and leaf 2b4). A handsome copy. (#002782) € 4000


ROGERII BACCONIS
ANGLI, VIRI EMINEN-
TISSIMI

PERSPECTIVA.

In Qua,
QVÆ AB ALIIS FVSE TRA-
duntur, ſuccincte, neruoſe & ita pertractantur, vt omni-
um intellectui facile pateant.

Nunc primum in lucem edita
Opera & ſtudio
IOHANNIS COMBACHII, PHI-
loſophiæ Profeſſoris in Academia Marpurgenſi
ordinarii.

FRANCOFVRTI,
Typis Wolffgangi Richteri, ſumptibus Antonij
Hummij.
M. DC. XIV.

SUM ROBERTI STEELE.

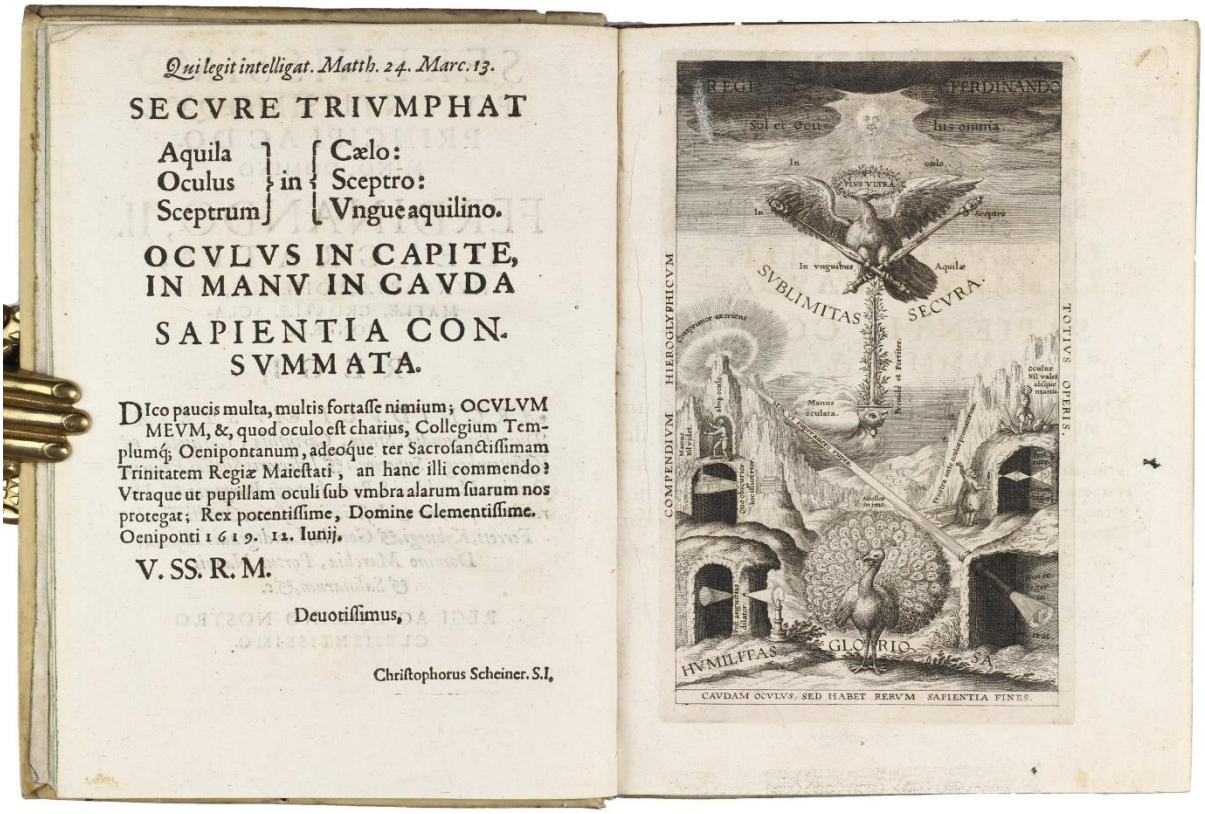
Becker 27; Hoover 73; DSB I, p. 377-84. - FIRST EDITION, edited from the manuscript by Johann Crombach (1585-1651). Bacon's main sources for his theories on optics and perspective were Euclid, Ptolemy, and Alhazen, and he 'followed Grosseteste in emphasizings the use of lenses, not only for burning, but also for magnification, to aid natural vision' (DSB).

*Robert Steele (1860-1944) was a British scholar and medievalist, best known for editing the 16-volume *Opera hactenus inedita Rogeri Bacon.* His publications of Bacon's works attracted funding from several learned societies, as well as a Civil List Pension and an Honorary Doctorate from Durham University. He was also one of the early Executive Members of the International Academy of the History of Science. His house and personal library were destroyed in a German air raid in 1941. (Wikisource).

A 4-leaf gathering containing diagrams, counted as [8] p. of plates is inserted between signatures t and u. Its first leaf bears a dagger-sign, but is outside the normal signature position.

6 **SCHEINER, Christoph**. *Oculus hoc est: Fundamentum Opticum, in quo ex accurata Oculi Anatome, abstrusarum experientiarum sedula pervestigatione, ex invisis specierum visibilium tam everso quam erecto situ spectaculis, necnon solidis rationum momentis Radius Visualis eruitur; sua Visioni in Oculo sedes decernitur; Anguli Visorii ingenium aperitur. . .* Innsbruck: Daniel Agricola, 1619. 4to (215 x 164 mm). [12], 1-199, 100-138, 239-254 pp., engraved allegorical plate bound after dedication, several woodcut illustrations and diagrams in text, woodcut initials, head- and tailpieces. Pp. 200-237 mispaginated 100-137. Bound in contemporary vellum, spine painted over and lettered in ink, boards with blind-ruling, blue-dyed edges (worming to boards, joints and pastedowns, hinges split at head of spine, spine with cancelled ink shelf-marks). Preserved in marbled slip-case. Text crisp and clean with only very minor occasional spotting. Provenance: neat inscription on title "Ex dono (cancelled "libris") Eliae Schilleri"; old shelf marks in ink to title and flyleaf. Exceptional copy in unrestored binding. (#003353) € 28,000

RARE FIRST EDITION of one of the most famous and important works in the history of optics. Christoph Scheiner (1573-1650), a Jesuit astronomer and pioneer in physiological optics, here demonstrates for the first time that the retina is the actual organ of sight and explained the pupil changes known as 'accommodation.' He also


Qui legit intelligat. Matth. 24. Marc. 13.

SECVRE TRIVMPHAT

Aquila, Oculus, Sceptrum } in { Cælo: Sceptro: Vngue aquilino.

OCVLVS IN CAPITE, IN MANV IN CAVDA SAPIENTIA CONSVMMATA.

DIco paucis multa, multis fortaſſe nimium; OCVLVM MEVM, &, quod oculo eſt charius, Collegium Templumq; Oenipontanum, adeoque ter Sacroſanctiſſimam Trinitatem Regiæ Maieſtati, an hanc illi commendo? Vtraque ut pupillam oculi ſub vmbra alarum ſuarum nos protegat; Rex potentiſſime, Domine Clementiſſime. Oeniponti 1619. 12. Iunij.

V. SS. R. M.

Deuotiſſimus,

Chriſtophorus Scheiner. S.I.

FERDINANDO

SVBLIMITAS SECVRA

HIEROGLYPHICVM COMPENDIVM

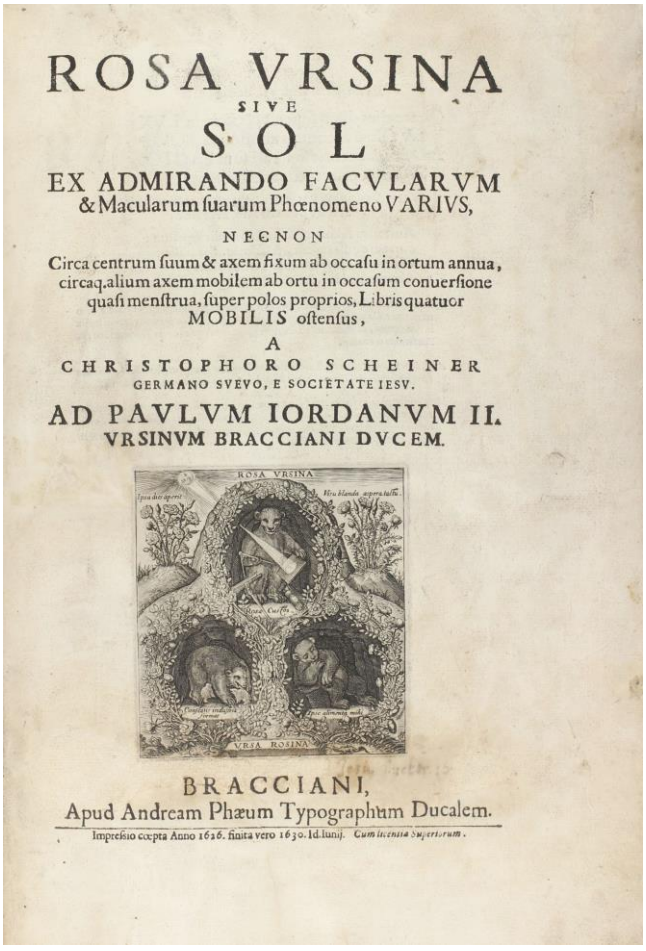
TOTIVS OPERIS

HVMILITAS GLORIO SA

CAVDAM OCVLVS, SED HABET REBVM SAPIENTIA FINES.

describes the nasal exit of the optic nerve and, like Kepler, proved that the retina is the seat of vision. "In 1583, the physician Felix Platter . . . was the first to suggest that the structure responsible for sensitivity to light was the optic nerve (seen today's knowledge this is wrong) and the retina (correct). Kepler proposed that the image (he called it 'Pictura') was instead formed on the retina at the back of the eye; this however implicated that the picture was inverted (upside down) and reversed (right and left flipped). In 1604, Kepler rightly assumed that the fact that we see an upright picture is not a question on optics or anatomy but happens in the brain. It was Christoph Scheiner who provided the experimental proof: he dissected the eye of a bull or cow and could see the inverted picture on the translucent retina. He published his findings in 1619, in *Oculus hoc est: fundamentum opticum*. Unfortunately for Scheiner, in 1637, Descartes wrote his widely-read book 'La Dioptrique' without providing his primary sources. Therefore, Scheiner's major contributions were often missed, and are only re-discovered in the last years." B.M.Moritz, *Christoph Sceiner SJ - Sunspots and the Human Eye*, Science meets faith, online resources, 2018). The 'Scheiner experiment', a demonstration of the refractive changes occurring in the eye when accommodating, is still taught in ophthalmology to prove defects of the eyes optic system. "The intricate frontispiece depicts a 'camera obscura' and a system of inverting lenses, as well as the newly-invented telescope. The peacock in the foreground carries a double meaning, representing not only the science of optics, but the overly prideful Galileo." (Linda Hall Library). References: Garrison-Morton 1480; Roller-G. II, 404; NLM/Krivatsy 10364; Waller 8585; de Backer-Sommervogel VII, 738; DSB, XII, pp. 151-52; Linda Hall Library, *Jesuit Science in the Age of Galileo*, 9.

7 **SCHEINER, Christoph**. *Rosa ursina sive Sol ex admirando facularum & macularum suarum phoenomeno varius ,... a Christophoro Scheiner Germano Sueuo, e Societate Iesu. Ad Paulum Iordannum 2. Ursinum Bracciani ducem*. Bracciano: apud Andream Phaeum, 1626-1630. Folio (380 x 265 mm). [40], 124 pp; 125-149 [i.e. 160] leaves; [4], 149-784, [38] pp. Signatures: π^4 a-b^6 c^4 A-E^6 F^4 G-R^6 2a-$2s^6$ $2t^4$ 2u-$2x^6$ $2y^4$ 3A-$4M^6$ (F4, R6, 4I6 blank). Main text in double columns. Imprimatur dated 1630. Additional engraved title, letterpress title with printer's device by M. Greuter, half-title with dedication and engraved portrait of Paolo Giordano Orsini, Duke of Bracciano on verso; numerous engraved text illustrations and diagrams, several full-page, woodcut initials, head- and tailpieces, errata leaf at end. Errors in pagination and foliation. 12 leaves following f.148 are all foliated 149. Contemporary full calf over thick boards, spine with ink lettered paper label, boards ruled in blind, red-dyed edges (binding restored). Very little browning, occasional minor pale dampstaining at outer blank margins, letterpress title soiled, full-page engraving on p.63 closely trimmed at head touching frame, occasional finger soiling, a few marginal paper repairs, p.555 with some ink retracing of flawed letterpress, blank fore-margin of leaf 4M3 trimmed by about 25 mm (far away from text block). Provenance: illegible, partly erased, old ownership inscription on title. A very good, tall, crisp, clean and unpressed copy printed on very strong paper. (#003625) € 65,000


ROSA VRSINA
SIVE
SOL
EX ADMIRANDO FACVLARVM
& Macularum ſuarum Phœnomeno VARIVS,
NEC NON
Circa centrum ſuum & axem fixum ab occaſu in ortum annua,
circaq. alium axem mobilem ab ortu in occaſum conuerſione
quaſi menſtrua, ſuper polos proprios, Libris quatuor
MOBILIS oſtenſus,
A
CHRISTOPHORO SCHEINER
GERMANO SVEVO, E SOCIETATE IESV.
AD PAVLVM IORDANVM II.
VRSINVM BRACCIANI DVCEM.
BRACCIANI,
Apud Andream Phæum Typographum Ducalem.
Impreſsio cœpta Anno 1626. finita vero 1630. Id. Iunij. Cum licentia Superiorum.

FIRST EDITION of this magnificient astronomical and optical work by Scheiner and the most sumptuously illustrated astronomical book of the first half of the 17th century, forming a summation of Scheiner's investigations of the sun. It was printed at the private press established by Paolo Giordano Orsini, Duke of Bracciano, and a patron of astronomy, at his castle. The fine copper engravings include images of sunspots, the first equatorially mounted telescope called a helioscope, and other optical instruments. The title, *Rosa Ursina*, honours Orsini's name, and bears are frequently incorporated into the book's decorative motifs.

In the *Rosa Ursina* Scheiner is expanding upon his researches into sunspots. In it he confirms his method and criticises Galileo for incorrectly calculating the inclination of the axis of rotation of the sunspots to the plane of the ecliptic. Scheiner first observed sunspots in March 1611 and had his discovery published pseudonymously the following year. This sparked a conflict with Galileo, who claimed priority of discovery when, in fact, their observations were made independently.

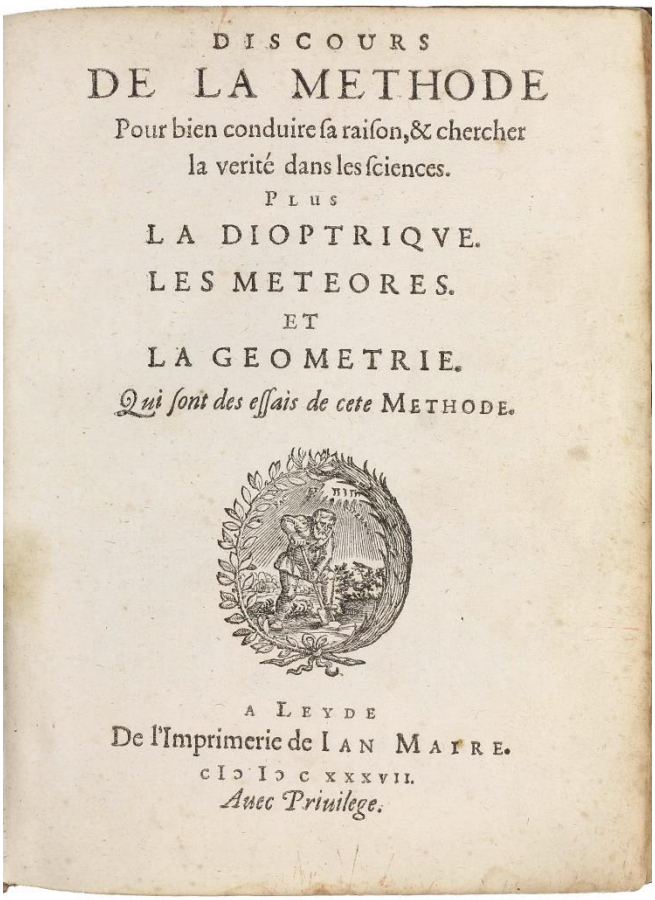
Rosa Ursina is devided into four books. The first discusses the priority question of the discovery of sunspots. Book two presents telescope designs, optical projection methods and the helioscope invented by Scheiner and compares the optics of the telescope with that of the human eye. In the third book, Scheiner's sunspot observations are tabulated, enriched with 70 engraved illustrations by David Widemann. Book four is devided into two parts, the first deals with solar phenomena such as sunspots and protuberances, the tilt of the sun's axis and its period of revolution of 27 days. The second part is a collection of quotations and passages from the Scriptures, Church Fathers and philosophers, all in support of Scheiner's firm geocentric worldview conforming with the Catholic doctrine at that time. (see Daxecker).

"We have already seen Galileo used a telescope as a compound lens for the projection of the sun within a darkened chamber when he was recording the motions of the sunspots. His great rival Christopher Scheiner devised a machina helioscopia according to the same principles for his own minutely detailed observations of sunspots. Scheiner's concern to understand the implications of such devises led him to make a telling series of comparison between the human eye (natura) and the camera obscura (arte) when coupled with various combinations of lenses (natura cum arte) to produce upright and inverted images" (Kemp).

Literature and reference: DeBacker-Sommervogel VII, 738.8; Daumas, pp. 726-728; Cinti 79; DSB XII, pp. 151-152; King, *The History of the Telescope*, pp. 40-45; Honeyman 2781; Roller-Goodman II, 404; F. Daxecker, *The Main Work of Astronomer Christoph Scheiner SJ "Rosa Ursina sive Sol" - A summary*. In: Ber. nat.-med. Verein Innsbruck, Suppl. 13, p. 1, 1996; M. Kemp, *The Science of Art - Optical Themes in Western Art from Brunelleschi To Seurat*, Yale Univ. Press, 1992, p. 192-93.

In untouched original binding

8 **DESCARTES, René**. *Discours de la methode pour bien conduire sa raison, & chercher la verité dans les sciences. Plus la Dioptrique. Les Météores, et la Géométrie qui sont des essais de cete methode*. Leiden: Jan Maire, 1637. 4to (191 x 146 mm). 78, [2], 413, [35] pp., woodcut printer's device on title, 3 section-titles, woodcut initials, numerous woodcut text diagrams and illustrations, errata, French and Dutch privilege on Kkk3-4. Bound in contemporary French calf, gilt-decorated spine with 5 raised bands and gilt lettering in first compartment, red-sprinkled edges, marbled pastedowns (leather rubbed and scratched, wear to extremities, corners bumped and scuffed, spine ends somewhat scuffed, short split to upper hinge near head of spine). Only little even browning and minor occasional spotting of text, a few small light dampstains to blank margins, lower outer corner of gatherings L to X somewhat gnawed (up to 7 mm from corner but well away form text), upper margin of leaf 3K3 verso trimmed just touching initial headline letter. Provenance: from the library of French journalist and publisher Frédéric Decazes de Glücksbierg (1958-2018). In all a very good copy, unrestored and with the hinges quite sound and flexible. (#003348) € 75,000


DISCOURS
DE LA METHODE
Pour bien conduire ſa raiſon,& chercher
la verité dans les ſciences.
PLUS
LA DIOPTRIQVE.
LES METEORES.
ET
LA GEOMETRIE.
Qui ſont des eſſais de cete METHODE.

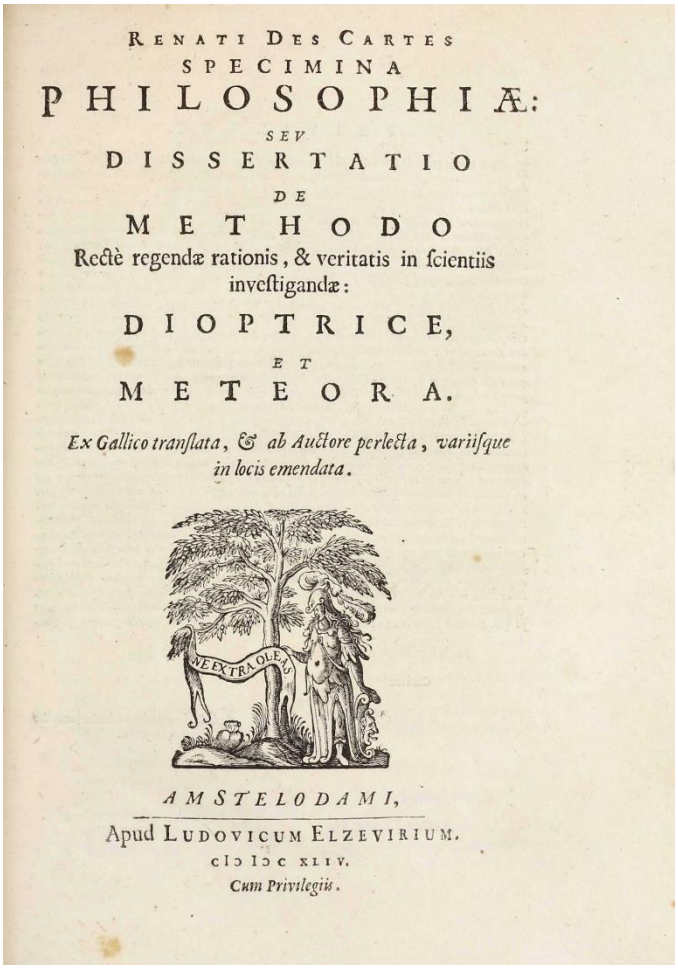
A LEYDE
De l'Imprimerie de IAN MAIRE.
CIↃ IↃ C XXXVII.
Auec Priuilege.

FIRST EDITION of the author's first published work, the foundation of all modern scientific and philosophic thought. In the first part, Descartes sets out his method of inquiry, and then illustrates it in three essays on optics, meteorology and geometry. "The purpose of the *Discours* of Descartes is to find the simple indestructible point which gives to the universe and thought their order and system. Three points are made: the truth of thougth, 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. From those central proposition in logic, metaphysices and physics came the subsequent inquiries of Locke, Leibniz and Newton. This great work also contains scientific material of fundamental importance - his invention of analytical geometry which is the basis of geometry as we know it, treatises on optics and meteors, and the first mention of Harvey's discovery by a prominent foreign scholar" (PMM).

"Descartes contributions to the mathematical, physical and astronomical sciences were many, but his major contribution was his anonymous, first published work - a discourse on method. In this he discussed Harvey's circulation (the first distinguished foreigner to do so), advanced the necessity of mathematical proof and proposed accepting those things that cannot be doubted ... In the appendices he explained his method of analytic geometry (Vartesian co-ordinates) and treated on optics and meteors. The Dioptrique (Discourse II) contains the earliest statement of Willebrord Snell's law of refraction" (Dibner).

References: PMM, *Printing and the Mind of Man* 129; Dibner, *Heralds of Science* 81; Grolier/Horblit 24; Guibert, *Bib. Descartes* 1; NLM/Krivatsky 3114; Norman 621; Tchemerzine IV, 286; Peyré, *En français dans le texte* 90.

9 **DESCARTES, René**. *Principia philosophiae*. Amsterdam, L. Elzevir, 1644. [22], 310 pp., printer's device on title, woodcut initials, several woodcut illustrations in text, some full page, bound without the blank leaves b4 and 2Q4. [Bound with:] *Specimina philosophiae: seu Dissertatio de methodo recte regendae rationis, & veritatis in scientiis investigandae: Dioptrice et Meteora. Ex Gallico translata, & ab auctore perlecta, variisque in locis emendata*. Amsterdam, L. Elzevier, 1644. [16], 331 [1] pp., printer's device on title, woodcut initials, several woodcut illustrations and diagrams in text, 10 full page. 2 works in 1 volume. 4to (200 x 155 mm). Contemporary full vellum with yapp edges, spine lettered in manuscript, marbled pastedown, flyleaves gone (some soiling and spotting of vellum). Text generally crisp and clean with only very minor occasional spotting, some light dampstaining in places, short clean tear in two leaves, first title slightly dust-soiled at outer margins. A very-good, well-margined copy in untouched binding of its time. (#003249) € 6500


RENATI DES CARTES
SPECIMINA
PHILOSOPHIÆ:
SEV
DISSERTATIO
DE
METHODO
Rectè regendæ rationis, & veritatis in scientiis
investigandæ:
DIOPTRICE,
ET
METEORA.
Ex Gallico translata, & ab Auctore perlecta, variisque in locis emendata.
NE EXTRA OLEAM
AMSTELODAMI,
Apud LUDOVICUM ELZEVIRIUM.
CIↃ IↃC XLIV.
Cum Privilegiis.

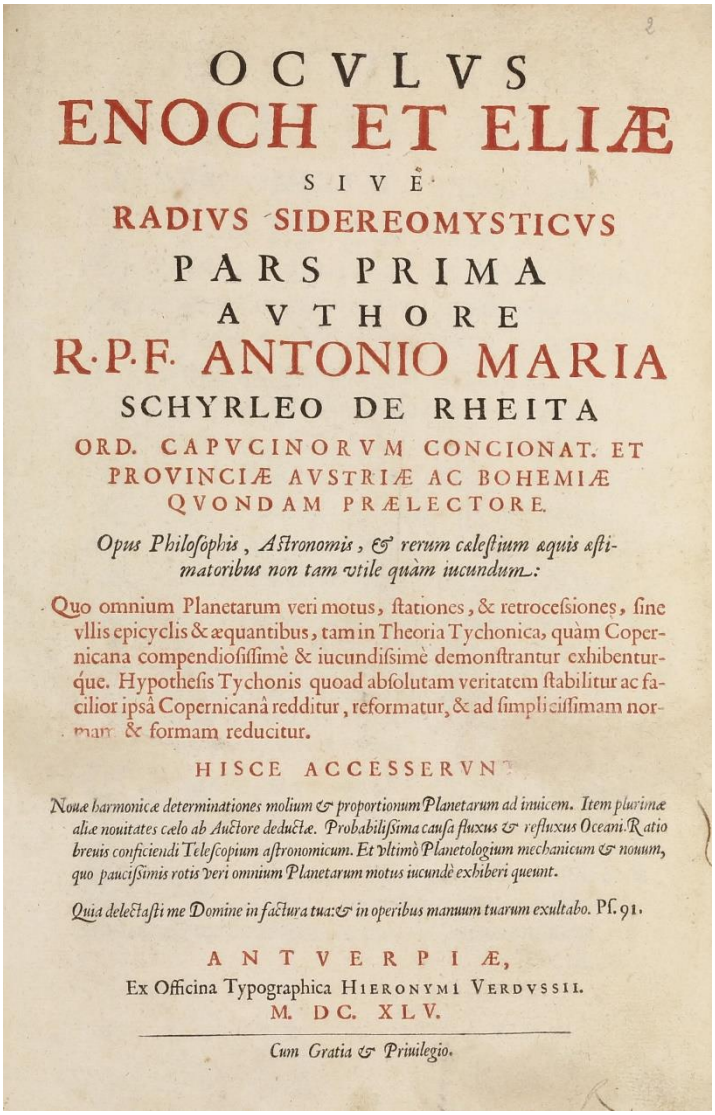
I.: Norman 622; Guibert 118-119 nr. 1. STCN (5, i.a. BL London). BN Paris (2). Willems 1008. Guibert 104-105 nr. 1. STCN (3, i.a. BL London). BN Paris (5). Willems 1008. NLM/Krivatsy 3116. - FIRST EDITION OF DESCARTES' SYSTEM OF PHYSICS, in which he developed his theory of vortices. Based in part on his then unpublished work Le monde, which treated the creation and function of the universe in completely mechanistic terms, Descartes' Principia provides a systematic statement of his metaphysics and natural philosophy. The first part, Dc principiis cognitionis humanae (Of the Principles of Human Knowledge) deals with the nature of motion, rest, force, and action. He defines motion in Book II and distinguishes the difference between translation and 'the force that brings about this translation.' Descartes was careful in the Principia to qualify his mechanistic Copernican views with the idea that all motion is relative. 'His vortical theory allowed him to argue that since the earth is at rest in its surrounding medium it remains unmoved, although it, together with its entire vortex, necessarily circles the sun' (Norman). Descartes' system represents a truly comprehensive look at the universe in a fundamentally new, mechanistic and non-teleological way. His vortex theory was the starting point for all serious work in physical theory in the mid-l7th century, including Newton. The fourth and final part of the work contains the first scientific theory of magnetism.

II.: Norman 623; Guibert, p. 104; NLM/Krivatsy 3116; Tchemerzine II, p. 777; Willems 1008. - FIRST LATIN EDITION of the *Discours de la méthode*, which omits the treatise *Géometrie*. It includes the first appearance of the Cartesian sound-bite: *'cogito, ergo sum*'. Although separate works, these two Elzevir publications often appear together.

Includes the first map of the moon on a reasonably large scale

10 **SCHYRLEUS DE RHEITA, Anton Maria (SCHYRLAEUS).** *Oculus Enoch et Eliae, sive radius sidereomysticus pars prima ... Opus philosophis, astronomis, & rerum caelestium aequis aestimatoribus ... quo omnium planetarum veri motus, stationes & retrocessions ... tam in Theoria Tychonica, quam Copernicana ... demonstrantur exhibenturque (Pars altera sive theo-astronomia)*. Antwerp: Hieronymus Verdussen, 1645. Two parts in one volume. Folio (303 x 205 mm). [52], 356, [4, blank] pp., 10 engraved plates by Arnold Loemans including a lunar map; [16], 279 [1], [28, index] pp. Each part with separate title-page, first title-page printed in red and black, engraved frontispiece, woodcut device on recto of final leaf. Signatures: *-6*^{4}, 7*^{2}, A-Z^4, Aa-Vv^4, Xx^8; *-2*^{4}, A-Z^4, Aa-Mm^4, Nn^6 Oo-Pp^4. Contemporary full vellum, blue coloured edges (upper part of spine with unobtrusive repair, some soiling and staining, corners bumped). Text and plates generally crisp and clean, some gatherings and pages with light even browning, occasional very minor spotting, a few contemporary annotations in red and black ink, ink smudge to pp. p.154 and 147, a few smaller marginal waterstains and tears in places. Very good copy. (#002940) € 38,000

Ashworth, *The face of the moon,* Linda Hall 3; Whitaker, *Mapping and Naming the Moon*, p.47. First edition of this very rare and influential work in the history of the telescope. "This treatise on optics includes a map of the full moon - the first on a reasonably large scale. Rheita is noted in the history of optics for his invention of the erecting eyepiece. It is ironic that his lunar map is one of the first to have the south pole at the top, showing the moon inverted, as it appears through an astronomical telescope *without* his eyepiece ... Rheita's map has not been much appreciated, probably because it was so soon eclipsed by the more splendid efforts of Hevelius, Divini, and Grimaldi, but it captures the brilliant ray system of Tycho much better than any other illustration to that time, as well as the mountainous nature of the Apennines. The floors of the craters Plato and Grimaldi are properly depicted as black." (Ashworth, 3).



OCVLVS
ENOCH ET ELIÆ
SIVE
RADIVS SIDEREOMYSTICVS
PARS PRIMA
AVTHORE
R.P.F. ANTONIO MARIA
SCHYRLEO DE RHEITA
ORD. CAPVCINORVM CONCIONAT. ET
PROVINCIÆ AVSTRIÆ AC BOHEMIÆ
QVONDAM PRÆLECTORE.

Opus Philosophis, Astronomis, & rerum cælestium aquis æstimatoribus non tam vtile quàm iucundum:

Quo omnium Planetarum veri motus, stationes, & retrocessiones, sine vllis epicyclis & æquantibus, tam in Theoria Tychonica, quàm Copernicana compendiosissimè & iucundissimè demonstrantur exhibenturque. Hypothesis Tychonis quoad absolutam veritatem stabilitur ac facilior ipsâ Copernicanâ redditur, reformatur, & ad simplicissimam normam & formam reducitur.

HISCE ACCESSERVNT

Nouæ harmonicæ determinationes molium & proportionum Planetarum ad inuicem. Item plurimæ aliæ nouitates cælo ab Auctore deductæ. Probabilissima causa fluxus & refluxus Oceani. Ratio breuis conficiendi Telescopium astronomicum. Et vltimò Planetologium mechanicum & nouum, quo paucissimis rotis veri omnium Planetarum motus iucundè exhiberi queunt.

Quia delectasti me Domine in factura tua: & in operibus manuum tuarum exultabo. Ps. 91.

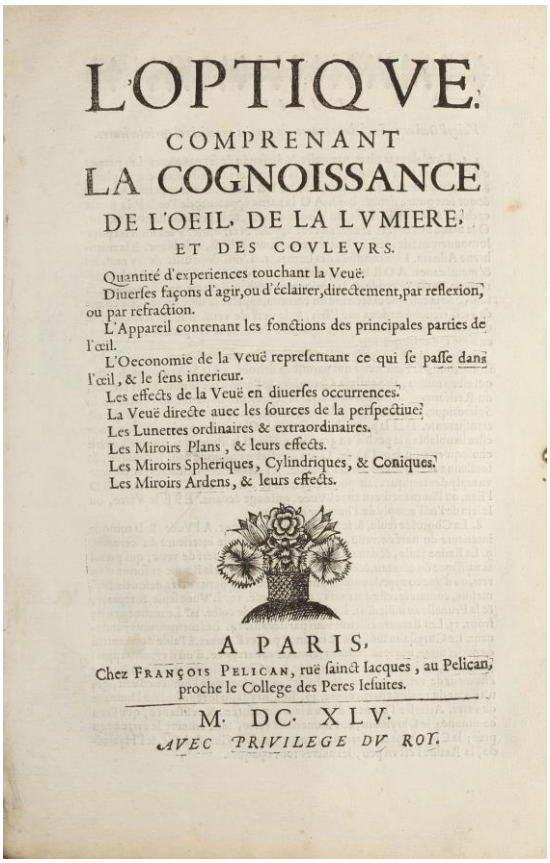
ANTVERPIÆ,
Ex Officina Typographica HIERONYMI VERDVSSII.
M. DC. XLV.

Cum Gratia & Priuilegio.

"Rheita actually introduced a number of crucial improvements in his work, leading to a real break-through in telescope design. First, Rheita suggested a new and much better method of polishing lenses, leading to a strong reduction of deviations; secondly (and even more importantly), he found that a compound ocular, composed of three or four lenses, resulted in a much better quality than using only a single (compound) ocular" (Van Helden, *The Origin of the Telescope*, p. 334).

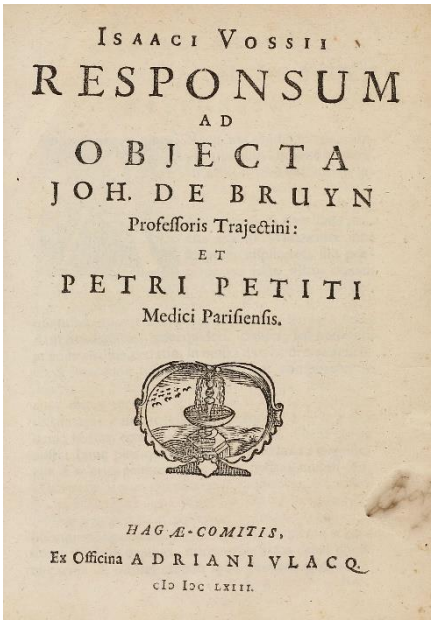
"The map is a copperplate edition, diameter about 18.5 cm, of an original drawing made by Rheita. It is essentially a full-Moon image with a very few craters included from observations made at other phases. The ray systems emanating from Tycho and other craters are very stylistically drawn, and bear little resemblance to reality. Indeed, those lettered H and V are non-existent. The small bright spots are almost entirely randomly placed." (Whitaker, p.47).

11 **[BOURDIN, Pierre]**. *L' Optique. Comprenant la cognoissance de l'oeil de la lumiere, et des couleurs. Quantité d'experiences touchant la veuë. Diuerses façons d'agir, ou d'eclairer, directament, par reflexion, ou par refraction. L'appareil contenant les fonctions des principales parties de l'oeil ... Les miroirs ardens, & leurs effects*. Paris: F. Pelican, 1645. 16 unnumbered leaves with 15 full-page engravings. [Bound before:]. *Le cours de mathematique, representé par figures & clairement expliqué, avec quantité de connoissances & pratiques nouvelles. Le tout en faveur de la noblesse* (etc.). Paris: F. Pelican, 1645. Text & plates intermixed, generally facing, with text printed on verso of preceding plate. Some leaves, both of text and of illustration, printed on one side only. The engravings are the work of Alexandre Boudan, several of them signed. 83 (of 90) unnumbered leaves with 72 (of 75) full-page engravings, including 3 plate-only leaves (signed I, CX, and FP) cut-down to plate-mark and pasted on blank rectos of adjacent leaves, further 5 plate-leaves with erroneous engravings corrected with paste-overs. Folio (295 x 195 mm). Contemporary limp vellum, original endpapers (heavily soiled, spotted and wrinkled). Interior little browned and dust-soiled in outer margins, occasional minor spotting, dog-earing and ink soiling; old repair of clean tear to advert. leaf. Provenance: 17th century ownership inscriptions to front pastedown and first title. (#003603) € 1500


LOPTIQVE.
COMPRENANT
LA COGNOISSANCE
DE L'OEIL, DE LA LVMIERE,
ET DES COVLEVRS.
Quantité d'experiences touchant la Veuë.
Diuerses façons d'agir, ou d'éclairer, directement, par reflexion, ou par refraction.
L'Appareil contenant les fonctions des principales parties de l'œil.
L'Oeconomie de la Veuë representant ce qui se passe dans l'œil, & le sens interieur.
Les effects de la Veuë en diuerses occurrences.
La Veuë directe auec les sources de la perspectiue.
Les Lunettes ordinaires & extraordinaires.
Les Miroirs Plans, & leurs effects.
Les Miroirs Spheriques, Cylindriques, & Coniques.
Les Miroirs Ardens, & leurs effects.
A PARIS,
Chez FRANÇOIS PELICAN, ruë sainct Iacques, au Pelican, proche le College des Peres Iesuites.
M. DC. XLV.
AVEC PRIVILEGE DV ROY.

EXCEPTIONALLY RARE FIRST EDITION with both works often found bound together. See de Backer-Sommervogel II, 30, 8; Roller-Godman 149 (both "troisième édition", at Benard 1661, 8vo); Jordan 416 (1651?). Contains tables on pure and applied geometry, fortress construction and cosmography. Both works were published anonymously. For notes on the identification of the author and on earlier editions see article by P.S. Jones, Scripta mathematica, vol. XIII, 1947, p. 119-120. Pierre Bourdin (1595-1653) taught mathematics at the Jesuit college in La Flêche. He was involved in an argument with Descartes about his "Méditations."

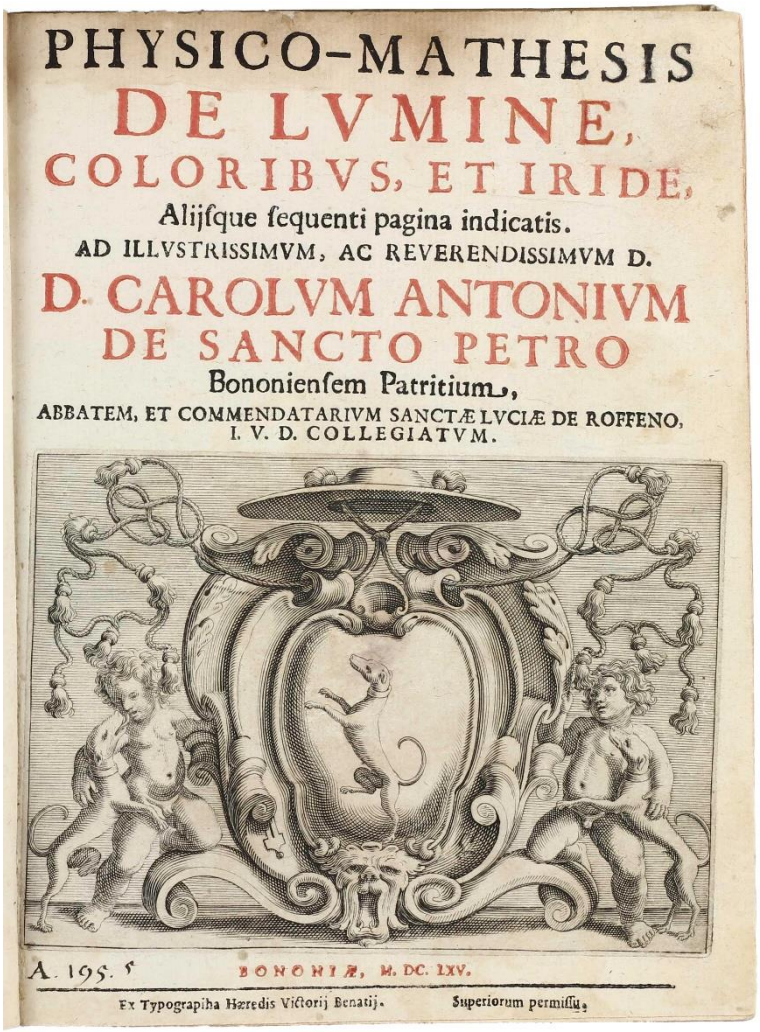
12 **VOSSIUS, Isaac**. *Responsum ad objecta Joh. de Bruyn, Professoris Trajectini: et Petri Petiti, Medici Parisiensis.* Den Haag: Adrian Vlacq, 1663. 4to (179 x 135 mm). 104 pp. Title with woodcut device, a few woodcut diagrams in text, two large decorative initials. Later simple paper wrappers, marbled edges. Text little browned throughout, a few light pencil markings, erased ownership signature on title. Very good copy. (#002971) € 1500


ISAACI VOSSII
RESPONSUM
AD
OBJECTA
JOH. DE BRUYN
Professoris Trajectini:
ET
PETRI PETITI
Medici Parisiensis.
HAGÆ-COMITIS,
Ex Officina ADRIANI VLACQ.
cIↃ IↃC LXIII.

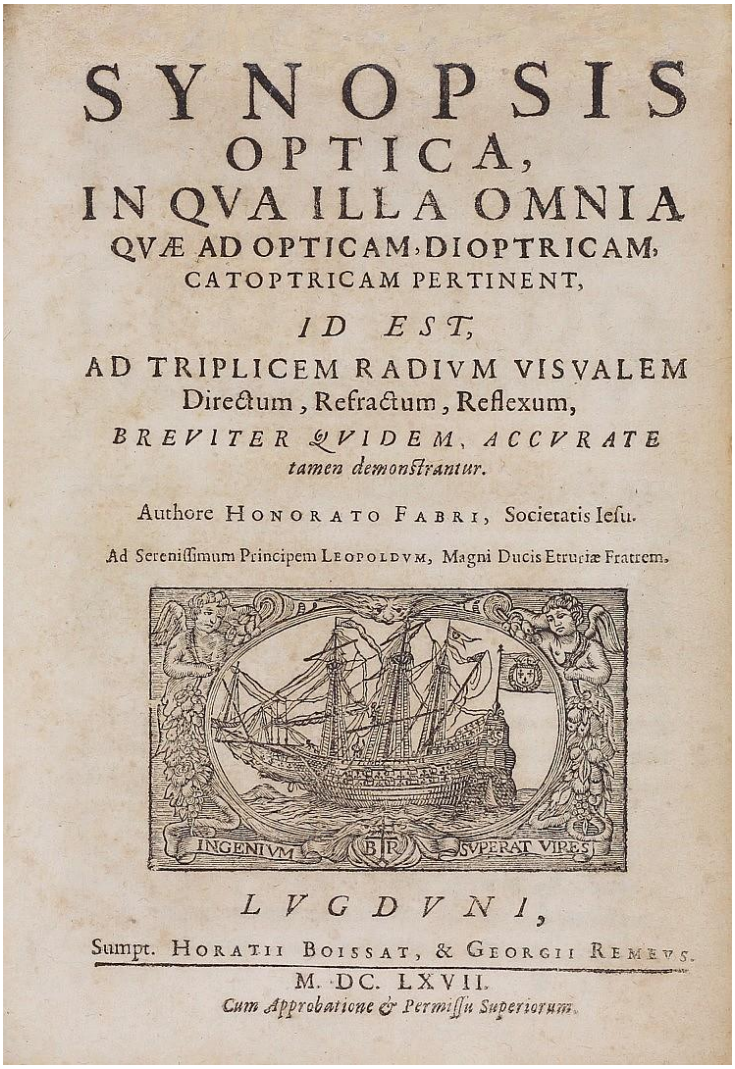
Poggendorff II, 1235. FIRST EDITION of Vossius' response to the objections of Johannes de Bruyn (1620-1675) and Pierre Petit (1617-1687) against his 1662 published theory of light, *De lucis natura et proprietate* (see Willems 1296 and Rahir 1334). Vossius (or Voss), born in Leyden and resident in England from 1670, became a canon of the royal chapel at Windsor, despite his philosophical doubts (Charles II is reputed to have remarked of him that he would believe anything if only it were not in the Bible). He was a versatile scholar who published on many subjects including poetry, history and science, including *De lucis natura*, which is directed against the predominant Cartesianism and includes the first printed account of Snel's law of refraction of light rays. Snel formulated this law around 1621 after extensive study of Kepler and Risner, and through their works Ibn al-Haytham and Witelo.

13 **GRIMALDI, Francesco Maria**. *Physico-mathesis de lumine, coloribus, et iride*. Bologna: heirs of Victorio Benacci for Girolamo Bernia, 1665. 4to (235 x 180 mm). [24], 535 [1], [16] pp. Signatures: [pi]^2 a^4 b^6 A-Z^4 2A-Z^4 3A-Z^4. Including first blank [pi]1, title page printed in red and black and with large engraved vignette, additional letterpress title also printed in red and black and with smaller woodcut device, text in double columns, several woodcut text illustrations and diagrams, 7 leaves of index and ad lectorem leaf at end. Bound in later limp vellum, yapp edges, spine with gilt-lettered red morocco label, red-dyed edges (vellum slightly soiled and spotted). Text only little browned throuhout, light staining and damp-spotting in places, first title with restoration at top corner (possibly from small erased stamp with 4 partially refinished letters). Provenance: Thomas Vroom (pictorial bookplate to front pastedown). All in all a very good copy. (#003250) € 25,000

DSB V, pp. 542-45; Riccardi I, 631 ('celebrated and scarce work'). FIRST EDITION of Grimaldi's only publication, the discovery of optical diffraction. In this important and celebrated work Grimaldi describes his discovery of the inflection of the solar rays near certain bodies. He was the first to declare that the diffusion of light was instantaneous. The diffraction experiments which Grimaldi describes show "that a new mode of transmission of light had been discovered and that this mode contradicts the notion of an exclusively rectilinear passage of light. Diffraction thus gave prima facie evidence for a fluid nature of light. The name 'diffraction' comes from the loss of uniformity observed in the flow of a stream of water as it 'splits apart' around a slender obstacle placed in its path. He discussed other fluid phenomena analogously with light. To explain color and the varieties of color he decided that a “change in agitation” of the luminous flow is responsible. A light ray is conceived like a column of fluid in vibration, but not regular vibration. Lighter colors are said to result from a greater density of rays and darker colors from a lower density ... Knowledge of his work appears in the work of both Hooke and Newton. Hooke performed his first series of diffraction experiments later in 1672, after the notice of Grimaldi’s book in the Philosophical Transactions. Hooke referred to it, however, as inflexion and may have encountered diffraction phenomena independently. Newton was aware of Grimaldi’s work, but only at secondhand, crediting Honoré Fabri as the source of his knowledge on diffraction. At first (1675) Newton described and attempted to account for only the internal fringes. His description shows that he could not have performed the experiment. By 1686 he came to deny the existence of internal fringes on the basis of experiments. In the Opticks he described and tried to explain only the external fringes, which he never ceased to regard as a sort of refraction." (DSB).

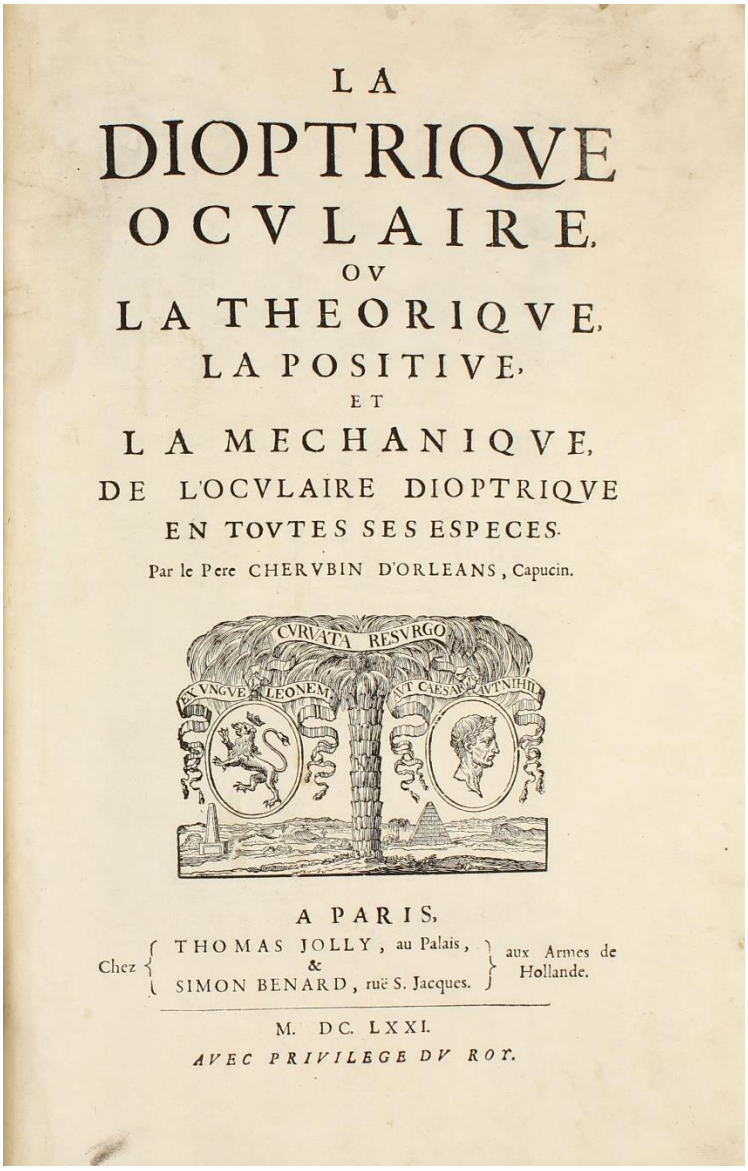

PHYSICO-MATHESIS
DE LVMINE,
COLORIBVS, ET IRIDE,
Alijſque ſequenti pagina indicatis.
AD ILLVSTRISSIMVM, AC REVERENDISSIMVM D.
D. CAROLVM ANTONIVM
DE SANCTO PETRO
Bononienſem Patritium,
ABBATEM, ET COMMENDATARIVM SANCTÆ LVCIÆ DE ROFFENO,
I. V. D. COLLEGIATVM.
A. 195. f
BONONIÆ, M. DC. LXV.
Ex Typographia Hæredis Victorij Benatij. Superiorum permiſſu.

14 **FABRI, Honoré**. *Synopsis optica, in qua illa omnia quae ad opticam, dioptricam, catoptricam pertinent, id est, ad triplicem radium visualem directum, refractum, reflexum breviter quidem, accurate tamen demonstrantur*. Lyon: Horace Boissat & Georges Remeus, 1667. 4to (223 x 159 mm). [8], 246 pp., including 6 folding engraved plates bound at end, woodcut vignette on title, woodcut tailpieces, without final blank Hh4. Contemporary mottled calf, spine with 4 raised bands gilt in compartments and with gilt lettering piece, sprinkled edges (light soiling of boards, minor repair to hinges and spine ends, corners bumped). Text little browned throughout, scattered minor spotting, erased cancelled signature at top margin of title-page, dampstain to rear pastedown. Still very good copy. (#002881) € 6500


SYNOPSIS
OPTICA,
IN QVA ILLA OMNIA
QVÆ AD OPTICAM, DIOPTRICAM,
CATOPTRICAM PERTINENT,
ID EST,
AD TRIPLICEM RADIVM VISVALEM
Directum, Refractum, Reflexum,
BREVITER QVIDEM, ACCVRATE
tamen demonstrantur.
Authore HONORATO FABRI, Societatis Iesu.
Ad Serenissimum Principem LEOPOLDVM, Magni Ducis Etruriæ Fratrem.
INGENIVM B R SVPERAT VIRES
LVGDVNI,
Sumpt. HORATII BOISSAT, & GEORGII REMEVS.
M. DC. LXVII.
Cum Approbatione & Permissu Superiorum.

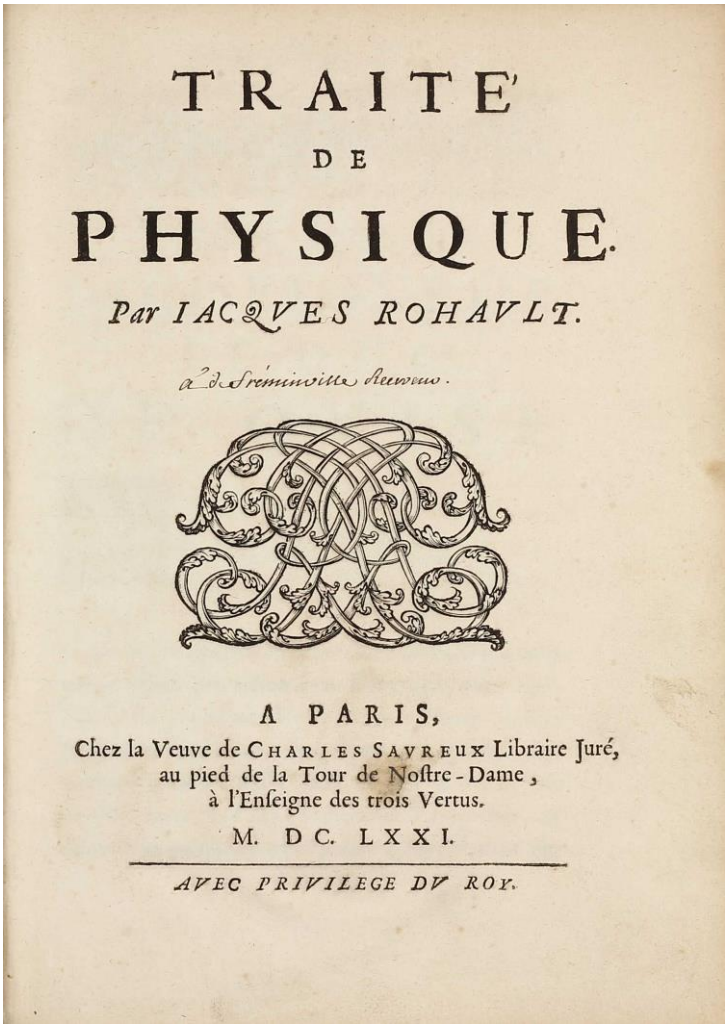
Sommervogel III: 515 ; Vagnetti EIII b58; Wellcome III, p.3. FIRST EDITION of Fabri's influential work on optics, the inspiration for Newton's work on light and color. It was through this work that Newton learned of the discovery of diffraction of light by Francesco Maria Grimaldi. Fabri also describes the rings of Saturn (he was involved in a long dispute with Huygens over their interpretation), difficulties of telescopic observations, and the construction of compound microscopes. He presents a theory of the blueness of the sky based on the principle of dispersion. There is also a careful exposition of theories of vision and the mechanics of the eye. Fabri was educated at the Collège de la Trinité in Lyon, and became a Jesuit priest. After teaching at the college for several years, he moved to Rome, where he held the position of Theologian of the Supreme Tribunal of the Apostolic Penitentiary for thirty years. Some of his works were considered controversial within the church, but his standing as a scientist places him squarely among some of the greatest minds of his time.

15 **CHERUBIN D'ORLEANS, Capuchin**. *La dioptrique oculaire, ou la théorique, la positive, et la mechanique, de l'oculaire dioptrique et toutes ses espèces*. Paris: Chez Thomas Jolly & Simon Bernard, 1671. Folio (367 x 240 mm). [46], 419 [1], [30] pp., including additional engraved title by G. Eddelinck after le Pautre, 57 engraved plates (including 6 folding), 2 engraved illustrations in text, dedication with engraved headpiece incorporating the arms of Colbert, woodcut head- and tailpieces, general index at end. Signatures: [pi]^4 e^4 i^4 o^4 u^4 aa^4 A-3F^4 3G^2 3H-3L^4 (-pi1, -3L4 blanks). Lacking the initial and final blank leaves only. Colophon on p.419 reads 'de l'Imprimerie de Jean Cusson, 1670'. Plate numbering corrected in ink or pencil, contemporary pen drawing on blank verso of plate 20. Contemporary marbled calf, spine with 6 raired bands richly gilt in compartments and with gilt-lettered red morocco label in first compartment (split hinges expertly repaired, extremities rubbed, corners bumped), gilt-tooled board-edges, red-dyed edges, marbled endpapers. Internally little browned throughout (several pages and a few plates stronger), occasional very minor spotting, engraved- and printed title-leaf tipped in and with some neat repairs in margins, two plates lightly soiled, a few light ink smudges, a few neat marginal repairs elsewhere. Provenance: Biblioteca Caproni Vizzola (bookplate to front pastedown); Giancarlo Beltrame Library. A very good, wide-margined copy in beautiful binding. A very good copy, text and plates collate complete. (#002978) € 12,500


LA
DIOPTRIQVE
OCVLAIRE,
OV
LA THEORIQVE,
LA POSITIVE,
ET
LA MECHANIQVE,
DE L'OCVLAIRE DIOPTRIQVE
EN TOVTES SES ESPECES.
Par le Pere CHERVBIN D'ORLEANS, Capucin.
CVRVATA RESVRGO
EX VNGVE LEONEM
NT CAESAR AVTNIHIL
A PARIS,
Chez { THOMAS JOLLY, au Palais, & SIMON BENARD, ruë S. Jacques. } aux Armes de Hollande.
M. DC. LXXI.
AVEC PRIVILEGE DV ROY.

Krivatsy 2427; Wellcome II, 335; Roller-Goodman I, 226. FIRST EDITION of this standard 17th-century work on optics. Of special interest here is the engraved lunar map, supposedly made by one of his inventions (shown in the lower corners of the maps), but in fact plagiarized and directly copied from Hevelius' images 'P' and 'R' (see Whitaker, p.76). Chérubin d'Orléans is the inventor of the opera glasses. In this work he describes glasses, microscopes and telescopes, including detailed descriptions of the tools and techniques involved in the manufacture of lenses and the effects that different lenses have on the eye.

16 **ROHAULT, Jacques**. *Traité de Physique*. Paris: Charles Savreux, 1671. Two parts in one volume, 4to (244 x 176 mm). [32], 378; 382, [6] (of [8]) pp. 3 engraved plates (2 folding) tipped to outer edges of pages, several woodcut diagrams in text, lacking final privilege leaf. Contemporary French speckled calf, boards and board-edges ruled in gilt, spine with 5 raised bands, gilt-lettered and gilt-tooled in compartments (rebacked, preserving most of original spine), all edges gilt. Text little browned, occasional very minor spotting, blank lower margin of final two leaves frayed and chipped not affecting text, a few annotations and markings in light pencil. Provenance: Edme de La Poix de Fréminville* (signature to first title-page). Very good copy. (#002990) € 750



TRAITE'
DE
PHYSIQUE.
Par IACQVES ROHAVLT.

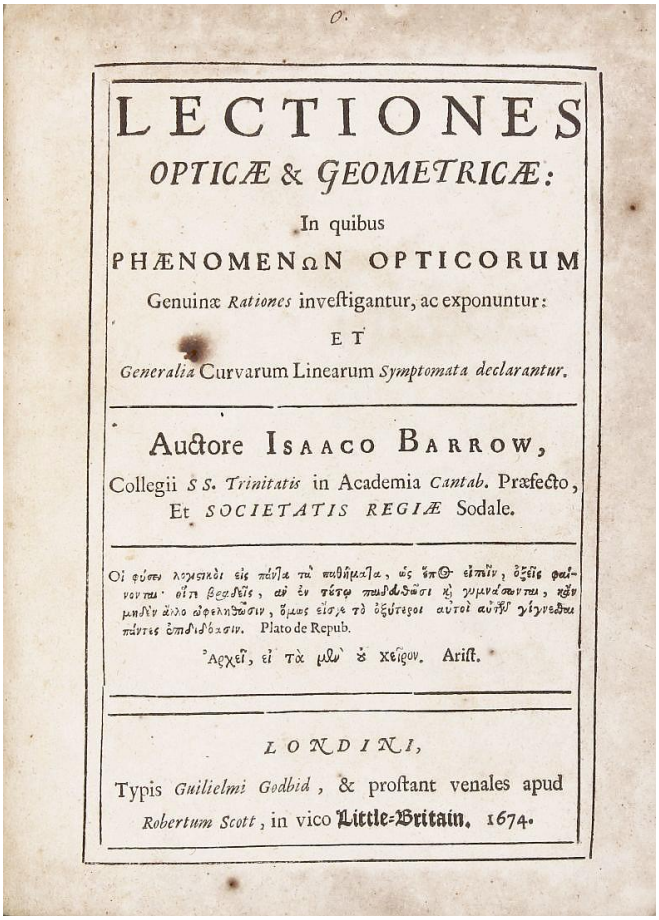
A PARIS,
Chez la Veuve de CHARLES SAVREUX Libraire Juré,
au pied de la Tour de Noſtre-Dame,
à l'Enſeigne des trois Vertus.
M. DC. LXXI.

AVEC PRIVILEGE DV ROY.

The French physicist Rohault was born in Amiens in 1620 and died in Paris in 1675. "In 1671, Jacques Rohault published his *Traité de physique*, a textbook on physics relying on his weekly conferences held in Paris. A good mathematician and at the same time a curious experimenter, Rohault was one of the main Cartesian figures of his time. Connected to Parisian philosophical circles, Rohault was deeply concerned with the reception of Descartes' philosophical views. He was associated with Claude Clerselier and he encouraged Pierre-Sylvain Régis to spread Cartesianism in Toulouse. Performing experiments and using instruments in his observations, allowed for a very good reception of Rohault's natural philosophy in the late seventeenth century. Thus, his textbook on physics was quickly translated and disseminated across Europe." (M.Dobre, *Cartesian Empiricisms*, pp. 203-226. In: *Studies in History and Philosophy of Science book series*, AUST, vol. 31). Rohault strongly recommended the use of experiments, discussing them in detail in his textbook. It deals with every part of physics known in his time and he elaborates on optics, mathematical astronomy, the tides, the air, minerals and metals and one of the most important sections is devoted to electric and magnetic phenomena. In 1672 Samuel Clarke translated Rohault's work as *System of Natural Philosophy*, which was used as a university textbook for more than half a century. With numerous editions, it gained an independent status through its annotations that purported to correct it with reference to the theories of Isaac Newton.

* Edme de La Poix de Fréminville (1683-1773), French lawyer and the so-called "prince de feudiste." Deriving from a Burgundy merchants family and small seigniorial and royal officers, he became a notary in 1713 and settled in Marcigny. Quickly, de Fréminville carved himself a good reputation in the operations of renovation of the burrows (cadastres seigneuriaux) and in the defense of the feudal causes . In 1725, he became lieutenant-bailiff of the Marquisate of La Palisse, then, in 1733, bailiff, a position he held until 1765. Leaving La Palisse, Edme de La Poix de Freminville went to live in Lyon where he died in 1773. Fréminville is known for several treaties of feudal and seigniorial law published during the years 1740-1760, notably the " Dictionnaire ou traité de la police générale des villes." Until the French Revolution he remained one of the most read jurists of his time.

17 **BARROW, Isaac [edited by Isaac Newton].** *Lectiones opticae & geometricae: in quibus phaenomenon opticorum genuinae rationes investigantur, ac exponuntur: et generalia curvarum linearum symptomata declarantur.* 2 parts in 1 volume. London: William Godbid for Robert Scott, 1674. 4to (202x152 mm). [12], 127 [1], [2], 147, [3] pp., 27 folding engraved plates. With the 'Benevolo Lectori' preliminary leaf bound before the 'Lectiones Geometricae.' Bound in a contemporary English speckled calf with a spine divided by raised bands into 6 richly gilt compartments. The book-block is strong and the hinges hold very firmly. The leather upon the front hinge is lightly cracked, but the cords hold firmly. The boards themselves, the edges and the corners show only slightest wear. Internally, the leaves are toned, but generally clean, with ample margins and clear print throughout. There is light occasional spotting and little marginal staining, which remains quite unobtrusive. The title page show a very small burn hole not affecting text, the second F2 got a small burn-hole in the outer margin, not affecting text as well. The 27 folding engraved plates are excellent impressions, some browned a bit stronger. This is an unusually attractive example of a rare work. (#001989) € 2900



LECTIONES
OPTICÆ & GEOMETRICÆ:
In quibus
PHÆNOMENωN OPTICORUM
Genuinæ *Rationes* inveſtigantur, ac exponuntur:
ET
Generalia Curvarum Linearum *Symptomata declarantur.*

Auctore ISAACO BARROW,
Collegii *SS. Trinitatis* in Academia *Cantab.* Præfecto,
Et *SOCIETATIS REGIÆ* Sodale.

Οἱ φύσει λογισμοὶ εἰς πάντα τὰ παθήματα, ὡς ἔπος εἰπεῖν, ὀξεῖς φαίνονται· οὔτε βραδεῖς, ἂν ἐν τέχνῃ παιδεύωσι καὶ γυμνάσωσι, κἂν μηδὲν ἄλλο ὠφελησθῶσιν, ὅμως εἴσῃ τὸ ὀξύτεροι αὐτοὶ αὑτῶν γίγνεσθαι πάντες ἐπιδιδόασιν. Plato de Repub.

Ἀρχεῖ, εἰ τὰ μὲν ὡς ἐπὶ τὸ πολὺ καλῶς ἔχει. Arist.

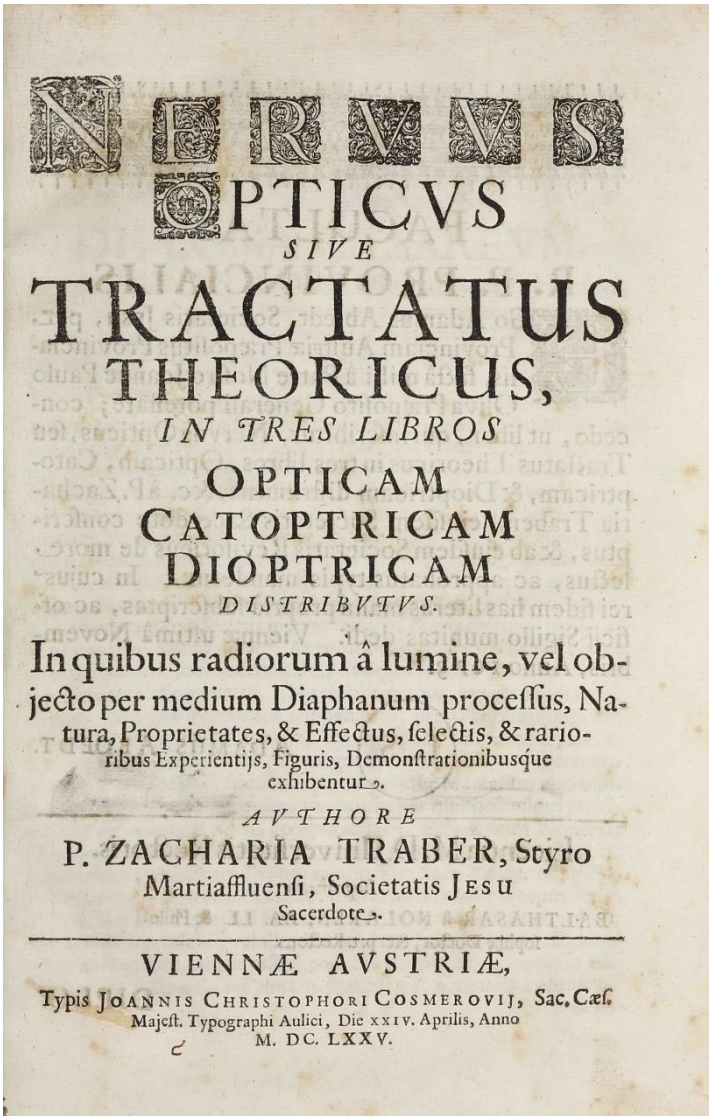
LONDINI,
Typis *Guilielmi Godbid*, & proſtant venales apud
Robertum Scott, in vico Little-Britain. 1674.

Wing B 945; Babson 249; Wallis 358.4; Sotheran 5816 (2); DSB I, 475. Very rare early issue of the first edition without the 'Addenda Lectionibus Geometricis' (pp. 149-151) and plate 13 of the second part found in later issues. In this issue, plate 12 is in uncorrected state with missing lines in figure 220 finished by hand. This plate was re-ingraved for the later issues. "Many problems connected with the reflexion and refraction of light are treated with ingenuity. The geometrical focus of a point seen by reflexion or refraction is defined; and it is explained that the image of an object is the locus of the geometrical foci of every point on it. Barrow also worked out a few of the easier properties of thin lenses; and considerably simplified the Cartesian explanation of the rainbow. The geometrical lectures contain some new ways of determining the areas and tangents of curves. The most celebrated of these is the method given for the determination of tangents to curves" (Sotheran).

Isaac Barrow (October 1630 - 4 May 1677) was an English Christian theologian, and mathematician who is generally given credit for his early role in the development of infinitesimal calculus; in particular, for the discovery of the fundamental theorem of calculus. His work centered on the properties of the tangent; Barrow was the first to calculate the tangents of the kappa curve. Isaac Newton was a student of Barrow's, and Newton went on to develop calculus in a modern form. In 1662 he was made professor of geometry at Gresham College, and in 1663 was selected as the first occupier of the Lucasian chair at Cambridge. During his tenure of this chair he published two mathematical works of great learning and elegance, the first on geometry and the second on optics. In 1669 he resigned his professorship in favour of Isaac Newton. In 1669 he issued his 'Lectiones XVIII,' which would come to be known as the 'Lectiones Opticae.' The 'Lectiones Geometricae' were first published in 1670, and the two volumes together, revised, corrected, edited and slightly expanded by Collins and Newton, were first published in 1674 (the edition offered here). It is said in the preface that Newton revised and corrected the 'Lectiones Opticae.'

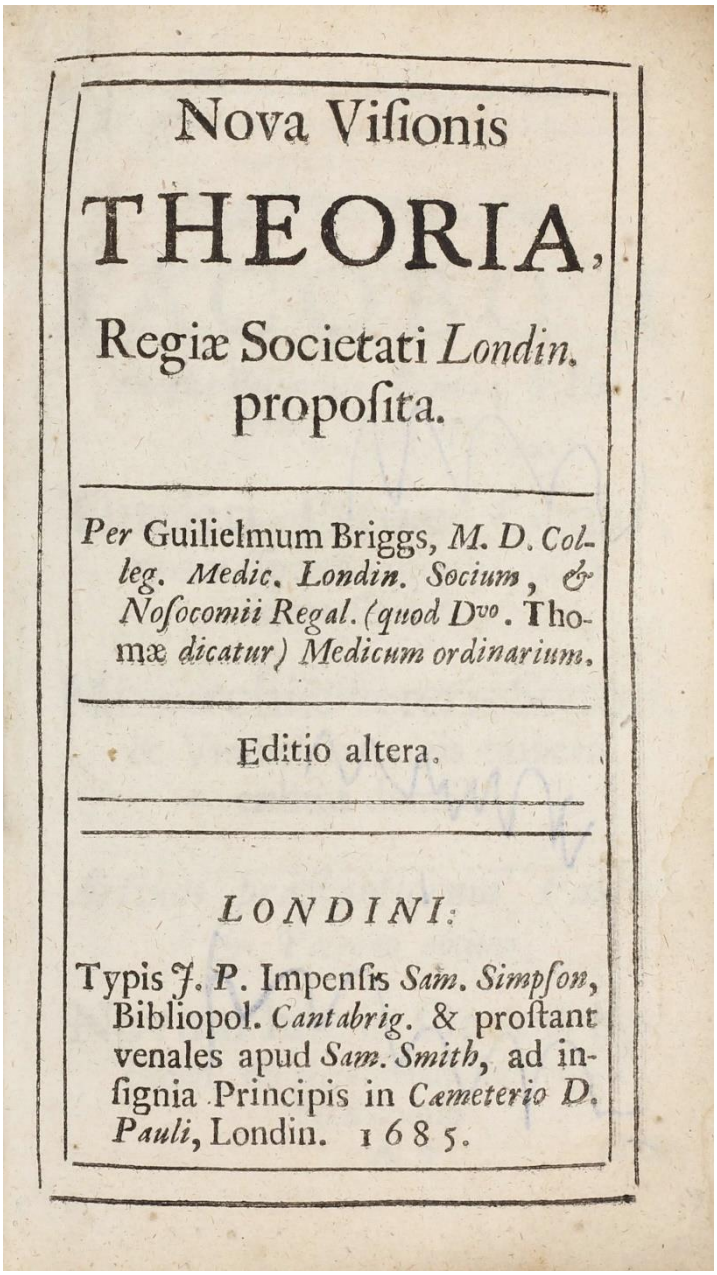
In this 1674 first complete edition, the title and preliminary matter for the 'Lectiones Geometricae' were supposed to be cancelled. Indeed, ESTC states that "no copy is recorded with the original second title page retained." In addition to the new title-page, this copy actually contains the uncancelled preliminary material. Barrows work was edited by John Collins and Isaac Newton, and corrected and revised by Issac Newton, thus constituting one of Newton's earliest publications.

18 **TRABER, Zacharias**. *Nervus opticus sive tractatus theoricus, in tres libros opticam, catoptricam, dioptricam distributus : In quibus radiorum a lumine, vel objecto per medium diaphanum processus, natura, proprietates, & effectus, selectis & rarioribus experientijs, figuris, demonstrationibusque exhibentur*. Wien: Johann Christoph Cosmerovius, 1675. Folio (293 x 198 mm). [24], 225 [1] pp. Engraved additional title by Sadler, letterpress title, 35 engraved plates on 33 sheets (3 folding, of which one, facing p. 114, double-sided with 3 plates numbered Tab X-XII), woodcut initials, head- and tailpieces, bound without final blank Ff2. Signatures: a-c4 A-Ee4 Ff2 (-Ff2). Contemporary limp vellum with yapp edges, spine hand-lettered, original endpapers (spine vellum partly chipped off, minor worming to inner hinges, spine ends scuffed, extremities rubbed, vellum soiled and spotted). Text and plates generally quite crisp and clean with only very minor browning, some light foxing of a few pages. Provenance: from a German private collection, erased old ownership inscription on letterpress title. An exceptionally well preserved copy internally. (#003462) € 12,500


NERVVS
OPTICVS
SIVE
TRACTATUS
THEORICUS,
IN TRES LIBROS
OPTICAM
CATOPTRICAM
DIOPTRICAM
DISTRIBVTVS.
In quibus radiorum â lumine, vel objecto per medium Diaphanum proceſſus, Natura, Proprietates, & Effectus, ſelectis, & rarioribus Experientijs, Figuris, Demonſtrationibusque exhibentur.
AVTHORE
P. ZACHARIA TRABER, Styro Martiaffluenſi, Societatis Jesu Sacerdote.
VIENNÆ AVSTRIÆ,
Typis Joannis Christophori Cosmerovij, Sac. Cæſ. Majeſt. Typographi Aulici, Die xxiv. Aprilis, Anno M. DC. LXXV.

VD 17 32:701326B (1 of 2 variants); NLM/Krivatsy 11945; Sommervogel VIII, p.198; Wellcome V, p.292; Becker, *Collection of ophtalmology*, 378. RARE FIRST EDITION, this copy in the variant with the dedication to György Szelepcsényi, Bishop of Esztergom. Treated in three books are optics, catoptrics and dioptrics, further the manufacture of optical devices with corresponding illustrations. Published in the same year that Isaac Newton was making his great advances in the study of light, this encyclopedic and lavishly illustrated book is a classic on optics, combining both physical and physiological optics. The anatomy and physiology of the eye and the physical properties of light are extensively treated. There is a great deal of historical information about the development of the optical science from Aristotle to the work of his contemporaries such as Kepler, Kircher, Aguilon and Scheiner. (see Becker). There are quite a number of 17th century books in which the theory of the Camera Obscura is explained (Kircher, Schott a.o.), but Traber's work arguably explains this invention best and illustrates it with some striking plates. Scheiner's apparatus for the observation of sun-rays and several types of the Camera Obscura are illustrated on the finely engraved plates. Zacharias Traber (1611-1679) was an Austrian Jesuit who taught mathematics in Vienna.

19 **BRIGGS, William**. *Nova visionis theoria. Regiae societati Londin. proposita. Editio altera.* London: Samuel Simpson, 1685. 8vo (158 x 92 mm). [16], 80 pp. Title with double rule-border, folding engraved plate bound after p.32 depicting an anatomical diagram of the eye, errata on final prelim. page. Signatures: A-F^{8}. Contemporary plain limp vellum, original pastedown and rear flyleaf (lacking front flyleaf, minor spotting of vellum). Text and plate only little browned, occasional very minor spotting, small wormtracks to lower blank gutter of gatherings D-F, plate slightly creased and with short tear at fore-margin, ink scribbles to blank verso of title and rear flyleaf, pale dampstaining to fore-margin of title. Very good copy in untouched original binding. (#003450) € 3500



Nova Visionis
THEORIA,
Regiæ Societati *Londin.*
propositа.

Per Guilielmum Briggs, *M. D. Colleg. Medic. Londin. Socium, & Nosocomii Regal. (quod D^{vo}. Thomæ dicatur) Medicum ordinarium.*

Editio altera.

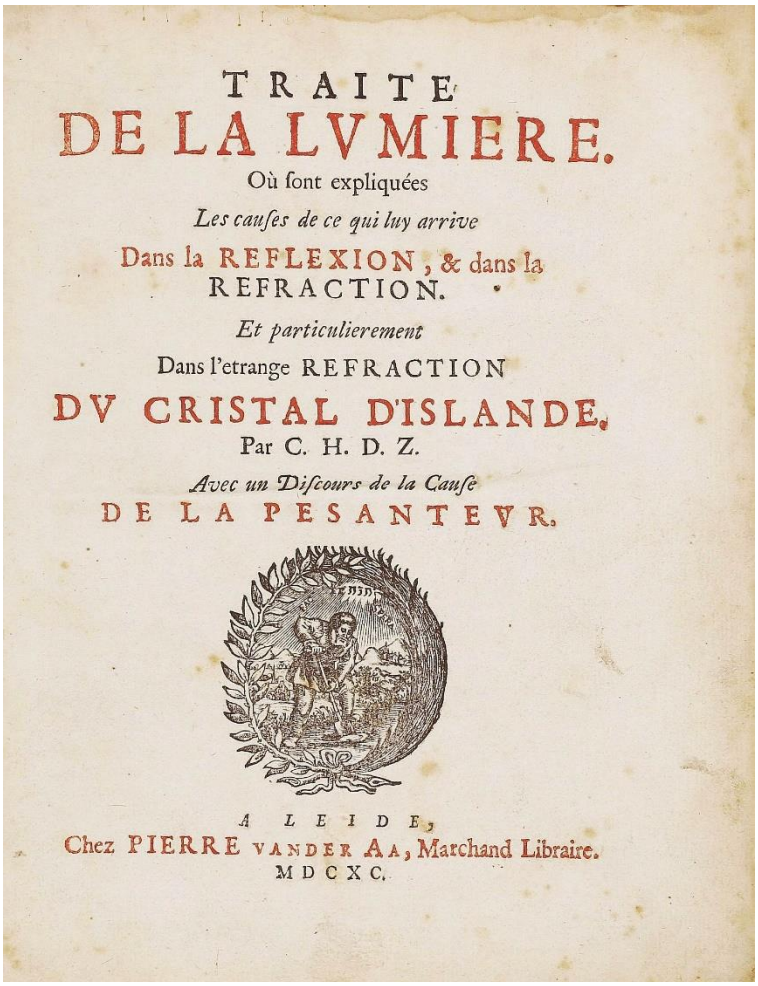
LONDINI:

Typis *J. P.* Impensis *Sam. Simpson*, Bibliopol. *Cantabrig.* & prostant venales apud *Sam. Smith*, ad insignia Principis in *Cæmeterio D. Pauli*, Londin. 1685.

Wing, B4667; ESTC R34375. RARE FIRST LATIN EDITION. A work appreciated by Newton who recommended its publication and also used it to develop his optical system. Newton's letter praising Briggs' propositions is printed on 4 preliminary pages.

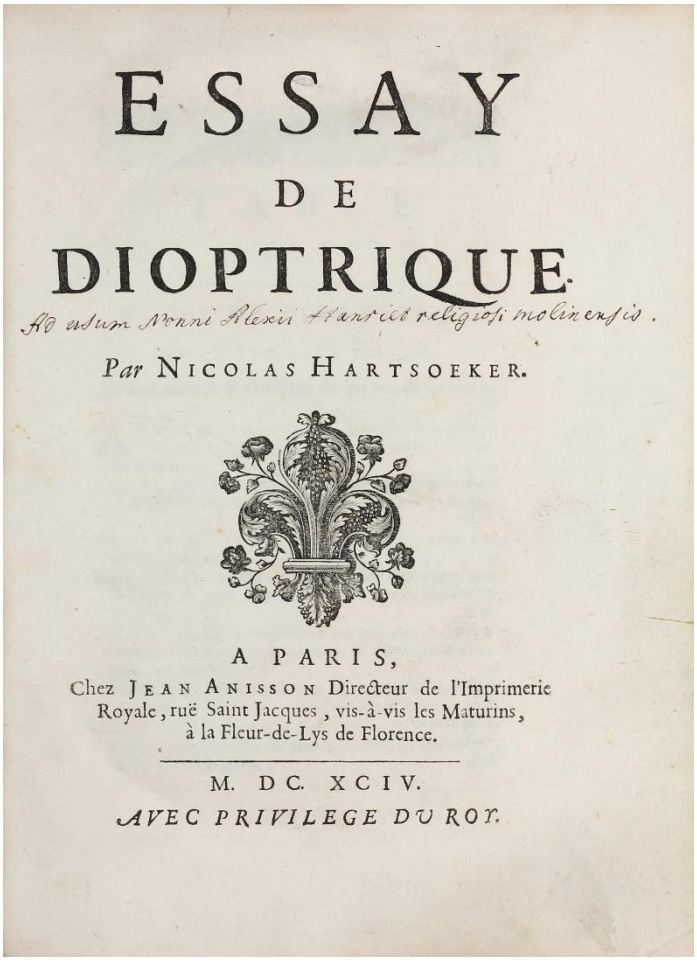
The contained two treatises were previously published in English. The first (*Nova visionis theoria*, p. 1-34) was expounded before the Royal Society in 1681 and printed in the Philosophical collections edited by Robert Hooke, no. 6, 1682. The second (*Continuatio theoriae praecedentis*, p. 35-80) was printed in the Philosophical transactions of the Royal Society, no. 146, 1683.

20 **HUYGENS, Christiaan**. *Traité de la lumière. Ou sont expliquees les causes de ce qui luy arrive dans la réflexion, & dans la refraction ... Avec un discours de la cause de la pesanteur*. Leiden: Pieter van der Aa, 1690. 4to (198 x 158 mm). [8], 1-124 [2] 125-128 [2] 129-180 pp. Signatures: $*^4$ A-P^4 Q^2 R^4 S^2 T-Z^4 Aa^2. Two parts in one, separate title to part two, continuous pagination, general title printed in red and black, both titles with printer's woodcut device, woodcut head-pieces and initials, 89 woodcut diagrams in text. Bound in contemporary calf, spine rebacked and with gilt-lettered morocco label (little rubbing to board sand extremities, corners bumped), red-spinkled edges. Text little browned, marginal light dust soiling, first four leaves with just a few mm of light dampstaining at top edge, very minor occasional spotting, a few short tears not affecting text. Beside the rebacking a fine, unsophisticated, wide-margined and unmarked copy. (#002708) € 28,000


TRAITE
DE LA LVMIERE.
Où sont expliquées
Les causes de ce qui luy arrive
Dans la REFLEXION, & dans la
REFRACTION.
Et particulierement
Dans l'etrange REFRACTION
DV CRISTAL D'ISLANDE.
Par C. H. D. Z.
Avec un Discours de la Cause
DE LA PESANTEVR.
A LEIDE,
Chez PIERRE VANDER AA, Marchand Libraire.
M D C X C.

Dibner 145; Horblit 54; Norman 1139; Sparrow 111; Evans 32; D.S.B. VI, p.609-10; *En francais dans le texte* 25. FIRST EDITION of Huygens' pathbreaking exposition of his wave theory of light. Huygens had developed his theory in 1676 and 1677, and completed his *Traite de la lumière* in 1678. He read portions of the treatise to the Academy during the following year but left it unpublished, until Newton's *Principia* (1687) and a visit with Newton in 1689 stimulated him to have it printed at last. "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 uniformly minute, elastic particles compressed very close together. Light, therefore, is not an actual transference of matter but rather of a 'tendency to move,' a serial displacement similar to a collision which proceeds through a row of balls [...] Huygens therefore concluded that new wave fronts originate around each particle that is touched by light and extend outward from the particle in the form of hemispheres." (D.S.B.). Huygens was able to explain reflection and refraction using this theory, of which he became completely convinced in August 6, 1677, when he found that it explained the double refraction in Iceland spar. His view of light was opposed to the corpuscular theory of light advanced by Newton. In the second part of the work, the *Discours de la cause de la pesanteur*, written in 1669, Huygens expounded his vortex theory of gravity, a purely mechanistic theory that also contrasted markedly with Newton's notion of a universal attractional force intrinsic to matter. Indeed, Huygens added to the original treatise of 1669 a review of Newton's theory, rejecting it out of hand because of the impossibility of explaining it by any mechanical principle or law of motion. Huygens' work fell into oblivion during the following century, but his theory of light was confirmed at the beginning of the 19th century by Thomas Young, who used it to explain optical interference, and by Augustin-Jean Fresnel a few years later. Modern physics has reconciled Newton's and Huygens' theories in discerning both corpuscular and wave characteristics in the properties of light. There are two states of the two title leaves known. Our copy is with the author's initials only on both titles (no priority established).

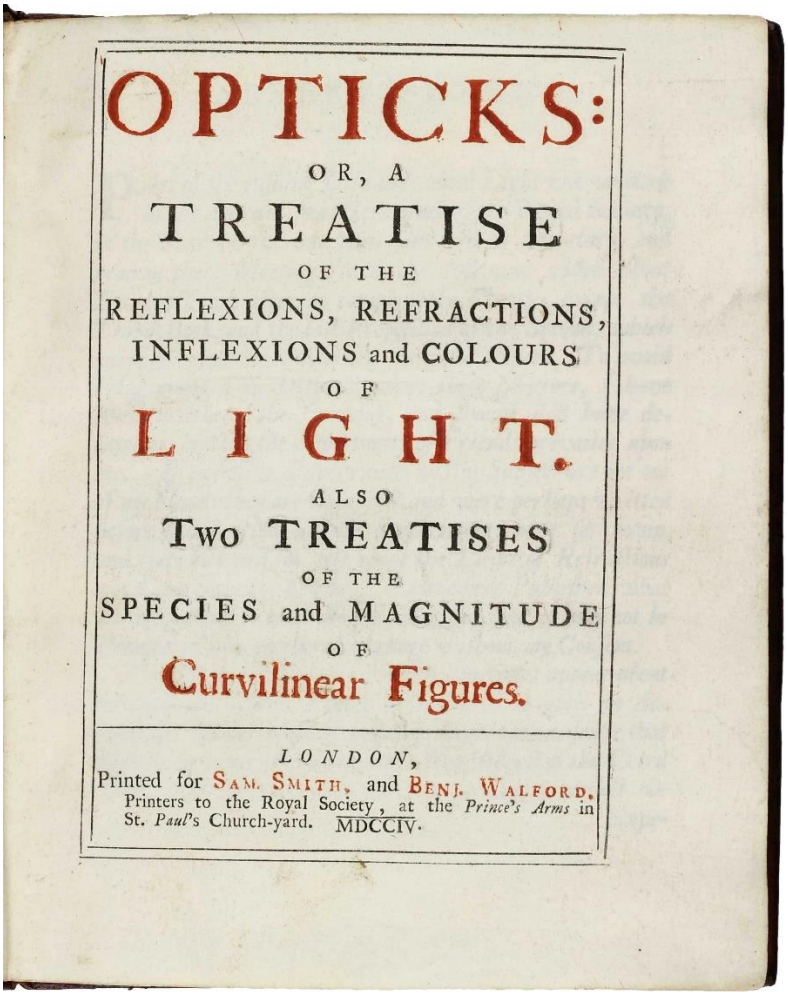
21 **HARTSOEKER, Nicolaas**. *Essay de Dioptrique*. Paris: Jean Anisson, 1694. 4to (249 x 184 mm). [24], 1-179, [2], 180-233 [1] pp. Woodcut printer's device on title, woodcut initials, head- and tailpieces, one unsigned double leaf with engraved lunar map and facing explanatory text inserted before p. 179, several diagrams and a few illustrations in text. Bound in contemporary French sprinkled calf, gilt-decorated spine with 5 raised bands and gilt-lettered label in first compartment, red-sprinkled edges, original endpapers (wear to extremities, spine-ends chipped, minor unobtrusive old repair to corners and hinges). Bright and crisp internally, the inserted plate just a bit browned and spotted. Provenance: Alexis (Nicolas-François) Hanriet* (neat inscription "Ad usum Nonni Alexii Hanriet religiosi molinensis" on title). Exceptional, wide-margined copy in original binding. (#003350) € 8500



ESSAY
DE
DIOPTRIQUE.
Ad usum Nonni Alexii Hanriet religiosi molinensis.
Par NICOLAS HARTSOEKER.
A PARIS,
Chez JEAN ANISSON Directeur de l'Imprimerie Royale, ruë Saint Jacques, vis-à-vis les Maturins, à la Fleur-de-Lys de Florence.
M. DC. XCIV.
AVEC PRIVILEGE DU ROY.

Bierens de Haan 1925; Wellcome III, p.217; DSB VI, 148f; A.J.J. Vandevelde, *Bijdr. tot de bibliogr. geschied. v.h. microscoop*, pp. 1174-76. - RARE FIRST EDITION. Nicolaas Hartsoeker (1656-1725) was a Dutch mathematician, physicist and inventor of the screw-barrel simple microscope. Starting as a lens maker in Rotterdam, he was instructed in optics by Antonie van Leeuwenhoek. In 1674, he and a fellow student, assisted by Van Leeuwenhoek, were the first to observe semen, a situation that would later lead to a priority dispute between Hartsoeker and Leeuwenhoek over the discovery of spermatozoids. "In addition to his instrument work, Hartsoeker did research in embryology. In 1674 he recognized small 'particles' in the sperm, which he at first thought to be signs of desease . . . As a result of his investigations, Hartsoeker believed that the fetus was preformed in the sparmatozoon and published illustrations of the humunculus crouched there" (DSB). He never claimed to have seen humunculi; he only postulated their existence as part of his Spermist theory of conception. His *Essay on dioptrics*, in which this hypothesis was formulated, "was a highly lauded book, in fact tackling several misconceptions of the time. For example, Hartsoeker disavows the contemporary position (e.g. of Robert Hooke) that with refractor telescopes one soon would be able to see man-sized creatures on the moon, if any in fact existed." (Wikisource).

22 **NEWTON, Isaac**. *Opticks: or, a Treatise of the Reflexions, Refractions, Inflexions and Colours of Light. Also Two Treatises of the Species and Magnitude of Curvilinear Figures*. London: for Sam. Smith and Benj. Walford, printers to the Royal Society, 1704. 4to (244 x 191 mm). 181 leaves, [4] 1-144, 1-137 [1] 138 [1] 139-211 [1] pp. Signatures: (pi)^2, A-S^4, Aa-Bb^4 Dd-Zz^4, Aaa-Ddd^4, Eee^2 + single leaf inserted before Tt2 being the divisional title to *Enumeratio linearum tertii ordinis*. Title printed in red and black, 19 folding engraved plates. Contemporary polished panelled calf, expertly rebacked with the original backstrip and red morocco gilt-lettered label laid down, red-sprinkled edges, corners strengthened, slight wear to extremities. Text crisp and clean throughout, faint dampstain spots to a few upper blank margins near gutter, upper margin of 6 plates closely trimmed, partly affecting heading of plate *Curvarum Tab. II*. Provenance: Harrison D. Horblit (his bookplate to first flyleaf); Thomas Vroom (pictotrial bookplate to front pastedown). A wide margined and internally exceptionally crisp copy. (#003251) € 80,000



OPTICKS:
OR, A
TREATISE
OF THE
REFLEXIONS, REFRACTIONS,
INFLEXIONS and COLOURS
OF
LIGHT.
ALSO
Two TREATISES
OF THE
SPECIES and MAGNITUDE
OF
Curvilinear Figures.

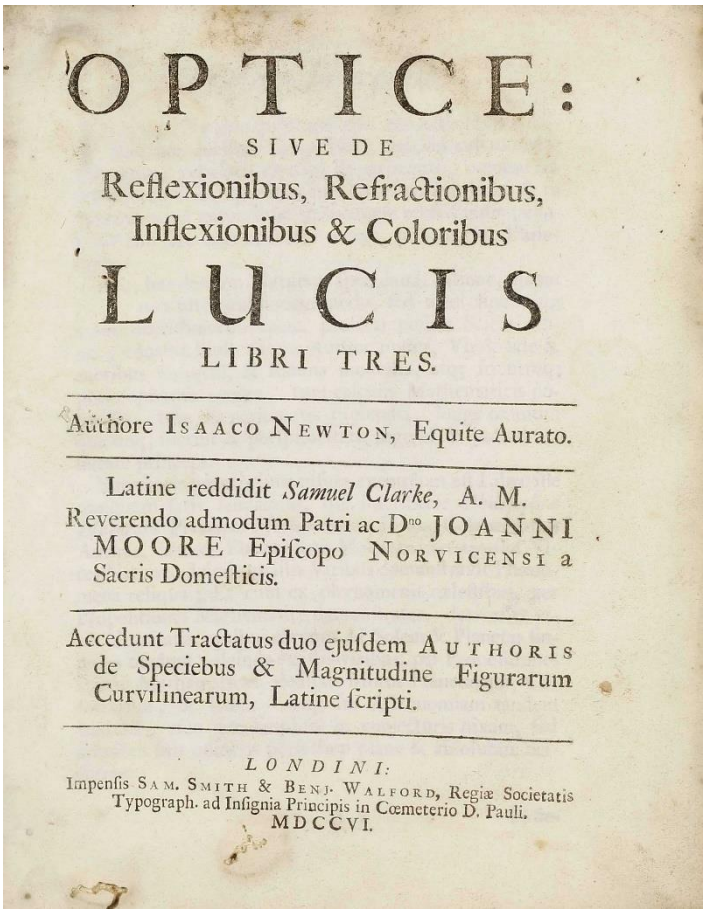
LONDON,
Printed for SAM. SMITH, and BENJ. WALFORD,
Printers to the Royal Society, at the *Prince's Arms* in
St. *Paul's* Church-yard. MDCCIV.

Babson/Macomber 132; Wallis 174; Sparrow, *Milestones of Science* 150; Dibner, *Heralds of Science* 148; Horblit 79b; PMM / *Printing and the Mind of Man* 172; Norman 1588. FIRST EDITION, FIRST ISSUE of Newton's important optical discoveries in collected form. "Newton's *Opticks* did for light what his *Principia* had done for gravitation, namely, placed it on a scientific basis" (E.W. Brown, quoted in Babson). "*Opticks* is also distinguished in two other ways: the first edition contained Newton's first mathematical papers in print [...] and in the later editions it was embellished with a set of 'Queries' long supposed to represent Newton's opinions on the chief mysteries of Nature". (PMM 172).

Opticks includes explanations of the rainbow, "Newton's rings," the color circle, the spectrum of sunlight, and the invention of the reflecting telescope. "This work includes assertions of the priority of Newton over Leibniz in the discovery of the calculus, explanations of optical phenomena such as the rainbow, 'Newton rings', the double refraction of Icelandic spar, and important 'Queries' as to the nature of matter" (Horblit). *Opticks* itself was written in the 1670s. Newton showed the manuscript to microscope pioneer and fellow Royal Society member Robert Hooke, whose criticisms were so withering that Newton elected to stall publication until after Hooke's demise. Unusually for one of Newton's works, "Opticks" was first published in English, the Latin version following in 1706.

This copy was consigned to Christie's by the Widow of Harrison D. Horblit, Mermin Horblit (1910-2009) and sold in New York on April 22, 1994 (USD 16,100).

23 **NEWTON, Isaac**. *Optice; sive de reflexionibus, refractionibus, inflexionibus & coloribus lucis libri tres*. London: Samuel Smith and Benjamin Walford, 1706. 4to (240 x 190 mm). [14], 1-348, 1-24, [2] 1-24, 21-43 [1] pp. 19 folding engraved plates. Contemporary full vellum, spine with old ink lettering and remnant of leather label (vellum little soiled), red-sprinkled edges. Text and plates generally crisp and clean with very little faint spotting, a few dampstains and wormholes in lower blank margin of first 10 leaves not affecting text, some worming to endpapers and title-page, tiny wormholes in lower margin of final pages and plates. Provenance: W. Heffer & Sons, Cambridge (small sticker to front pastedown). A very good copy with ample margins in untouched original binding. (#001673) € 6500



OPTICE:

SIVE DE

Reflexionibus, Refractionibus,
Inflexionibus & Coloribus

LUCIS

LIBRI TRES.

Authore ISAACO NEWTON, Equite Aurato.

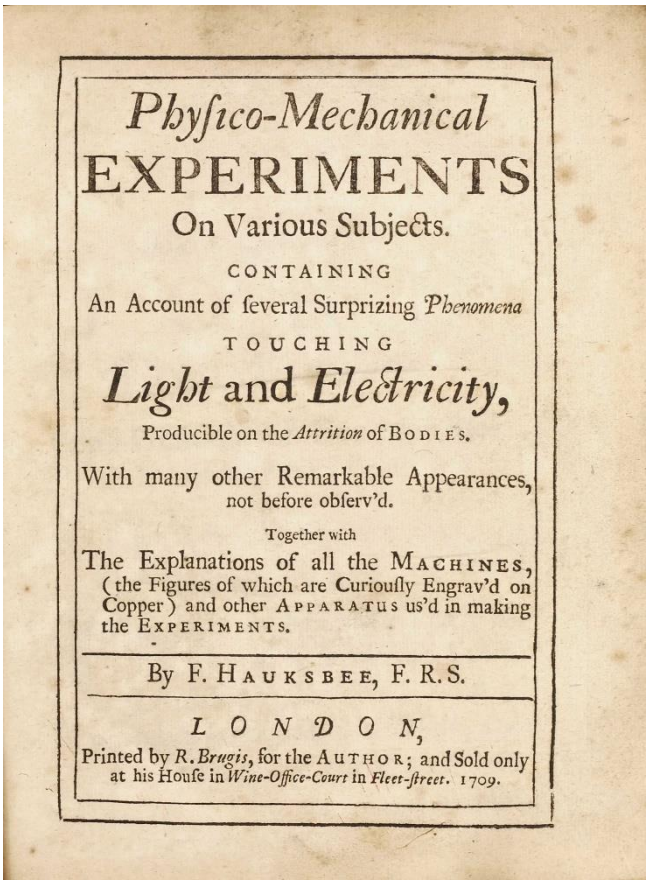
Latine reddidit *Samuel Clarke*, A. M.
Reverendo admodum Patri ac Dno JOANNI
MOORE Episcopo NORVICENSI a
Sacris Domesticis.

Accedunt Tractatus duo ejusdem AUTHORIS
de Speciebus & Magnitudine Figurarum
Curvilinearum, Latine scripti.

LONDINI:
Impensis SAM. SMITH & BENJ. WALFORD, Regiæ Societatis
Typograph. ad Insignia Principis in Cœmeterio D. Pauli.
MDCCVI.

Babson 137; Wallis 179, Norman 1589. - FIRST LATIN EDITION. The first edition of *OPTICKS* was printed two years earlier in English and without Newton's customary use of editorial assistance. He then employed Samuel Clarke to make a Latin translation with the addition of seven new Queries. At the end of the book are two mathematical treatises, *DE QUADRATURA and ENUMERATIO LINEARUM TERTII ORDINIS*, which Newton added to establish his priority over Leibniz in the invention of the calculus. Next to the *PRINCIPIA*, the *OPTICKS* stands as Newton's greatest work. Much of the a *OPTICKS* was written thirty years earlier and finally put into print in 1704, just a few months after Newton assumed the chair as President of the Royal Society. It summarized his discoveries and theories concerning light and color, the spectrum of sunlight, the degrees of refraction associated with different colors, the color circle, the invention of the reflecting telescope, the first workable theory of the rainbow, and interference effects in conjunction with Newton's rings. It expounds his corpuscular or emission theory of light.

24 **HAUKSBEE, Francis**. *Physico-Mechanical Experiments on Various Subjects. Containing an Account of several Surprizing Phenomena touching Light and Electricity*. London: R. Brugis for the author, 1709. 4to (203 x 159 mm). [14], 194 pp. Small engraved plate inserted between pp. 160 & 161 and 7 folding engraved plates at the end. Bound without blanks. Contemporary panelled calf (hinges restored, leather rubbed and worn). Text slightly browned and spotted throughout, a few pages foxed, clean tear to plate II repaired. A very good copy in contemporary binding. (#003215) € 6500


Phyſico-Mechanical
EXPERIMENTS
On Various Subjects.
CONTAINING
An Account of ſeveral Surprizing Phenomena
TOUCHING
Light and Electricity,
Producible on the Attrition of BODIES.
With many other Remarkable Appearances, not before obſerv'd.
Together with
The Explanations of all the MACHINES, (the Figures of which are Curiouſly Engrav'd on Copper) and other APPARATUS us'd in making the EXPERIMENTS.
By F. HAUKSBEE, F. R. S.
LONDON,
Printed by R. Brugis, for the AUTHOR; and Sold only at his Houſe in Wine-Office-Court in Fleet-ſtreet. 1709.

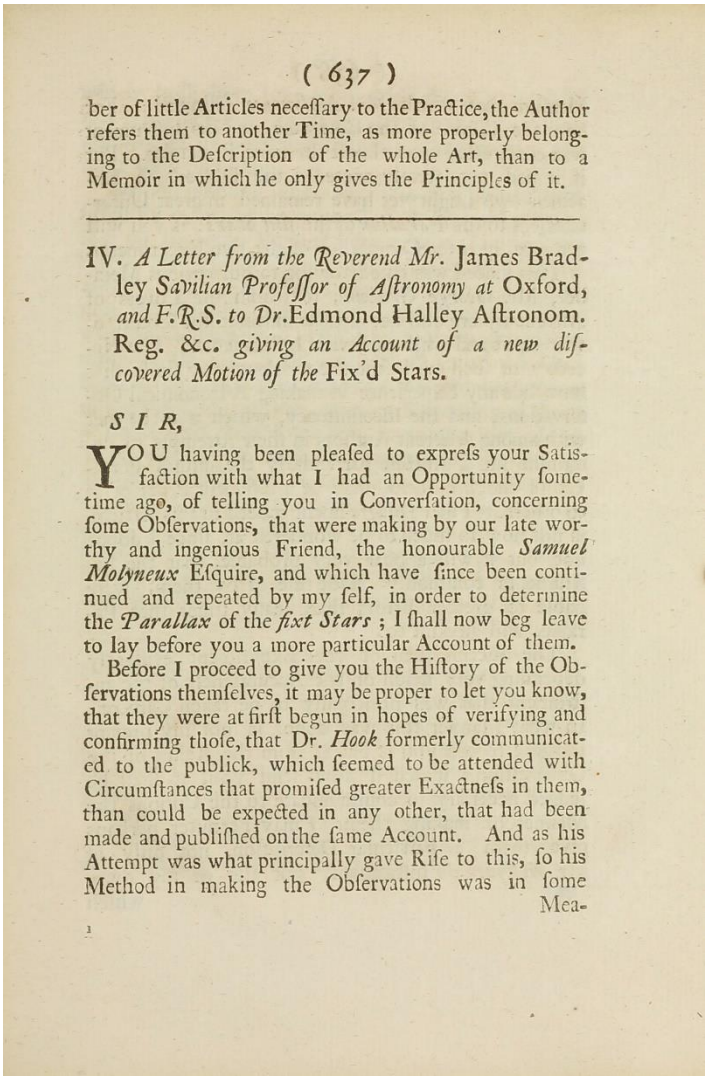
Norman 1020; Wheeler Gift 232; Duveen p.282; Gedeon pp. 92-93. RARE FIRST EDITION OF 'ONE OF THE MOST IMPORTANT EARLY WORKS ON ELECTRICITY' (Duveen). Hauksbee was indebted to Isaac Newton for some of his theoretical ideas, while the results of his important experiments in electroluminescence, static electricity and capillarity in turn influenced Newton's revisions and additions to the new editions of his *Principia* and *Opticks*. Hauksbee was the first to demonstrate the optical effects produced by the passage of electricity through rarified air. "His demonstration of the efficacy of glass in producing frictional electricity opened the way for the work of Gray, Dufay and Franklin, and his discoveries in capillarity influenced Laplace nearly one hundred years later" (Norman). The improved airpump which Hauksbee described and illustrated was based on his discovery of the lateral communication of motion in air. His illustration of the optical effects of the passage of electricity through air was, in Duveen's view, "the starting point of modern researches, X-rays and the constitution of the atom."

The Discovery of the Aberration of Light

25 **BRADLEY, James**. *A Letter from the Reverend Mr. James Bradley Savilian Professor of Astronomy at Oxford, and F.R.S. to Dr. Edmond Halley Astronom. Reg. &c. Giving an Account of a New Discovered Motion of the Fix'd Stars*. In: Philosophical Transactions of the Royal Society of London for 1727-28, vol. 35, no. 406, pp. 637-661. London: Printed for W. Innys, 1729. 4to (215 x 168 mm). Entire volume offered: [6], 293-661 [1] pp., including general title, drop titles for individual numbers, content leaves outside pagination, and 14 engraved folding plates. Contemporary panelled calf (spine rebacked, extremities worn, corners heavily scuffed. Text and plates somewhat browned, dust-soiled (some pages stronger), occasional spotting, the general title creased, some creasing, dog-earing elsewhere, 2 leaves after title detached. Provenance: John Waterhouse Halifax, Halifax Literary & Philosophical Society (bookplates to front pastedown). (#003426) € 8000

Sparrow 28; Evans 21. FIRST EDITION of the letter by James Bradley about the discovery of the aberration of light. "The explanation of the phenomenon placed Bradly among the great astronomers of the 18th century" (Evans). Bradly is best known for two fundamental discoveries in astronomy, the aberration of light, and the nutation of the Earth's axis. Delambre says: "It is to these two discoveries by Bradley that we owe the exactness of modern astronomy. ... This double service assures to their discoverer the most distinguished place (after Hipparchus and Kepler) above the greatest astronomers of all ages and all countries." (J.B.J. Delambre *Histoire de l'astronomie au dix-huitième siècle*, 1827, p. 413).

Bradley worked with Samuel Molyneux until Molyneux's death in 1728, trying to measure the parallax of Gamma Draconis. "If the Copernican theory was correct it ought to be possible to observe an annual parallax of the stars. In fact within the last three decades of the seventeenth century a number of striking observations had revived



(637)

ber of little Articles neceſſary to the Practice, the Author refers them to another Time, as more properly belonging to the Deſcription of the whole Art, than to a Memoir in which he only gives the Principles of it.

IV. *A Letter from the Reverend Mr.* James Bradley *Savilian Profeſſor of Aſtronomy at* Oxford, *and F.R.S. to Dr.* Edmond Halley Aſtronom. Reg. &c. *giving an Account of a new diſcovered Motion of the* Fix'd Stars.

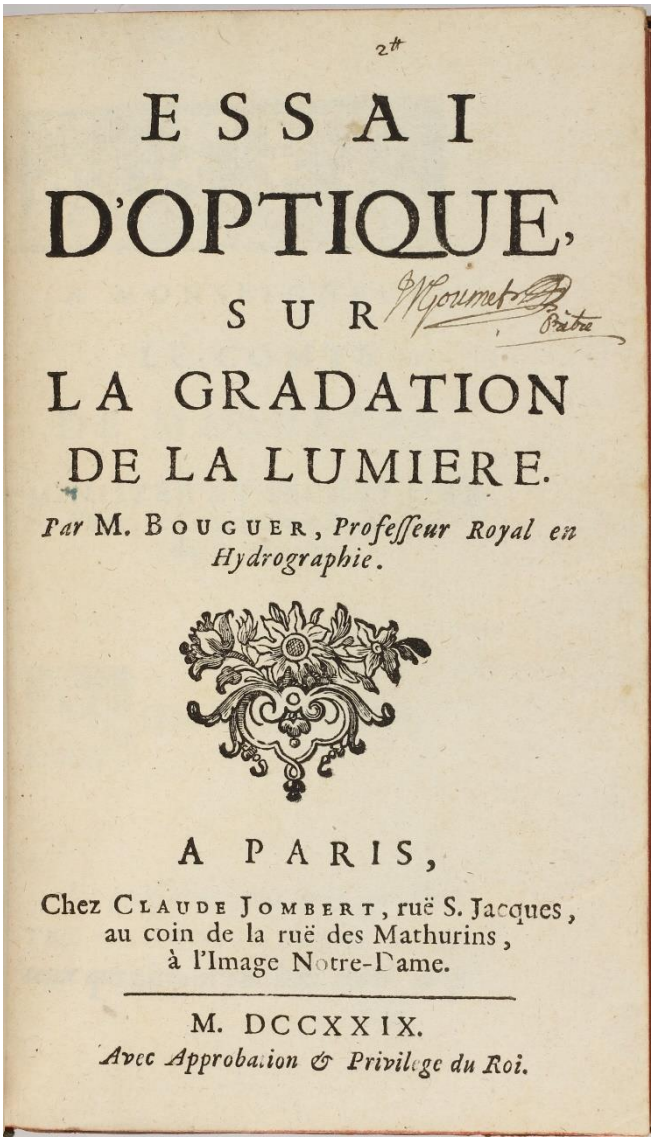
SIR,

YOU having been pleaſed to expreſs your Satisfaction with what I had an Opportunity ſometime ago, of telling you in Converſation, concerning ſome Obſervations, that were making by our late worthy and ingenious Friend, the honourable *Samuel Molyneux* Eſquire, and which have ſince been continued and repeated by my ſelf, in order to determine the *Parallax* of the *fixt Stars*; I ſhall now beg leave to lay before you a more particular Account of them.

Before I proceed to give you the Hiſtory of the Obſervations themſelves, it may be proper to let you know, that they were at firſt begun in hopes of verifying and confirming thoſe, that Dr. *Hook* formerly communicated to the publick, which ſeemed to be attended with Circumſtances that promiſed greater Exactneſs in them, than could be expected in any other, that had been made and publiſhed on the ſame Account. And as his Attempt was what principally gave Riſe to this, ſo his Method in making the Obſervations was in ſome Mea-

the interest in parallaxes. At the time of [Bradley's] voyage to Uraniborg (begun in 1671) Jean Picard noticed annual variations in the position of the polar star extending to nearly 40", but - and this is very remarkable - after having studied them he concluded that they could not be explained either by refraction or by parallax. A few years later, in 1674, Robert Hooke made similar observations and lacking Picard's prudence and method, he thought they were parallactic effects. Flamsteed made many observations between 1689 and 1697, and explained them in the same way as Hooke. However in 1699, J. Cassini proved that the parallax would produce very different effects. A similar demonstration was given by E. Manfredi, but neither of them suggested the true explanation. Bradley's success was due not only to his excellent instrumental means, to his own perfect experimental technique, but as well to his thoroughness and persistence. In that he was almost the opposite of Hooke [. . .] who took part in almost every scientific controversy of his time but hardly ever succeeded in achieving anything of great importance because he did not carry his investigations deeply enough and never reached the bedrock of any problem. Bradley is one of the best examples of the 'classical' type of scientists as opposed to the 'romantic' type. His thoughts were deep rather than brilliant and they matured but very slowly; he was anxious to improve his observations to the limit of his experimental possibilities and he succeeded in doing so; moreover he was all the time trying to improve the instruments themselves and to detect and measure their errors. Being inhibited by an extraordinary fear of error he published very little. [. . .] With regard to the aberration, [. . .] Bradley did not simply discover it but that his determination of it was, considering his instrumental means, extremely accurate. He concluded that the maximum aberration was included between 40" or 41" [. . .]; the value of the constant of aberration accepted to-day is 20" 47 (that is 40" 94 for the whole axis). He deduced from this value the speed of light, and found that the sunlight would reach us in 8 m. 13 sec. (our present estimate is 8 m. 19 sec.)" (Bradley, James, Edmond Halley, and George Sarton. *Discovery of the Aberration of Light*. In: Isis 16, no. 2 (1931), pp. 233–65).

26 **BOUGUER, Pierre**. *Essai d'optique sur la gradation de la lumière*. Paris: Claude Jombert, 1729. 12mo (165 x 99 mm). [22], 164, [4] pp. 3 folding engraved plates, woodcut initials and headpieces, 2 leaves with errata and printer's advert. Contemporary French mottled calf, spine with 5 raised bands gilt in compartments and gilt-lettered red morocco label, red-dyed edges, marbled endpapers (extremities rubbed, spine ends and corners worn). Provenance: W. Goumet (inscription on title-page). Text only very little browned, a few text corrections in ink. A near fine copy with the text printed on strong paper. (#003602) € 2600



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ESSAI
D'OPTIQUE,
SUR
LA GRADATION
DE LA LUMIERE.

Par M. BOUGUER, *Profeſſeur Royal en Hydrographie.*

A PARIS,

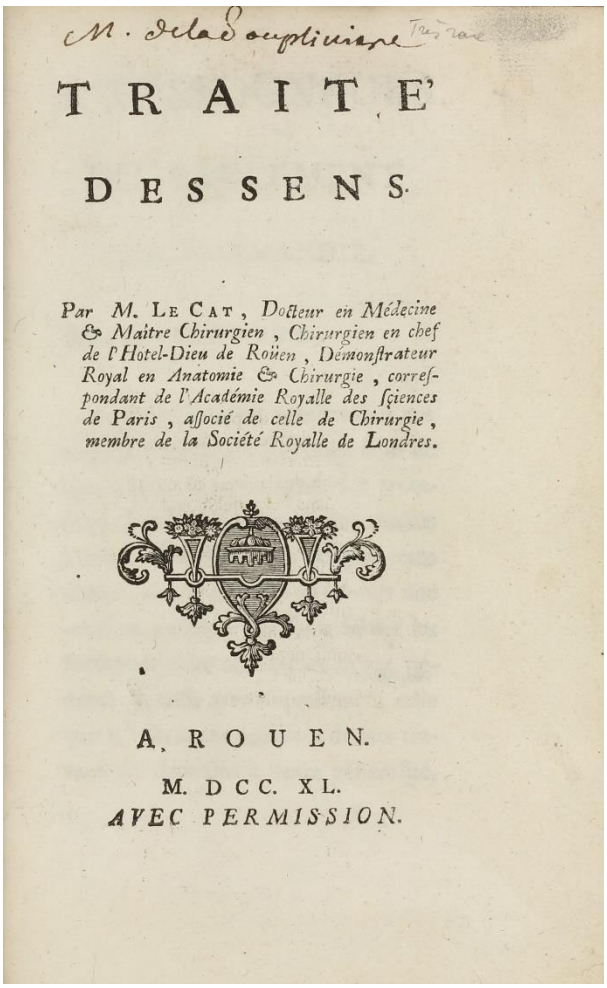
Chez CLAUDE JOMBERT, ruë S. Jacques, au coin de la ruë des Mathurins, à l'Image Notre-Dame.

M. DCCXXIX.

Avec Approbation & Privilege du Roi.

Norman 283; Honeyman 444; Macclesfield 399; DSB II, p.343. - FIRST EDITION. "Bouguer is regarded as the founder of photometry, the branch of optics concerned with measuring the intensity of light. His two most important contributions to the subject are contained in his *Essai*, the first part of which states his method of comparing the relative brightness of two lights" (Norman). A youthful prodigy who established himself early in life as the leading French authority on nautical matters, Bouguer merely dabbled in optics as a hobby. His interest in the measurement of light dates from c. 1721, when Jean-Jacques Dortous de Mairan proposed a problem that necessitated a knowledge of the relative amount of light from the sun at two altitudes. Bouguer succeeded in making such a measurement of the light from the full moon on 23 November 1725, by comparing it with that of a candle. His achievement was to see that the eye could be used, not as a meter but as a null indicator, i.e., to establish the equality of brightness of two adjacent surfaces. His second discovery concerned the transmission of light through transparent surfaces: "In a medium of uniform transparency the light remaining in a collimated beam is an exponential function of the length of its path in the medium. This law was restated by J.H. Lambert in his Photometria (1760) and, perhaps because of the great rarity of copies of Bouguer's Essai, is sometimes unjustifiably referred to as Lambert's law' (op. cit.)" (Norman).

27 **LE CAT, Claude-Nicolas**. *Traité des sens.* Rouen: [publisher unknown], 1740. 8vo (193 x 125 mm). [8], 201-232, 253-523 [1] pp. Title with woodcut device, woodcut initials, head- and tailpieces, 2 engraved vignettes and 19 engraved plates on 16 sheets (8 folding, including 3 sheets with additional outlines). This work begins at page 201, with the caption title "Des sens en particulier." Contemporary


M. de la Souplinière Très rare

TRAITE'

DES SENS.

Par M. LE CAT, Docteur en Médecine & Maitre Chirurgien, Chirurgien en chef de l'Hotel-Dieu de Roüen, Démonstrateur Royal en Anatomie & Chirurgie, correspondant de l'Académie Royalle des Sciences de Paris, associé de celle de Chirurgie, membre de la Société Royalle de Londres.

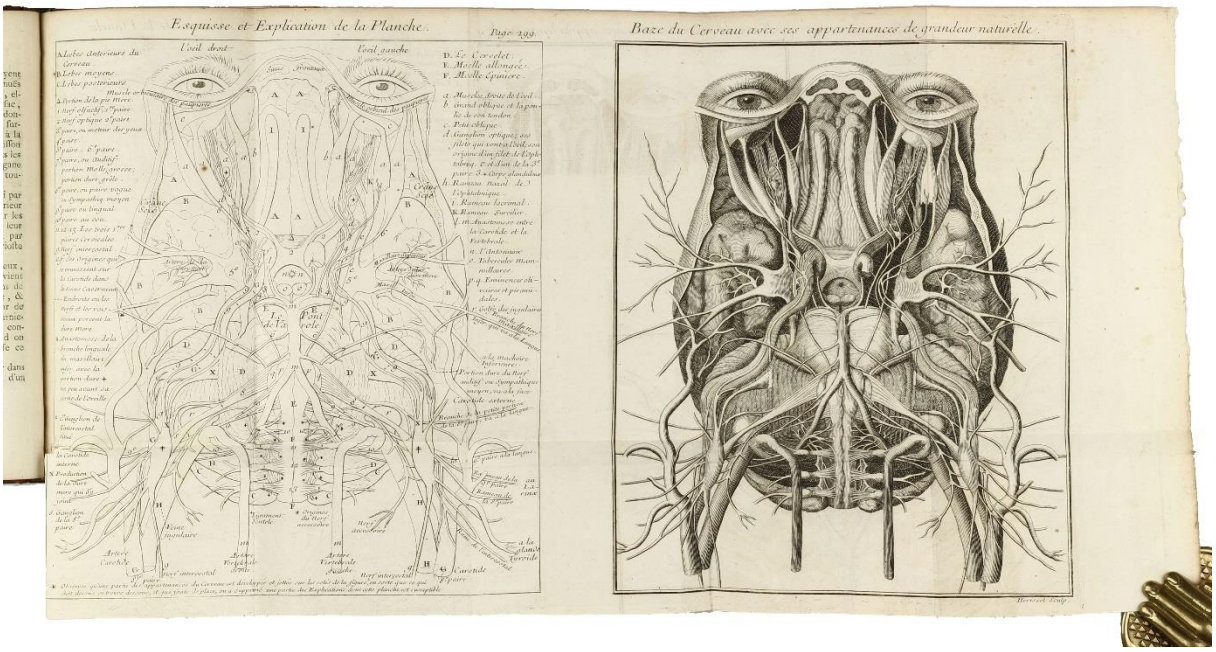
A ROUEN.

M. DCC. XL.

AVEC PERMISSION.

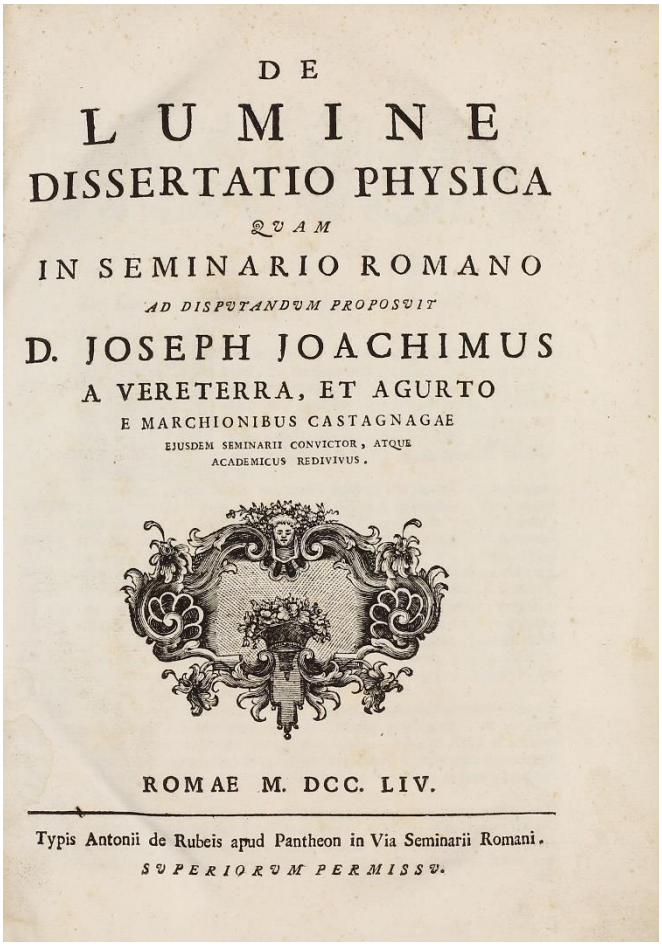
French mottled calf, spine with 5 raised bands, gilt decoration and gilt-lettered morocco label in compartments, marbed endpapers, red-dyed edges (extremities rubbed, two corners worn). Text and plates crisp and clean with only very little age-toning, plate to p.485 somewhat browned and spotted. Provenance: M. De La Souplinière (inscribed on title-page). A fine, wide margined copy. (#003445) € 3500

Becker 234; Heirs of Hippocrates 851; Wellcome III, p.468 (all citing the 1744 edition); DSB VIII, 115; Blake/NLM, p.260. - FIRST EDITION of the author's most important work, published in a single volume only, and complete in itself despite the fact that pagination starts at p. 201. The work "treats the anatomy and physiology of the sense organs in a philosophical context" (Becker). "In it Le Cat presented a theory of the propagation of light contrary to that of Newtonian attraction. He further reported on the pigmented choroid coat of the eye and assigned it a common embryonic origin with the pigment of the skin" (DSB). The work is illustrated by a set of anatomical plates, including an outstanding folding plate of the base of the brain and of the lacrimal apparatus. "Le Cat (1700-1768), a man of many interests, was one of France's foremost surgeons and researchers. Perhaps better known as a skilled and accomplished lithotomist . . . The book's six sections include an introduction to sensation, touch, taste, smell, hearing, and vision, which constitutes the major portion of the text." (Heirs of Hippocrates).



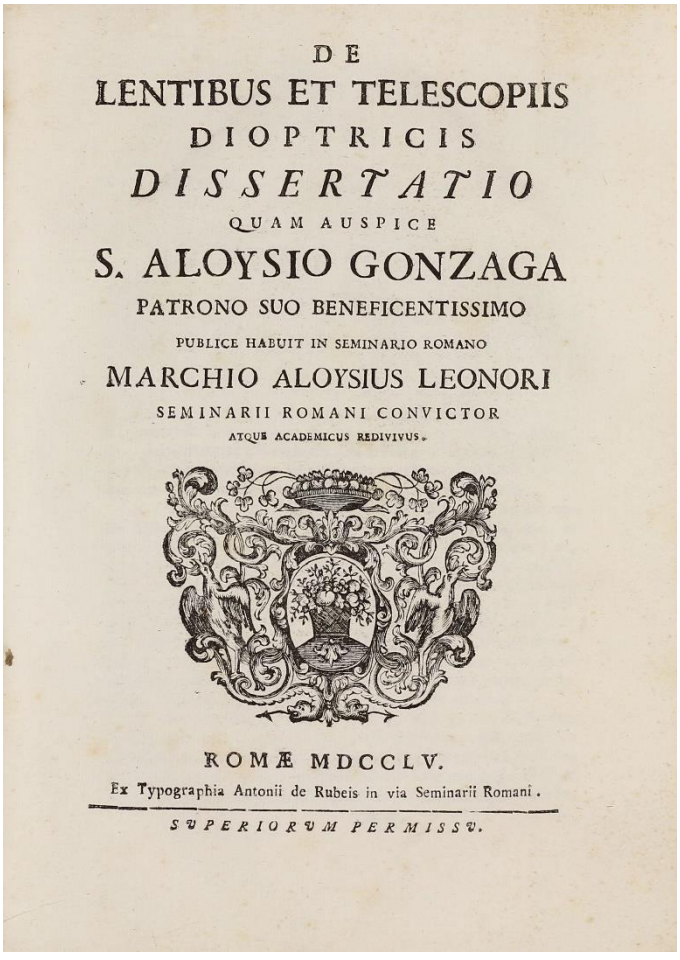
28 **[BENVENUTI, Carlo]**. I. *De lumine dissertatio physica quam in seminario Romano ad disputandum proposuit d. Joseph Joachimus a Vereterra, et Agurto e marchionibus Castagnagae ejusdem seminarii convictor, atque academicus redivivus*. Rome: Antonii de Rubeis apud Pantheon in via Seminarii Romani, 1754. [2], XCI [1] pp. Signatures: [pi]1 (A-L)4 M2. Woodcut device to title-page, 2 folding engraved plates, errata on final leaf. [Bound with:] II. **[BENVENUTI, Carlo]**. *Synopsis physicae generalis quam in Seminario Romano ad disserendum proposuit d. Joseph Joachimus a Vereterra, et Agurto e Marchionibus Castagnagae ejusdem seminarii convictor, atque academicus redivivus*. Rome: Antonii de Rubeis apud Pantheon in via Seminarii Romani, 1754. [2], LXXXI, [3] pp. Signatures: [pi]1 (A-I)4 K5. Woodcut device to title-page, 1 folding engraved plate, errata on final leaf. [Bound with:] III. **CANALI, Gioachino**. *De meteoris a naturali electricismo pendentibus dissertatio physica*. Rome: Antonii de Rubeis in via Seminarii Romani, 1755. [3], 12-32, [2] pp. Signatures: B-D4. Half title only [lacking the first gathering a with the title and content list], one folding engraved plate. [Bound with:] IV. **LEONORI, Luigi**. *De naturali electricismo ejusque ad auroram borealem applicatione dissertatio physica*. [2], 11-30, [2] pp. Half title only [lacking the first gathering a with the title and content list], 1 folding engraved plate. [Bound with:] V. **[BOSCOVICH, Roger Joseph]**. *De lentibus et telescopiis dioptricis dissertatio quam auspice s. Aloysio Gonzaga patrono suo beneficentissimo publice habuit in Seminario Romano marchio Aloysius Leonori Seminarii Romani convictor atque academicus redivivus*. Rome: Antonii de Rubeis in via Seminarii Romani, 1755. [2] 3-58 [2] pp. Signatures: (A-G)4 H2. Errata leaf at end, one folding engraved plate. 5 works in one volume. 4to (253 x 185 mm). Bound in contemporary full vellum, ink lettering to spine (soiling and spotting of vellum, wear to spine ends and upper corners), red-sprinkled edges. Text quite crisp and clean with only very minor age-toning. Provenance: Giancarlo Beltrame Library. A fine copy. (#003041) € 7500

An important Sammelband of theses, all in FIRST EDITION, by Roger Boscovich and Carlo Benvenuti. These type of publications where printed in just a few copies and were not intended for the normal book market. "Although they are often catalogued under students' names, their real authors were the teachers, so they inform us of the ideas of persons who often published nothing on the subject concerned, and whose manuscript lecture notes, when they have been preserved, often deal with it in a brief or vague fashion. The theses were also a favourite channel for new or even unorthodox ideas. Accordingly they can reveal tensions within the Society that were usually removed from the eyes of the world, as well as tensions with other orders, which usually appeared only in the course of theological debate. Discussions of Boscovich's theory are not found primarily in theses on mathematics, the discipline he taught, but in those on philosophy, a discipline on which, according to conventions rooted in medieval gnosiology and epistemology, he lacked formal authority to speak ... Only a few analyses of Boscovich's ideas were published separately (mostly by enthusiastic supporters), a majority being inserted in various sections of general works. The fact that a new theory was placed in the pigeonholes provided by an old pedagogical structure meant that some discussed it in sections on continuous entities, others in sections on the structure of matter, and still others in places concerning forces acting in nature or the existence of repulsive phenomena. In each case, some aspects of the theory were given more attention than others, and its inner structure was often represented inadequately." (J. B. Staudt, *The Jesuits II: Cultures, Sciences, and the Arts, 1540-1773*, Univ. of Toronto Press, 2006, p.409).


DE
LUMINE
DISSERTATIO PHYSICA
QUAM
IN SEMINARIO ROMANO
AD DISPUTANDUM PROPOSUIT
D. JOSEPH JOACHIMUS
A VERETERRA, ET AGURTO
E MARCHIONIBUS CASTAGNAGAE
EJUSDEM SEMINARII CONVICTOR, ATQUE
ACADEMICUS REDIVIVUS.
ROMAE M. DCC. LIV.
Typis Antonii de Rubeis apud Pantheon in Via Seminarii Romani.
SUPERIORUM PERMISSU.

I. Carlo Benvenuti was a learned Jesuit, physician, and mathematician. He entered into the society of Jesuits at the age of sixteen, but did not take the four vows till eighteen years afterwards. He became professor of philosophy at Fermo, and next succeeded Boscovich in the mathematical chair of the Roman college. "His first scientific work was an Italian translation of Clairaut's *Geometry*, Rome, 1751; and he afterwards published two works, which gained him much reputation: I. *Synopsis Physicae generalis*, 1754, a thesis maintained by one of his disciples, the marquis de Castagnaga, on Benvenuti's principles, which were those of sir Isaac Newton and 2. *De Lumine dissertatio physica*, another thesis maintained by the marquis, 1754. By both these he contributed to establish the Newtonian system in room of those fallacious principles which had so long obtained in that college; but it must not be concealed that a considerable part of this second work on light, belongs to father Boscovich, as Benvenuti was taken ill before he had completed it, and after it was sent to press. After the expulsion of the Jesuits, there appeared at Rome an attack upon them, entitled *Riflessioni sur Gesuitismo*, 1772, to which Benvenuti replied in a pamphlet, entitled *Irrefiessioni sur Gesuitismo*; but this answer gave so much offence, that he was obliged to leave Rome and retire into Poland, where he was kindly received by the king, and became a favourite at his court. he died at Warsaw, in September, 1789." (Chalmers, *A new and general biographical dictionary*, vol. 5, 1812, p.1-2).

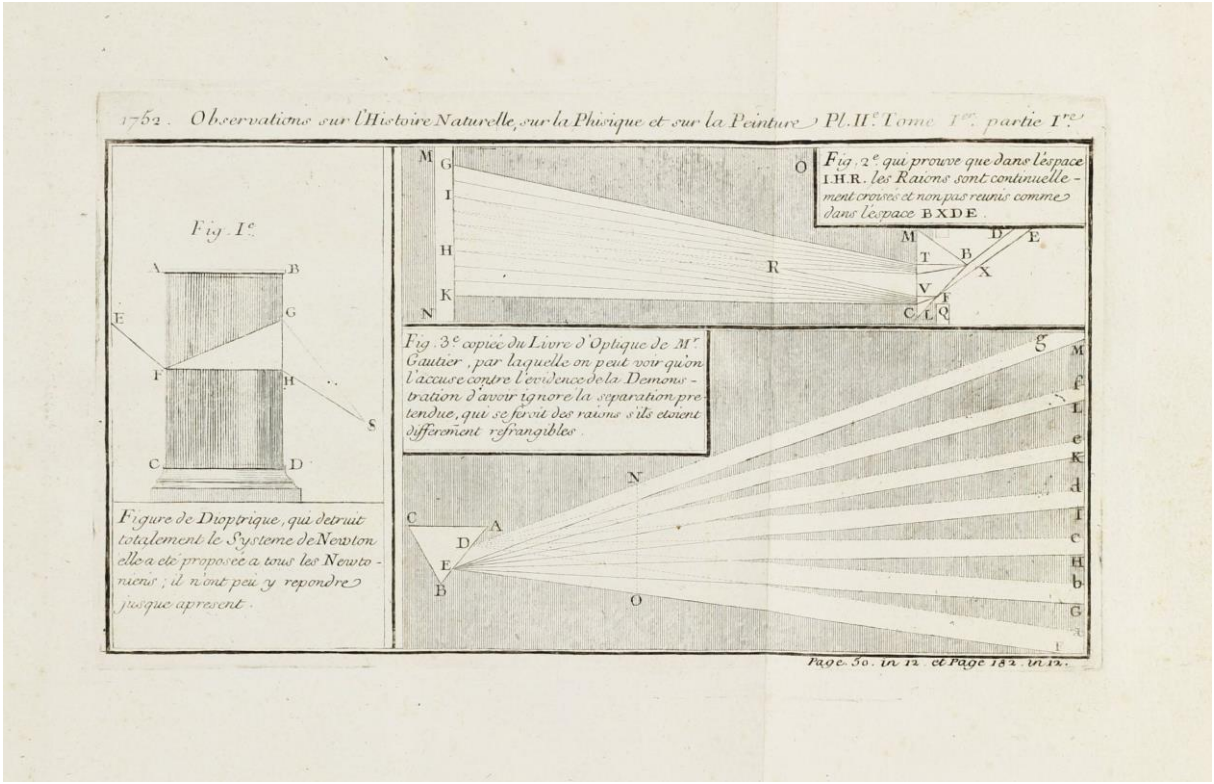
II. A rare and important work, being the first exposition of Boscovich's theory of forces, presented by his pupil Carlo Benvenuti. "In Benvenuti's *Synopsis* a certain passage was guaranteed by Boscovich himself, the one in which he first formulates and solves the problem of the equilibrium of four points... The attacks of the religious superiors on Benvenuti's *Synopsis*, causing the removal of Benvenuti from the chair of metaphysics at the Roman College, was in reality a veiled attack on Boscovich's natural philosophy" (see I. Martinovic, *Early reception of Boskovic's natural philosophy: the 'Benvenuti case'*, Synthesis Philosophica 8, 1993, 307-333).


DE
LENTIBUS ET TELESCOPIIS
DIOPTRICIS
DISSERTATIO
QUAM AUSPICE
S. ALOYSIO GONZAGA
PATRONO SUO BENEFICENTISSIMO
PUBLICE HABUIT IN SEMINARIO ROMANO
MARCHIO ALOYSIUS LEONORI
SEMINARII ROMANI CONVICTOR
ATQUE ACADEMICUS REDIVIVUS.
ROMÆ MDCCLV.
Ex Typographia Antonii de Rubeis in via Seminarii Romani.
SUPERIORUM PERMISSU.

III. and IV. These two theses basically are a representation of Beccaria's ideas on Benjamin Franklin's discoveries on natural electricity and the aurora borealis.

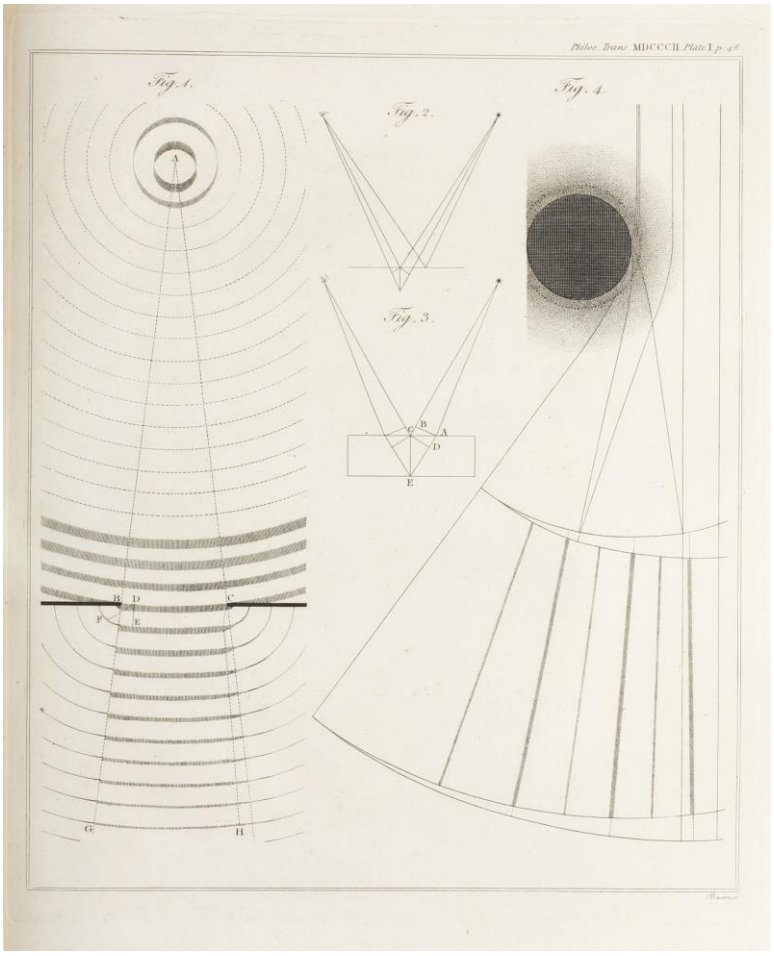
V. The fifth work, *De lentibus et telescopiis dioptricis*, is an important dissertation by Roger Boscovich on dioptric lenses and telescopes together with information on the properties of light, Newton's theories, and the mathematical formulae for optical instruments. Our copy is of the rare first issue with the title page not mentioning Boscovich's name but that of Luigi Leonori, a student of Boscovich (a later issue has the title-page reset, see Backer-Sommervogel I, col. 784-5). Boscovich decided to publish this thesis under his student's name. On p. ix it is said that "matter is made up of indivisibles, that bodies do not tuch, and that both an attractive and a repulsive force exist" (J. B. Staudt, *The Jesuits II: Cultures, Sciences, and the Arts*, 2006, p.435). "In *De lentibus* Boscovich reveals himself to be a skilled experimenter, establishing guidelines for achieving the optimal refraction of lenses when viewing celestial bodies" (Roberts & Trent, p. 45). Boscovich recognized that the development of better achromatic refractive telescopes required better and more detailed information about the optical properties of glass. References to Newton are found throughout this work. Riccardi I, 178:45.

29 **GAUTIER D'AGOTY, Jacques Fabien**. *Observations sur l'histoire naturelle, sur la physique et sur la peinture. Avec des planches imprimées en couleur. Cet ouvrage renferme les secrets des arts, les nouvelles découvertes, & les disputes des philosophes & des artistes modernes*. Vol. 1 (Part I-III) only. Paris: Chez Delaguette, 1752. 4to (255 x 202 mm), 64, [2], 65-195 pp. 8 (of 11) color mezzotints (some folding) and 3 folding diagrams (lacking the colored plates to pp. 18 and 64 in part I and to p.72 in part II), separate titles to each part, first title printed in red and black, woodcut headpieces. Contemporary mottled calf, spine with two gilt-lettered morocco labels and 5 raised bands gilt in compartments (minor worming to joints, extremities rubbed, upper spine chipped), red-dyed edges, marbled endpapers. Text quite clean and crisp, occasional marginal browning and minor spotting, plates slightly browned in margins (3 plates stronger), marginal paper defects, tiny wormholes to gutter of last pages. Provenance: Everard Urbain De Fossoul (armorial bookplate "Fossoul Mambour de la Cite" to first flyleaf). Except for the 3 wanting plates a very good copy. (#002142) € 3000



Nissen ZBI 1487; *Anatomie de la Couleur* 107; Brunet II:1597; Choulant-Frank, p. 273; Cohen-De Ricci, p. 427; Franklin, *Early Colour Printing* pp. 50-51. FIRST EDITION. The first volume of this early and extremely rare journal of science and art--certainly the first periodical with plates printed in color. The volume contains some of the most dramatic of Gautier's images, including three rare and unusual plates of hermaphrodites, a surreal image of a human foetus in a glass realized in starling shades of green and blue; two plates of a tortoise (dissected and intact) and another of a sloth (intact and completely skinned); a brilliantly colored tulip in vibrant red and yellow; an American black bear and its cub; a monkey; a folding plate that illustrates the notions of space, the spheres, the spectrum, and Gautier's own color theory. The text contains articles on color printing, anatomy, the nature of space, a review of paintings exhibited at the Louvre (August 1751), and Gautier's objections to Newton's theory of color. When Goethe attacked Newton's color theory he found Gautier's arguments supportive of his own criticism, and discussed them sympathetically.

30 **YOUNG, Thomas**. *On the Theory of Light and Colours [An Account of some Cases of the Production of Colours, not hitherto described]. The Bakerian Lecture*. In: Philosophical Transactions of the Royal Society of London, Volume 92, Part I, 1802, pp. 12-48, 1 plate & Part II, 1802, pp. 387-97. London: W. Bulmer for G. & W. Nicol, 1802. 4to (295 x 237 mm). Two parts in two volumes. vi, [2], 1-212, 26; iv, 213-535 [1], [8] pp., part titles, index bound at end, and 17 engraved plates. Original blue simple paper wrappers, all pages untrimmed and partially unopened (wrappers soiled and spotted, spine repaired using the original paper). Housed in custom-made clamshell box. Text and plates generally crisp and clean with only very little age-toning, some dust soiling mostly to edges and outer margins, first few pages of part II with light marginal dampstaining at upper corner and a single wormhole to second half. Provenance: Benjamin Hyett Esq. (signed on front wrapper of part II). A fine, unsophisticated copy in original wrappers, rarely ever found on the market. (#003564) € 7500

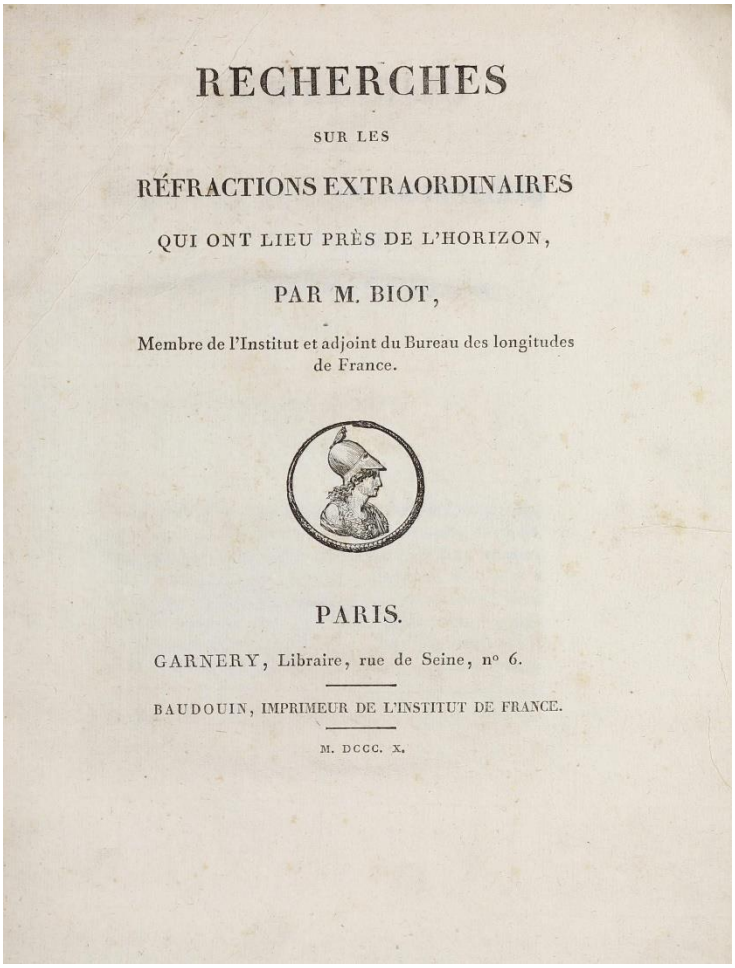


Young's paper part 1: Dibner 152; PMM 259; Norman 2275. Paper part 2: Norman 2276 - FIRST EDITION. Part 1 is 'an epoch-making contribution to the theory of light in all its phases'. Read as the Bakerian lecture, November 12, 1801, Young firmly endorsed Huygen's wave theory of light, displacing Newton's corpuscular theory which had been favoured for most of the 18th century, and so found explanations for unresolved optical phenomena such as interference. Part 2 is a further explanation of the wave theory.

Also in this volume: WOLLASTON, William Hyde. *A Method of examining refractive and dispersive Powers, by prismatic Reflection*. In: Philosophical Transactions of the Royal Society of London 92, Part I, 1802, 4to. pp. 365-380 - Sparrow, Milestones of Science 198. - The third major scientific discovery announced in this volume of the Transactions is Wollaston's discovery of black lines crossing the colored band of the solar spectrum. 'The science of astrophysics began' with Wollaston's report of this phenomenon to the Royal Society (Singer, *Short History of Scientific Ideas to 1900*). Wollaston's examination of the solar spectrum, here described, revealed for the first time the numerous black lines afterwards connected with the name of Fraunhofer; and his paper is one of the most significant 'incunabula' of the discovery of spectrum analysis. Twelve years later the appearance of these dark lines (called 'Fraunhofer lines') was confirmed by the maker of Wollaston's original spectroscope.

Biot's important monograph on mirages and horizontal refraction

31 **BIOT, Jean-Baptiste**. *Recherches sur les réfractions extraordinaires qui ont lieu près de l'horizon*. Paris: Garnery, 1810. 4to (272 x 218 mm). [4], 268 pp., including half-title, woodcut vignette on title, 9 engraved folding plates at end. Original sprinkled paper-wrappers, printed paper-label to spine (paper-label and spine ends partially chipped, upper wrapper partially split towards foot, wrappers slightly creased and corners dog-eared). All pages uncut and unpressed. Light age-toning of text and plates, occasional spotting, foxing and marginal dust-soiling, fraying of edges in places. All in all a very good, unsophisticated copy. (#003265) € 4500



RECHERCHES

SUR LES

RÉFRACTIONS EXTRAORDINAIRES

QUI ONT LIEU PRÈS DE L'HORIZON,

PAR M. BIOT,

Membre de l'Institut et adjoint du Bureau des longitudes de France.

PARIS.

GARNERY, Libraire, rue de Seine, nº 6.

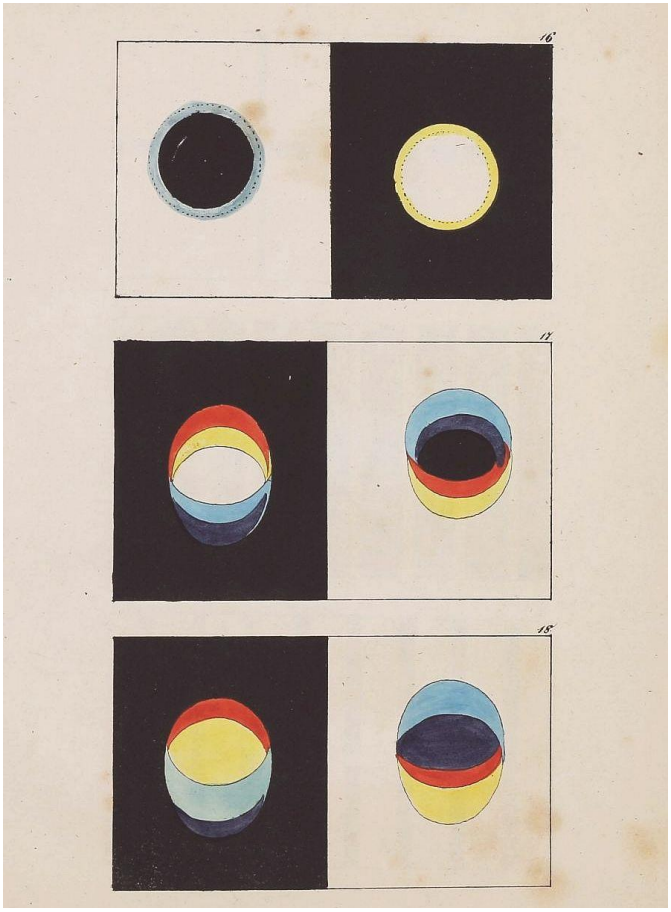
BAUDOUIN, IMPRIMEUR DE L'INSTITUT DE FRANCE.

M. DCCC. X.

EXCEPTIONALLY RARE FIRST EDITION of one of the fundamental analytical studies on atmospheric refraction near the horizon by Jean Baptiste Biot. Biot's calculations provide an explanation for the observed flattening of the setting sun and why refraction behaves differently near the horizon than it does over most of the sky. A theorem about the magnification at the horizon is named after Biot. "Heinrich Wilhelm Brandes (1807) published a monograph on mirages and refraction in which he tabulated thousands of observations of terrestrial refraction, together with temperature differences measured at different heights up to 16-1/2 feet (5 m) above the ground. In a summary paper, Brandes (1810) stated as his first result that ''if one frequently observes the apparent height of individual objects above the Earth, and simultaneously investigates the heat of the air each time at different heights, one finds quite generally that the apparent height of each object is the greater, the warmer the higher layers of the air are in comparison with the lower ones.' In the same year, J.-B. Biot (1810) published his own monograph on horizontal refraction and mirages, in which the theory was worked out in detail and extensive quantitative comparisons between measured altitudes and temperature gradients were used to confirm it. Biot's monograph is exceedingly thorough; it encompasses refraction, dip of the horizon, superior as well as inferior mirages, looming, etc. So the importance of temperature gradients in the very lowest part of the atmosphere was already well established early in the 19th century." (Andrew T. Young, *Sunset Science. IV. Low-altitude refraction.* In: The Astronomical Journal, vol. 127, 2004, p.3624). Biot's work is quite rare in the trade with no copy traced at auction in the past 20+ years.

32 **GOETHE, Johann Wolfgang von**. I: *Zur Farbenlehre.* Tübingen: Cotta, 1810. Two parts bound in two volumes. 8vo (198 x 121 mm). xlviii, 654; xxviii, 757 [1] pp. Contemporary dark-green glossy paper boards, spines ruled and lettered in gilt (wear to extremities, corners scuffed and bumped), bound without endpapers. Very light age-toning and occasional minor spotting to final pages of second vol., otherwise crisp and clean. II: *Erklärung der zu Goethe's Farbenlehre gehörigen Tafeln*. Geistinger: Vienna, 1812. [3] 4-24 pp, with 17 engraved plates (12 hand-coloured, including the extra plate IIa) bound at end. Text little browned and foxed, first 3 plates with brown spot at gutter. The three smaller plates IIa, VI and XII laid down on paper of the time. [Bound with] III: *Anzeige und Uebersicht des Goethischen Werkes zur Farbenlehre*. Geistinger: Vienna, 1812. [1] 2-12 pp. Text little browned and foxed throughout. Two parts in one volume. 4to (220 x 180 mm). Recent half cloth, new endpapers. IV. *Sechzehn Tafeln zu Goethe's Farbenlehre und Siebenundzwanzig Tafeln zu Dessen Beiträge zur Optik nebst Erklärung*. Stuttgart and Tübingen: Cotta, 1842. 4to (232 x 190 mm). [2], 24; [2] pp. With 17 (12 hand-coloured) engraved plates und 27 (13 hand-coloured) lithographs on 9 plates. Contemporary dark-green glossy paper boards matching to text volumes, spines ruled and lettered in gilt (wear to extremities, corners scuffed and bumped). Text little browned, stronger foxing to first and final pages. Altogether a very good set. (#002663) € 8000

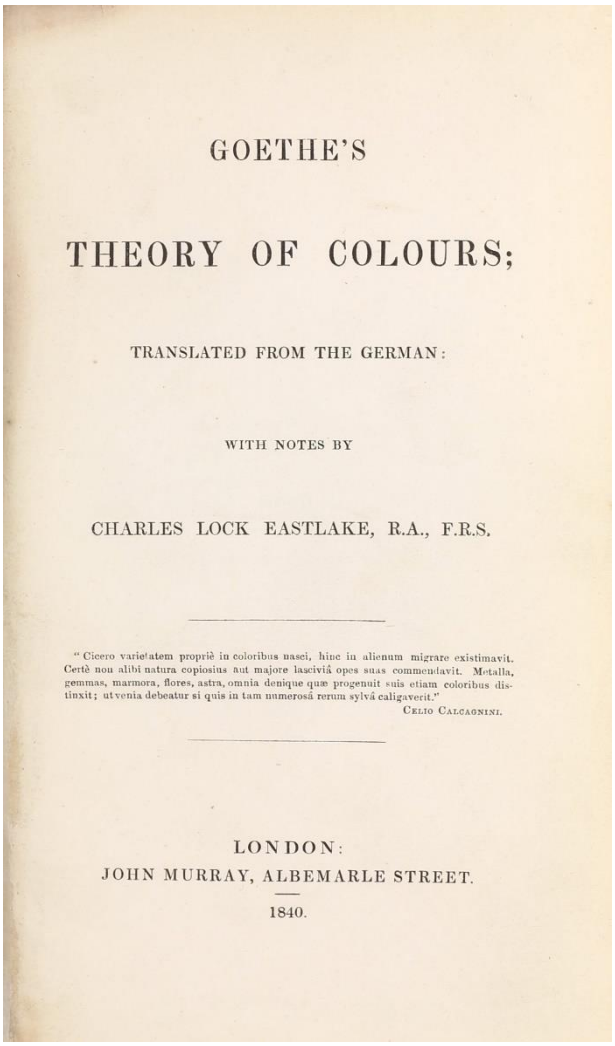
Goedeke IV/3, pp. 14 (IV), 583, 45 (I), 46 (II), 46 alpha (III); Hagen 347 (I), 348b (II), 348c (III), 24b (IV); Kippenberg 386 (I), 389 (II), 388 (III); Roller-Goodman I, 468; Honeyman 1524; DSB V, p.445. Goethe's principal scientific work, the "Farbenlehre", including the quarto-sized "Erklärung der zur Goethe's Farbenlehre gehörigen Tafeln" and the "Anzeige und Uebersicht" in a mixed edition (I and IV in first, II and III in second counterfeit edition). "Goethe's first publication on optics culminated in his 'Zur Farbenlehre', his longest and, in his own view, best work, today known principally as a fierce and unsuccessful attack on Newton's demonstration that white light is composite" (DSB V, p.445).



Whereas Goethe’s theories were in fact wrong from a purely physical standpoint, the fact remains that Goethe's theories were epoch-making in their physiological and psychological aspects. Indeed, the science of physiological optics was directly stimulated by it and one of its dominant schools in essence represented his approach long after him. His theories still have great value, and a more than scientific validity, to artists and to all those who want to achieve a personal understanding of the natural world - who want to establish their own relationship with that world rather than merely accept what modern science has to say about it. This first edition, aside from its value as an object, is the only edition to contain the complete text, which is in two volumes. Volume I contains a discussion of physiological, physical and chemical colors and a detailed study of Newton’s Optics. Volume II is a historical study of colors as shown in the work of the famous theorists and artists of Greece and Rome, the Middle Ages, the 16th, 17th and 18th centuries. There are important sections on Robert Boyle, Erasmus Darwin and Benjamin Franklin. The plate volume includes 12 handcolored plates. They are of various sizes. The "Anzeige und Uebersicht" with drop title only as issued. In the appendix to the Farbenlehre published in 1842, 13 additional illustrations on 9 lithographed plates were issued (cf. Hagen, p.89).

33 **GOETHE, Johann Wolfgang von**. *Goethe's theory of colours, translated from the German: with notes by Charles Lock Eastlake*. London: John Murray, 1840. 8vo (212 x 140 mm). xlviii, 423 [1] pp., including 4 engraved plates of which 3 hand-colored. Bound without half-title and the publisher's ads. Contemporary panelled diced calf, neatly rebacked in old-style. First few leaves worked loose and re-attached, occasional light mainly marginal spotting and staining. Very good copy. (#003376) € 1500

FIRST EDITION IN ENGLISH of Johann Wolfgang von Goethe's *Farbenlehre*. The original German work was translated into English in 1840 by Sir Charles Eastlake (1793-1865), painter and later keeper of the National Gallery. "Goethe's 1810 work was rejected by many contemporary scientists because it appeared to contradict the physical laws laid down by Newton. However, its focus on the human perception of the colour spectrum, as opposed to the observable optical phenomenon, was attractive to, and influential upon, artists and philosophers. As Eastlake says in his preface, the work's dismissal on scientific grounds had caused 'a well-arranged mass of observations and experiments, many of which are important and interesting', to be overlooked. Eastlake also puts Goethe's work into its aesthetic and scientific context and describes its original reception. His clear translation of Goethe's observations and experiments on colour and light will appeal to anyone interested in our responses to art." (JISC). "For a profoundly creative and challenging response to Goethe's science by a painter of real genius we have to look to Britain, to the art of Turner. Turner was almost seventy by the time he made his detailed study of Goethe's Farbenlehre in Charles Eastlake's 1840 annotated translation, but his response was not that of an old man rigidly set in his ways. Two complex paintings of supreme quality were the remarkable result of his 'dialogue' with Goethe. His immediate reactions on reading Goethe's treatise are contained in a series of marginal notes in his copy, ranging from approbatory references to terse exclamations of disagreement. 'Poor Dame Nature' he wrote, when he felt that Goethe was doing less than justice to the ultimate source of all visual beauty. He was attracted by much of what the German author was saying, particularly with respect to the integral relationship of colour and tone" M. Kemp, *The Science of Art*, 1992, p.299). References: Buckley, *Color theory*, p. 128; Babson 151; Birren Coll. 271; Ruhemann/Plesters, p. 457; Robertson, *Sir Charles Eastlake and the Victorian art world*, pp. 1978.



GOETHE'S

THEORY OF COLOURS;

TRANSLATED FROM THE GERMAN:

WITH NOTES BY

CHARLES LOCK EASTLAKE, R.A., F.R.S.

"Cicero varietatem propriè in coloribus nasci, hinc in alienum migrare existimavit. Certè non alibi natura copiosius aut majore lasciviâ opes suas commendavit. Metalla, gemmas, marmora, flores, astra, omnia denique quæ progenuit suis etiam coloribus distinxit; ut venia debeatur si quis in tam numerosâ rerum sylvâ caligaverit."

CELIO CALCAGNINI.

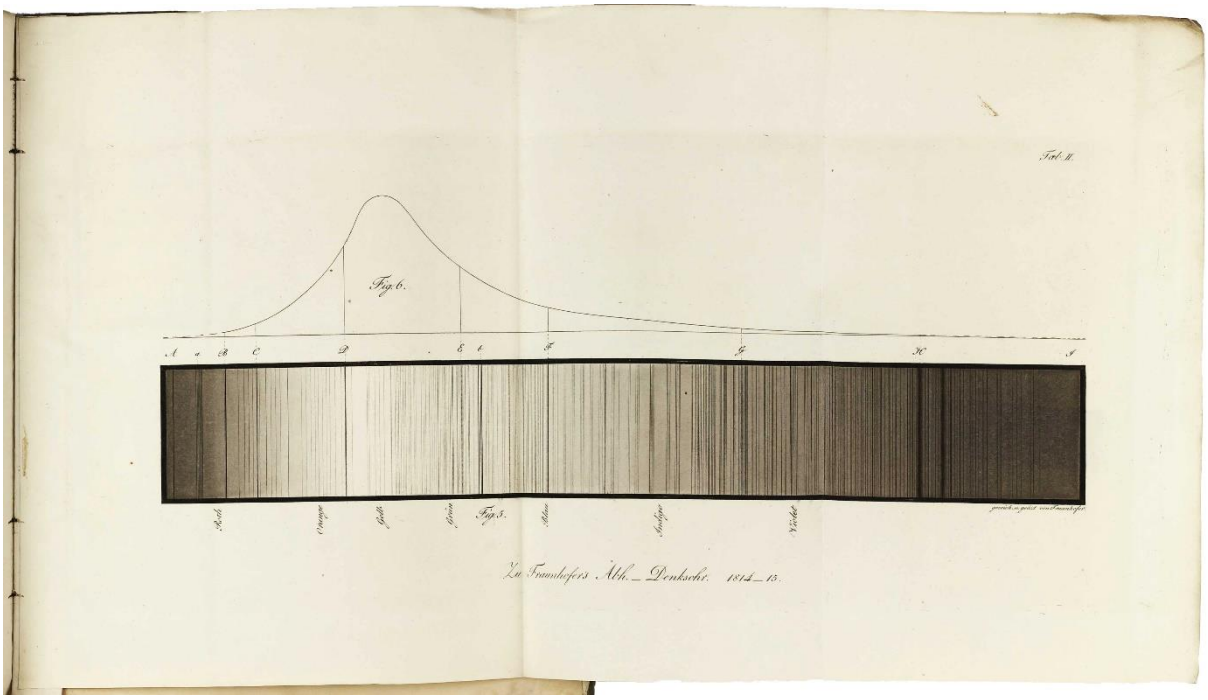
LONDON:

JOHN MURRAY, ALBEMARLE STREET.

1840.

34 **FRAUNHOFER, Joseph**. *Bestimmung des Brechungs- und Farbenzerstreuungs- Vermögens verschiedener Glasarten*. In: Denkschriften der königlichen Academie der Wissenschaften zu München für die Jahre 1814 und 1815, vol. 5, pp. 193-226, 3 engraved folding plates (2 folding). München: Lentner, 1817. 4to (270 x 230 mm), whole volume [8], xlii, 62, 226, 91 [1] pp., including half-title, general title page, 4-page index and 13 engraved plates. Original wrappers with printed spine label (little dust-soiled and spotted, spine ends slightly frayed), all pages uncut. Small worm hole in front wrapper extending into half-title without affecting text, occasional minor spotting, page edges a bit dust-soiled and frayed at lower edge, two of Fraunhofer's plates somewhat browned as usual, otherwise generally crisp and clean. Provenance: Peter and Margarete Braune (tipped-in bookplate on inner front wrapper). An exceptional, unsophisticated and wide-margined copy. (#003206) € 22,000

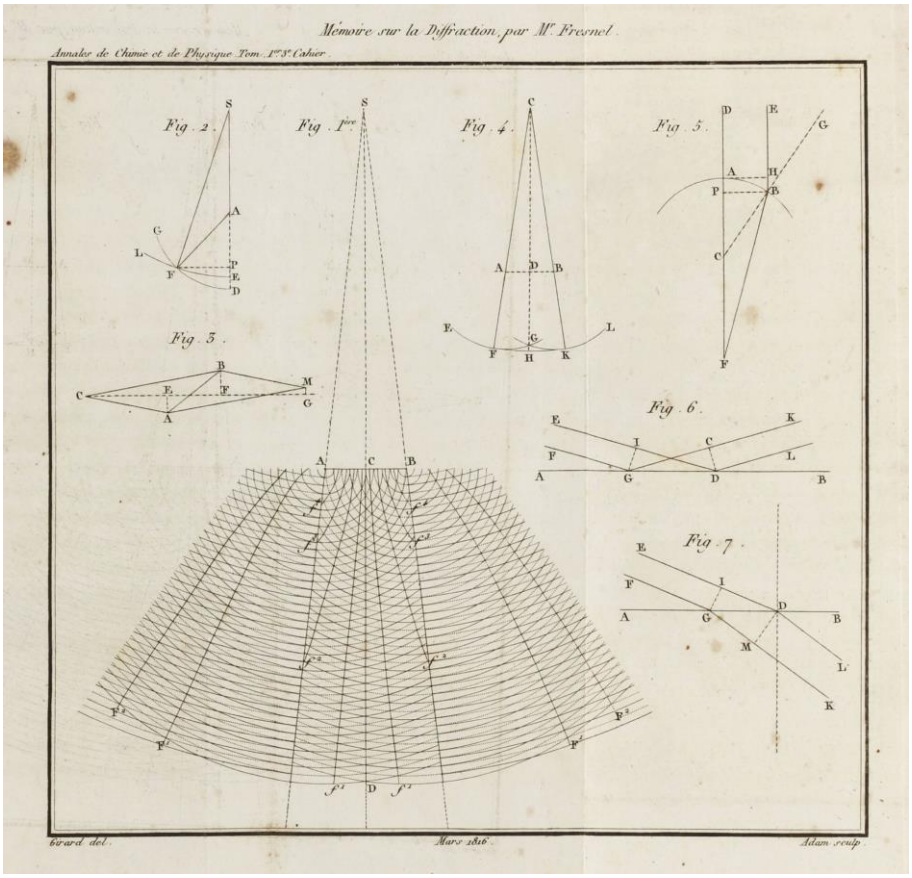
Dibner 153; PMM 278a; Sparrow 70; Norman 836 (offprint); DSB V, p.143. - FIRST EDITION AND OF GREAT RARITY, of a fundamental paper in astrophysics. The journal issue of Fraunhofer's milestone paper is even rarer than the offprint issue because the journal appeard in a very small print run. We can trace only two copies of the journal issue at auction in the past 30 years (Richard Green Library sale, Christies 2008, and the Norman Library Sale, Christies, 1998).



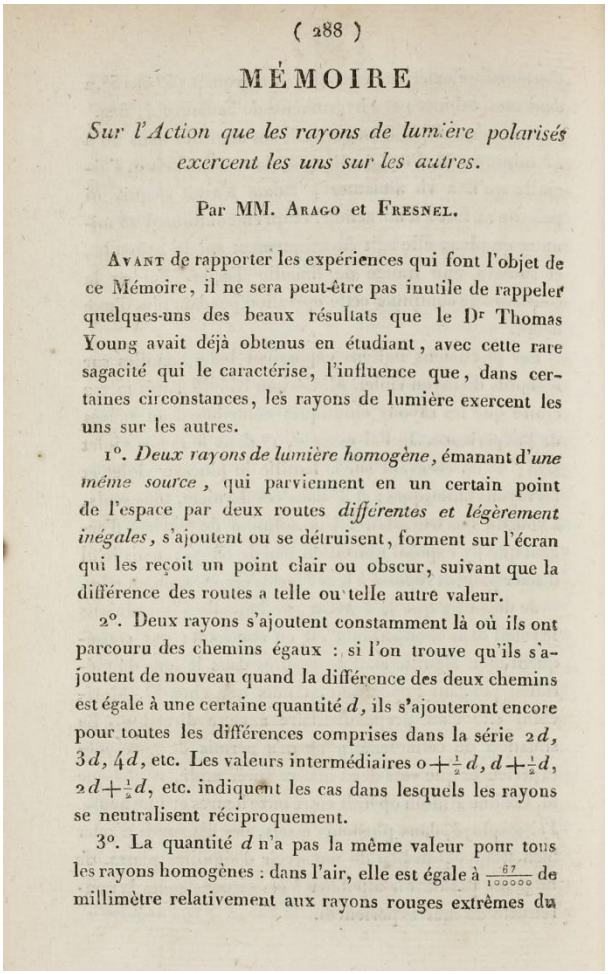
Fraunhofer, a skilled optician and designer of precision optical instruments, described in this paper, read before the Bavarian Academy in 1815, his accidental discovery of the absorption lines of the solar spectrum. In 1814, while conducting tests on the dispersion and refractive index for different kinds of optical glass, Fraunhofer "observed the effect of the refracting medium on light, comparing the effect of light from flames with light from the sun, and found that the solar spectrum was crossed with many fine dark lines, a few of which William Hyde Wollaston had observed and reported upon in 1802. [Wollaston had incorrectly interpreted the lines as borders between the colors]. Designating the more distinct lines with capital letters... he mapped many of the 574 lines that he observed between B on the red end and H on the violet end of the spectrum. Sometime later he noted that some of these lines appeared to correspond to the bright doublet of lines in many flame spectra; yet he noted further that while the pattern observed for the sun and planets [being reflected sunlight] appeared identical, the patterns for the sun, Sirius, and other bright stars differed from one another. He concluded that the lines originated in the nature of the light source. "These observations stimulated considerable interest for the next half-century among natural philosophers, whose speculations culminated in the classical explanation of absorption and emission spectra made by Kirchoff and Bunsen in 1859" (DSB). The dark lines, whose exact explanation has never been explained, are still known as Fraunhofer lines. Their discoverer continued to explore and map them during the following years; using a grating device of this own invention he eventually was able to determine the wavelengths of specific colors of light and to make highly precise measurements of dispersion (see below). 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). Plate 2, reproducing Fraunhofer's map of the lines of the solar spectrum, is the FIRST ILLUSTRATION OF THE SOLAR SPECTRUM.

35 **FRESNEL, Augustine-Jean**. Mémoire sur la diffraction de la lumière, où l'on examine particulièrement le phénomène des franges colorées que présentent les ombres des corps éclairés par un point lumineux. In: *Annales de Chimie et de Physique*, Vol. I (2nd series), pp. 239-281, 1 folding engraved plate. Paris: Crochard, 1816. 8vo (200 x 121 mm). Entire volume, [4], 452 pp., half-title and general title. Contemporary half calf over marbled boards, spine with gilt decoration, gilt-lettered labels and additional printed and hand-lettered paper label, brown sprinkled edges, original light-blue endpapers (leather and extremities rubbed, minor wear and bumping to corners). Little age-toning and minor occasional foxing. Provenance: Lycee Faidherbe de Lille (title and some text pages with old library stamp, shelf mark in manuscript to title). Good copy. (#003644) € 800

Poggendorff I, 800. DSB V, 165-171. FIRST EDITION of Fresnel's milestone paper and his first on diffraction. Fresnel's work was reviewed by Arago who pointed out to him that he had largely reproduced Young's findings but that some of his observations were new. As Fresnel had made his experiments with sunlight, Arago advised him to come and redo them in Paris in monochromatic light to obtain more precise and indisputable measurements and what Fresnel was able to do at the beginning of 1816. He satisfactorily explained the formation of fringes in the shadow of a narrow object (a thread) and approximately the fringes outside the shadow. According to Emile Verdet "Ce qui appartient en propre à Fresnel et dont on n'aperçoit aucune trace chez ses devanciers, c'est l'idée féconde d'expliquer les lois de la réflexion et de la réfraction par le principe des interférences" (what belongs specifically to Fresnel and of which we see no trace in his predecessors, is the fruitful idea of explaining the laws of reflection and refraction by the principle of interference). Fresnel also remarked that the rays which have been obscured by the discordance of their vibrations become luminous again afterwards in the part of the path where the undulations are in agreement, and that thus they can resume their brilliance after having lost it momentarily." The result of wave interference is transient and localized in space and time. The waves continue on their way, overlapping, if they are not stopped on an observation screen. This is an expression of the principle of superposition. "In broad context Fresnel's work can be viewed as the first successfull assault on the theory of imponderables and a major influence on the development of nineteenth-centurty energetics." (DSB).



36 **ARAGO, Jean François Dominique & FRESNEL, Augustin**. Mémoire sur l'action que les rayons de lumière polarisée exercent les uns sur les autres. In: *Annales de Chimie et de Physique*, Ser. 2, vol. 10, pp. 288–305. Paris: Crochard, 1819. 8vo (200 x 122 mm). Entire volume: 448 pp., including half title and general title, 2 folding engraved plates. Contemporary half calf over marbled boards, spine with gilt decoration, gilt-lettered labels and additional printed and hand-lettered paper label, brown sprinkled edges, original light-blue endpapers (leather and extremities rubbed, minor wear to corners). Little age-toning and minor occasional. Provenance: Lycee Faidherbe de Lille (title and some text pages with old library stamp, shelf mark in manuscript to title). Good copy. (#003643) € 600



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MÉMOIRE

Sur l'Action que les rayons de lumière polarisés exercent les uns sur les autres.

Par MM. Arago et Fresnel.

Avant de rapporter les expériences qui font l'objet de ce Mémoire, il ne sera peut-être pas inutile de rappeler quelques-uns des beaux résultats que le Dr Thomas Young avait déjà obtenus en étudiant, avec cette rare sagacité qui le caractérise, l'influence que, dans certaines circonstances, les rayons de lumière exercent les uns sur les autres.

1°. *Deux rayons de lumière homogène*, émanant d'*une même source*, qui parviennent en un certain point de l'espace par deux routes *différentes et légèrement inégales*, s'ajoutent ou se détruisent, forment sur l'écran qui les reçoit un point clair ou obscur, suivant que la différence des routes a telle ou telle autre valeur.

2°. Deux rayons s'ajoutent constamment là où ils ont parcouru des chemins égaux : si l'on trouve qu'ils s'ajoutent de nouveau quand la différence des deux chemins est égale à une certaine quantité d, ils s'ajouteront encore pour toutes les différences comprises dans la série $2d$, $3d$, $4d$, etc. Les valeurs intermédiaires $o+\frac{1}{2}d$, $d+\frac{1}{2}d$, $2d+\frac{1}{2}d$, etc. indiquent les cas dans lesquels les rayons se neutralisent réciproquement.

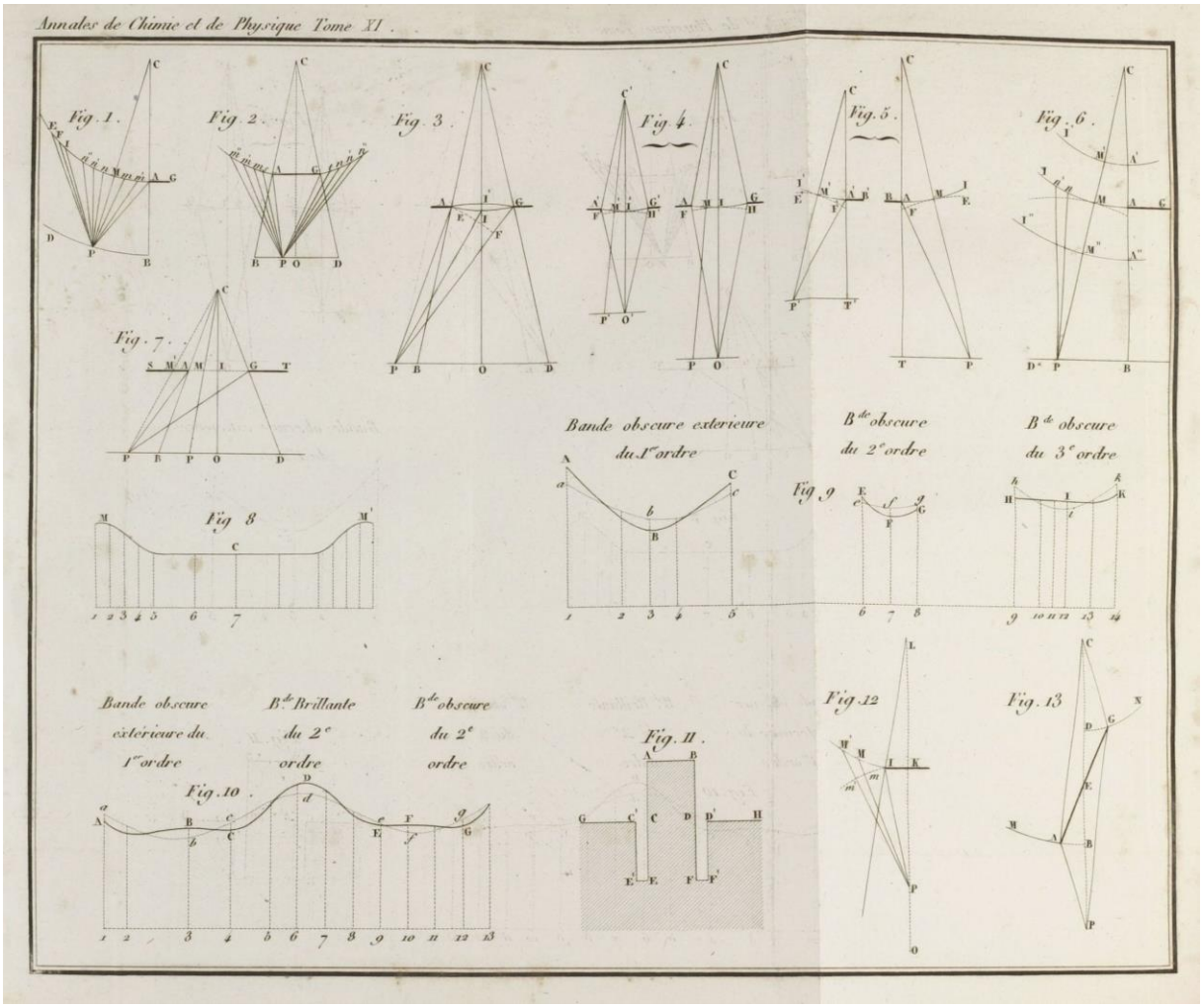
3°. La quantité d n'a pas la même valeur pour tous les rayons homogènes : dans l'air, elle est égale à $\frac{67}{100000}$ de millimètre relativement aux rayons rouges extrêmes du

Edmund Whittaker, *A History of the Theories of Aether and Electricity I*, p. 115). - Parkinson, *Breakthroughs*, 1819. FIRST EDITION of Arago and Fresnel's milestone paper on the action of rays of polarized light upon each other in which they demonstrated that light vibrates transversely to its direction of forward movement. "The greatest problem [...] confronting the investigators of light was to reconcile the facts of polarization with the principles of the wave-theory. [Thomas] Young had long been pondering over this, but had hitherto been baffled by it. In 1816 he received a visit from Arago, who told him of a new experimental result which he and Fresnel had lately obtained - namely, that two pencils of light, polarized in planes at right angles, do not interfere with each other under circumstances in which ordinary light shows interference-phenomena, but always give by their reunion the same intensity of light, whatever be their difference of path ... By means of this result, Fresnel was able to give a complete explanation of a class of phenomena which Arago had discovered in 1811, viz. that when polarized light is transmitted through thin plates of sulphate of lime or mica, and afterwards analysed by a prism of Iceland spar, beautiful complementary colours are displayed. Young had shown that these effects are due essentially to interference, but had not made clear the part played by polarization." (Whittaker).

37 **FRESNEL, Augustine-Jean**. Memoire sur la diffraction de la lumiere - Théorie de la diffraction / Suite du memoire sur la diffraction de la lumiere. In: *Annales de Chimie et de Physique*, Vol. XI, pp. 246-296 and 337-378, 1 folding engraved plate. Paris: Crochard, 1819. 8vo (200 x 121 mm). Entire volume, 448 pp., half-title, general title and 3 folding engraved plates. Contemporary half calf over marbled boards, spine with gilt decoration, gilt-lettered labels and additional printed and hand-lettered paper label, brown sprinkled edges, original light-blue endpapers (lower joint split, upper joint split at head, leather and extremities rubbed, minor wear and bumping to corners). Little age-toning and minor occasional spotting. Provenance: Lycee Faidherbe de Lille (title and some text pages with old library stamp, shelf mark in manuscript to title). Good copy, collated complete. (#003645) € 800

Poggendorff I, 800. DSB V, pp. 165-171. FIRST EDITION. "Fresnel succeeded fully in attaining his explicit goal, the establishment of the wave conception of light. Not long after his death scientific opinion definitely shifted in favor of waves and opened up the pathway leading to the deeper insights of Maxwell" (DSB). The French Academy of Sciences announced on March 17, 1817 that the theme of the next biannual Grand Prix de Physique de l'Académie, which would be awarded in 1819, is the diffraction of light. Manuscripts had to be submitted before August 1, 1818 to allow the jury to examine the work and, if necessary, to verify it experimentally. At that time, Fresnel was busy with his research on the polarization of light, which he carried out on the sidelines of his duties as a civil engineer. Arago and Ampère encouraged him to compete and therefore to resume his work on

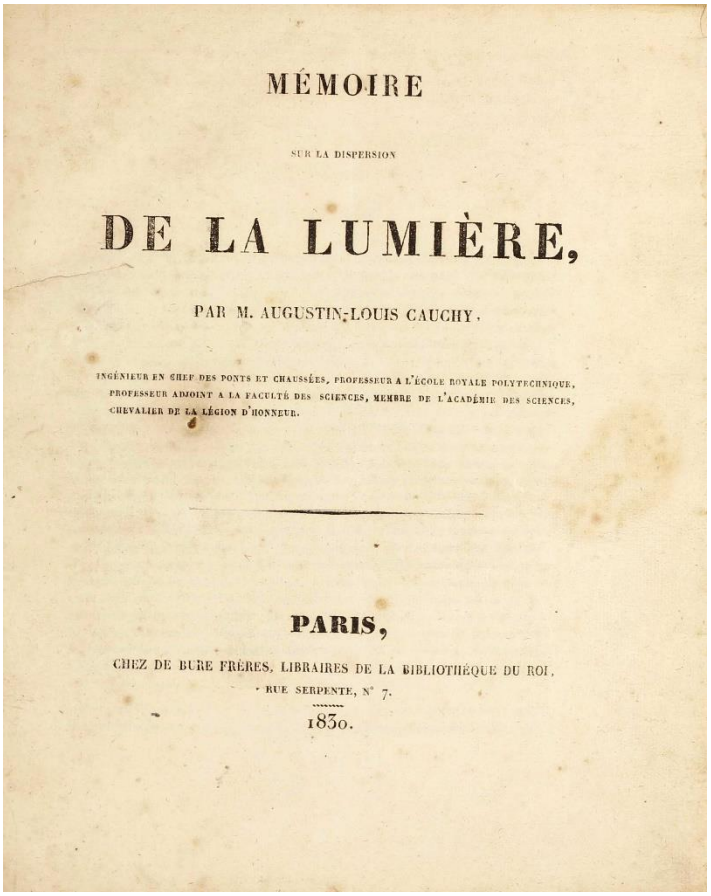
diffraction. Fresnel produced two preparatory papers in which he described the mathematical basis of the theory of light waves. On January 15, 1818, in an additional note to an article on polarization, he established the equation of light waves in the form of sinusoidal functions and showed that the composition of two waves can be expressed in a form analogous to the composition of two forces. In a sealed note filed on April 20, 1818,



Fresnel outlined an elementary theory of diffraction by reformulating Huygens' principle in combination with the principle of superposition. He finally submitted his memoir to the Academy on July 29, 1818 and the unanimous jury crowned it on March 15, 1819. Part of the memoir, section II, was printed immediately in this volume XI of the *Annales de Physique et de Chimie* (July-August 1819). The entire memoir, slightly modified, was published in 1826 in volume 5 of the Memoirs of the Academy of Sciences and was republished in 1866 in the first volume of the Complete Works of Augustin Fresnel.

Fresnel rediscovered the law of interferences previously sketched by Thomas Young and established its mathematical expression. By associating the principle of secondary wavelets formulated by Christian Huygens and the rule of combination of light waves explaining interference he established the foundation of wave optics, known as the Huygens-Fresnel principle.

38 **CAUCHY, Augustin-Louis.** *Mémoire sur la dispersion de la lumière*, Paris: Chez de Bure frères, 1830. 4to (257 x 204mm). [2], 24 pp. [Bound with:] II. **STEVENSON, Alan**. *Observations on the Application of Catadioptric Zones to Lights of the First Order in the System of Fresnel...* Edinburgh: Neill & Co., 1840, 12, [4] pp., 1 plate. One engraved plate (slight marginal browning). [Bound with:] III. **HERSCHEL, William**. Observations of a Second Comet, with remarks on its construction. Extract from *Philosphical Transactions*, [London, 1812, Vol. 102], pp.229-237. [Bound with:] IV. **HERSCHEL, William**. *Experiments for Ascertaining how far Telescopes will enable us to determine very small angles, and to distinguish the real from the Spurious Diameter of celestial and terrestrial Objects...* Extract from *Philosphical Transactions*, [London, 1805, Vol. 95], pp. 31-64. Lacking plate. [Bound with:] V. **CAVENDISH, Henry**. Experiments to Determine the Density of the Earth. Extract from *Philosophical Transactions*. [London, 1798, Vol. 88], 469-526, 2 folding engraved plates (slightly foxed). [Bound with:] VI. **DOWNES, Olinthus Gregory**. *On the Physical Constitution of Comets*. London: C. & E. Layton, 1860. [4], 45 [1] pp, half-title, 3 lithographed plates. [Bound with:] VII. **FORBES, James D**. Bakerian Lecture - On the Transparency of the Atmosphere and the Law of Extinction of the Solar Rays in passing through it. Extract from *Philosophical Transactions*. [London, 1842], pp. 225-273 [1], 9 plates, 6 folding (slight browning and some marginal dampstaining). [Bound with:] VIII. **AIRY, George Biddell.** The Bakerian lecture - On the Theoretical Explanation of an apparent new Polarity in Light. Extract from: *Philosophical Transactions*. [London, 1840], pp. 225-244. Folding plate. All bound in later blue pebbled cloth, spine with gilt lettering and printed paper label (hinges and spine repaired). Little age browning of text and plates, first title with clean tear repaired. (#003172) € 4500



MÉMOIRE

SUR LA DISPERSION

DE LA LUMIÈRE,

PAR M. AUGUSTIN-LOUIS CAUCHY,

INGÉNIEUR EN CHEF DES PONTS ET CHAUSSÉES, PROFESSEUR A L'ÉCOLE ROYALE POLYTECHNIQUE, PROFESSEUR ADJOINT A LA FACULTÉ DES SCIENCES, MEMBRE DE L'ACADÉMIE DES SCIENCES, CHEVALIER DE LA LÉGION D'HONNEUR.

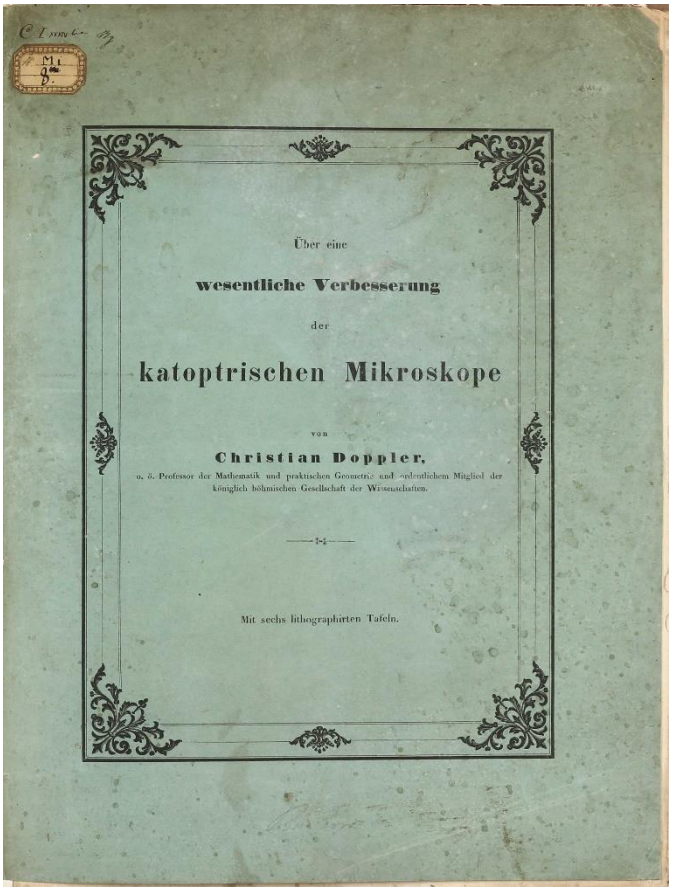
PARIS,

CHEZ DE BURE FRÈRES, LIBRAIRES DE LA BIBLIOTHÈQUE DU ROI, RUE SERPENTE, N° 7.

1830.

EXCEPTIONALLY RARE FIRST EDITION of the Memoir in which Cauchy first explained the dispersion of light from the undulatory theory of light. On June 7 and 14, 1830, three years after Fresnel's death, Cauchy presented a comparatively short (given his customary standards) memoir on light before the Académie in Paris, which appeared there after in the Bulletin de Férussac; he also had it printed separately by de Bure Frères ... Then, after the appearance in 1830 of the Memoir on light that he had presented on June 14 of that year before the Académie, Cauchy published one further paper on light in Férussac, and nothing more until 1835. We do however know that at the time of his June 14 presentation he also announced to the Académie that he 'had the formulas relative to the dispersion of light that he had read at the last session.' The Procès Verbaux for the meeting accordingly noted that Cauchy had presented a memoir 'on the subject.' (J.Z. Buchwald, Chapter 22 - *Cauchy's Theory of Dispersion Anticipated by Fresnel*). In 1830, using the discrete model of a medium (ether), Cauchy tried to explain dispersion of the light under the assumption that the light represents elastic waves with a very large frequency. He showed that for wavelengths that are much greater than the distance between the neighbouring particles in the one-dimensional lattice, the wave velocity does not depend on the wavelength. However, for the short wavelengths, that is, for high frequencies, the wave velocity is a function of wavelength and can vary essentially. Cauchy reprinted the Memoir of 1830 during his stay in Prague in 1835 and further expanded his theory in successive Memoirs published in Prague between 1835 and 1836.

39 **DOPPLER, Christian Andreas**. I. *Über eine bei jeder Rotation des Fortpflanzungsmittels eintretende eigenthümliche Ablenkung der Licht- und Schallstrahlen, zunächst angewandt auf mehrere theils schon bekannte theils neue Probleme der praktischen Astronomie, ein weiterer Beitrag zur allgemeinens Wellenlehre.* From: Abhandlungen der königlich böhmischen Gesellschaft der Wissenschaften, 5. Series, Vol. 3. Prague: In Commission bei Calve, [1845]. 4to (288 x 223 mm). pp. [3], 420-430. Separate title page, 1 folding lithographed plate. Modern marbled paper-coated boards, new endpapers. Text somewhat browned and spotted mostly to margins, leaves reinforced at gutter. [With:] II. *Über die bisherigen Erklärungs-Versuche des Aberrations-Phänomens.* From: Abhandlungen der königlich böhmischen Gesellschaft der Wissenschaften, 5. Series, Vol. 3. Prague: In Commission bei Calve, [1845]. 4to (290 x 225 mm). pp. [3], 750-765 [1]. Separate title page, 3 text illustrations. Modern marbled paper-coated boards, new endpapers. Text slightly browned in margins, faint spotting, leaves reinforced at gutter. Provenance: Bibliotheque De Sichel (old red-ink stamp on title page). [With:] III. *Zwei Abhandlungen aus dem Gebiete der Optik: 1. Optisches Diastemometer. 2. Uber ein Mittel, periodische Bewegungen von ungemeiner Schnelligkeit noch wahrnehmbar zu machen uund zu bestimmen.* From: Abhandlungen der königlich böhmischen Gesellschaft der Wissenschaften, 5. Series, Vol. 3. Prague: In Commission bei Calve, [1845]. 4to (290 x 225 mm). pp. [3], 770-782. Separate title page, 1 engraved plate. Modern marbled paper-coated boards, new endpapers. Text slightly browned in margins, faint spotting, leaves reinforced at gutter. [With:] IV. *Über eine wesentliche Verbesserung der katoptrischen Mikroskope.* Offprint from: Abhandlungen der königlich böhmischen Gesellschaft der Wissenschaften, 5. Series, Vol. 4. Prague: In Commission bei Borrosch & Andre, 1845. 4to (290 x 227 mm). pp. [3], 4-38. Original printed wrappers bound in, 6 lithographed plates bound at end. Modern marbled paper-coated boards, new endpapers. Wrappers, text and plates slightly browned, marginal dust-soiled, spotted and foxed, leaves reinforced at gutter. Provenance: Bibliotheque De Sichel (old red-ink stamp on title page). (#003232) € 1400


Über eine

wesentliche Verbesserung

der

katoptrischen Mikroskope

von

Christian Doppler,

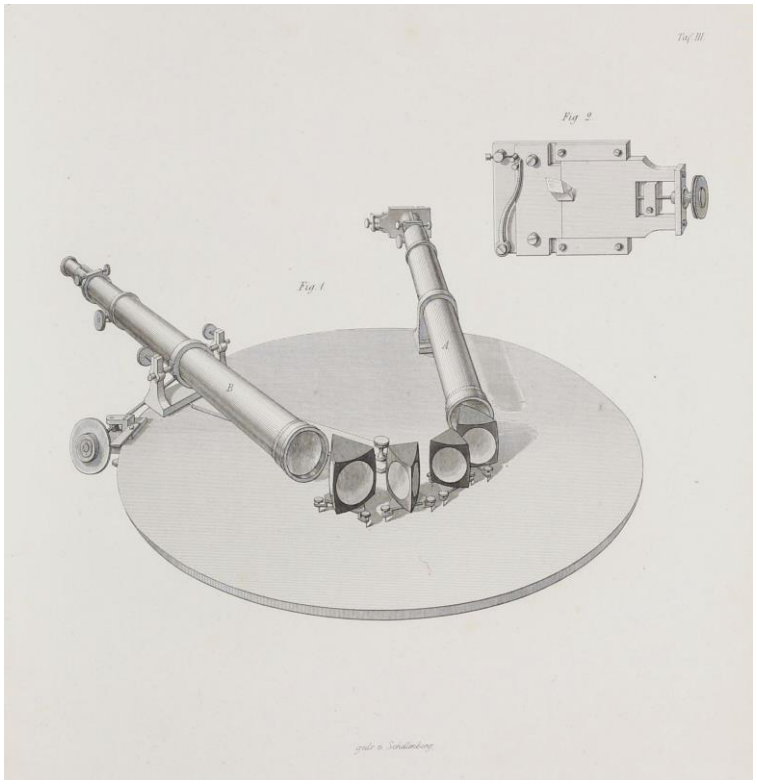
o. ö. Professor der Mathematik und praktischen Geometrie und ordentlichem Mitglied der königlich böhmischen Gesellschaft der Wissenschaften.

Mit sechs lithographirten Tafeln.

I. DSB IV, p.167f.; NDB IV, p.76f. Poggendorff I, 594. FIRST EDITION (journal issue) of this early and important treatise relating to the so-called Doppler effect. In 1842, Christian Doppler (1803-1853) tried to convince astronomers that the effect named after him later was the reason for the color shift detected in double stars between the two partner objects. In his opinion, these stars circle each other so fast that the color of the star moving away from the observer is perceived with a redshift, while the color of the observer approaching star is shifted into the blue region of the spectrum. Doppler's scientific fame is based on the Doppler principle he established for this purpose that relates the observed frequency change of a wave with the movement of the source or that of the observer relative to the medium in which the wave propagates.

40 **KIRCHHOFF, Gustav Robert**. *Untersuchungen über das Sonnenspectrum und die Spectren der chemischen Elemente. [Erster Teil] - Zweiter Teil*. Two volumes. Offprints from: *Abhandlungen der königlichen Akademie der Wissenschaften zu Berlin*, 1861-1862. Berlin: Ferd. Dümmler, 1862-1863. 4to (305 x 238 mm). [4], 43 [1]; [3] 4-16 pp., 5 lithographed plates (3 for part I and 2 for part II; 4 folding). Pages of part II unopened. Original printed boards, part I cloth backed, part II printed paper spine (minor soiling and spotting of covers, slight wear to extremities, spine of part II rubbed and partly split at head). Text generally crisp and clean with only minor age-toning, little spotting of part II, minor dust-soiling to outer margins of plates in part I. Cutout of newspaper article dated 2. February 1866 pasted to inner front-cover of part I. A very good, unsophisticated set, free of library stamps or markings. (#003301) € 3800

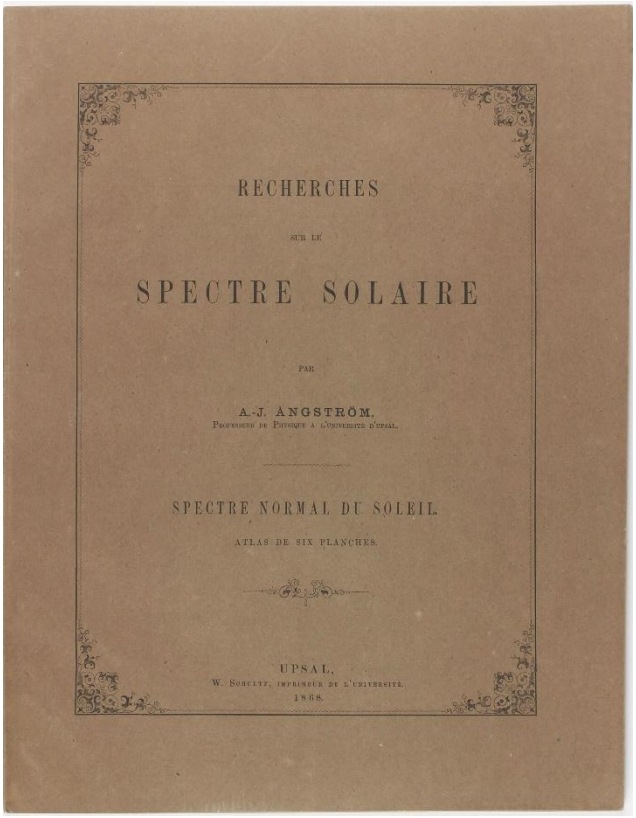
PMM 278b; Horblit 59; Sparrow 117; Norman 1219 (all for 1st ed. of part 1); DSB VII, p.379-82. - ENLARGED SECOND EDITION OF PART I, FIRST EDITION OF PART II, OFFPRINT ISSUE, with "Zweite, durch einen Anhang vermehrte Ausgabe" on the front cover of Part 1. "Kirchhoff found that by exposing in the flame of a Bunsen burner a platinum wire dipped in salt he obtained in the spectrum the characteristic bright yellow lines of sodium superimposed on the spectrum of platinum. By repeating the process and introducing vaporized sodium between the incandescent wire and the screen, the yellow lines were replaced by dark lines. With great ingenuity he repeated the experiment with sunlight and got the same result. The fact that the dark lines were produced when a beam of light from an incandescent element passed through the same substance at a lower temperature suggested that this was due to absorption. In the solar spectrum, for example, the dark lines were caused by absorption in the gases of the sun's atmosphere . . . With these experiments Kirchhoff and his colleague Robert Wilhelm Eberhard Bunsen (1811-1899), inventor of the eponymous burner, created the new science of spectroscopy, brought "the stellar universe into the laboratory and showed that the basic materials of the universe are everywhere the same" (PMM 278b). Kirchhoff "was able to elaborate a quantitative relationship between the absorptive and emissive power of electromagnetic radiation for all material bodies, as a universal function of wavelength and temperature. "Thus Kirchhoff's law was the key to the whole thermodynamics of radiation. In the hands of Planck . . . it proved to be the key to the new world of quanta, well beyond Kirchhoff's conceptual horizon" (DSB).



41 **NEUMANN, Carl Gottfried**. *Die magnetische Drehung der Polarisationsebene des Lichtes - Versuch einer mathematischen Theorie*. Halle: Verlag der Buchhandlung des Waisenhauses, 1863. 8vo (212 x 138 mm). viii, 82 pp. Bound in contemporary half cloth, spine with old paper label titled in script (little wear to extremities). Text little age-toned, otherwise clean and unmarked. (#002379) € 400

DSB II, p.25. RARE FIRST EDITION. Neumann (1832-1925) "was especially prominent in the field of potential theory. His investigations into boundary value problems resulted in pioneering achievements; in 1870 he began to develop the method of the arithmetical mean for their solution. He also coined the term “logarithmic potential.” The second boundary value problem of potential theory still bears his name; a generalization of it was later provided by H. Poincaré" (D.S.B.). This work, the mathematical study of the magnetical rotation of the polarization axis, is based on Neumann's habilitation paper of 1858.

42 **ANGSTRÖM, Anders Jonas**. *Recherches sur le Spectre Solaire. [Atlas contenant les longeurs d'onde des raies Frauenhoféreiennes données en 1/10,000000 de millimètre].* Uppsala: W. Schultz, 1868. Two parts comprising text volume and atlas with plates. Text volume: 4to (310 x 238 mm), Plate volume: oblong folio (340 x 540 mm). Text volume: [4], 42, xv [1] pp. and lithographed frontispiece. Atlas volume: title sheet and 6 sheets of lithographed plates. Original publisher's printed wrappers (front wrapper of atlas stained, with minor paper repair and light tanning). Housed in a custom-made cassette. Plates unbound as issued. Text and plates with little age-toning only, the text volume very crisp and clean, the title sheet of the atlas with unobtrusive brown stain at foot. An exceptional, unsophisticated copy. (#003465) € 5500


RECHERCHES

SUR LE

SPECTRE SOLAIRE

PAR

A.-J. ÅNGSTRÖM,

PROFESSEUR DE PHYSIQUE A L'UNIVERSITÉ D'UPSAL.

SPECTRE NORMAL DU SOLEIL.

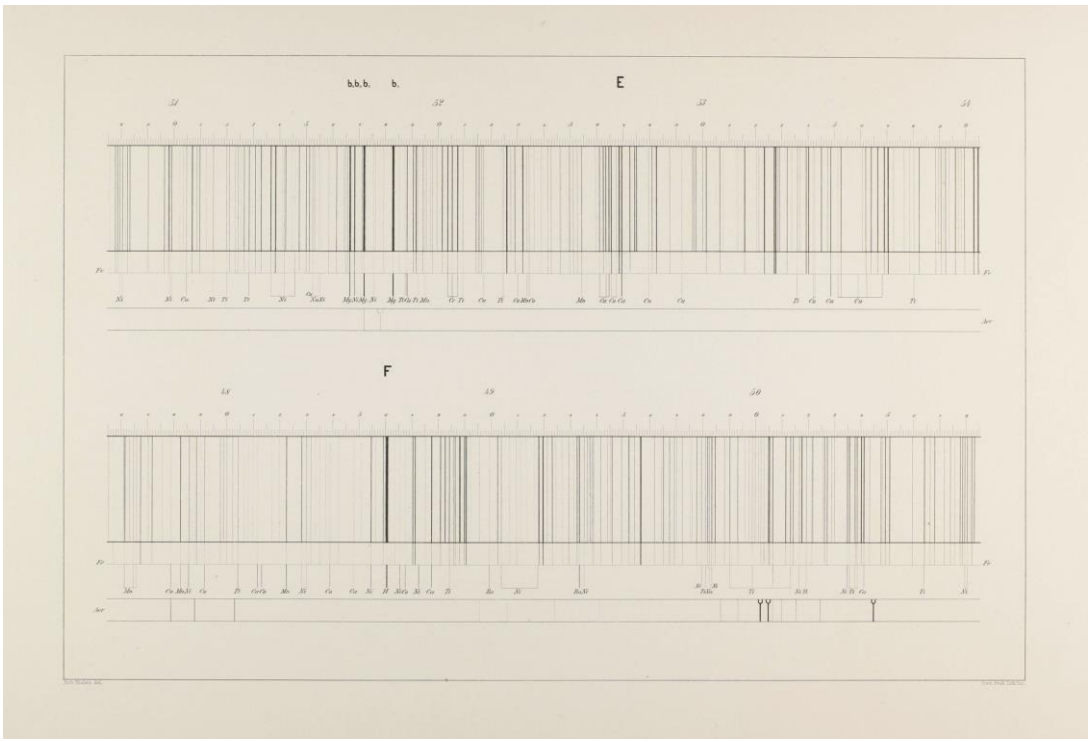
ATLAS DE SIX PLANCHES.

UPSAL,

W. SCHULTZ, IMPRIMEUR DE L'UNIVERSITÉ.

1868.

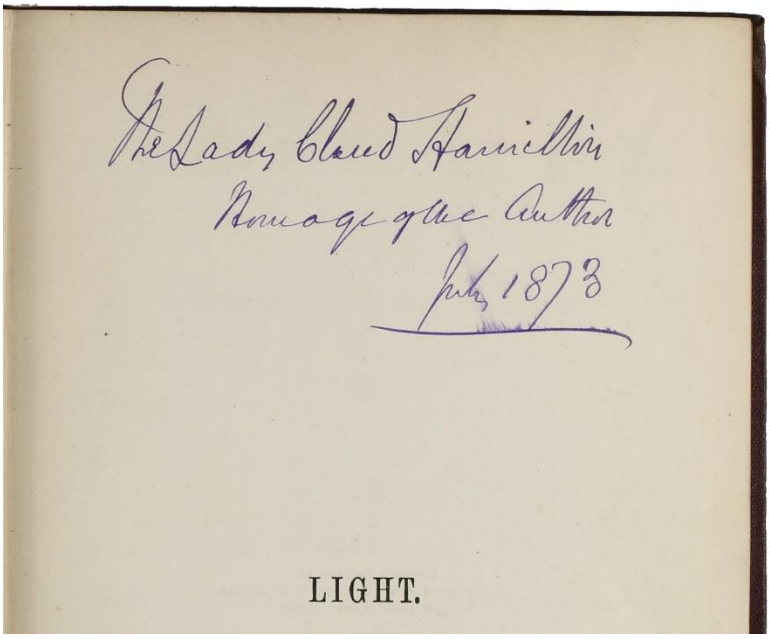
DSB I, p. 166; Norman 56; Honeyman 096. - RARE FIRST EDITION. The classic work on the solar system in which Angström demonstrated the presence of hydrogen and a number of other elements in the sun. Solar spectroscopy provided the first scientific evidence (other than the occasional meteorite) that the elements known on earth are also present elsewhere in the universe. Angström also established a scale of wave-lengths for measuring spectral lines, replacing Kirchoff's arbitrary scale. Angström's system was based on a unit of one ten millionth of a millimetre, named the "Angström unit" in his honor. He conducted detailed measurements of more than 1000 spectral lines. The plates are in effect a map of the solar spectrum, and show the radiation of the solar spectrum ranging from 0.8 to 0.4 micron and from red to purple colour. It identifies the particular lines of manganese, aluminium and titanium. The lithographic plates are after R. Thalén (1827-1905), Angström's laboratory assistant. The lithographic frontispiece to the text volume is showing Angström's spectrometer. Some copies have a further 2 plates showing the ultraviolet spectrum, but the Norman, Gedeon, Green and Honeyman copies - like the present copy - do not have these.



Presentation copy, inscribed by Tyndall to Lady Claud Hamilton

43 **TYNDALL, John**. *Six Lectures on Light Delivered in America in 1872-1973*. London: Longmans, Green, and Co., 1873. 8vo (189 x 121 mm). xiii [1], 277 [1] pp., 1 leaf of adverts and 32 pp. publisher's catalogue dated March 1873; text illustrations and diagrams. Original publisher's cloth, spine with gilt lettering and small paper shelf-mark label, blindstamed boards, all edges gilt, brown endpapers (corners and spine ends lightly bumped, spine sunned, boards a trifle spotted). Text crisp and clean with little age-toning only. Provenance: Wigan Free Public Library (large bookplate to front pastedown, blind stamps to title and some text pages). Inscribed by Tyndall "The Lady Claud Hamilton / Homage of the Author / July 1873"* on half-title. A very good+ copy. (#001784) € 750

FIRST EDITION. The book features six lectures on light which Tyndall delivered in the United States in 1872-3. They explore a wide range of ideas in a non-technical way, from the principal laws and phenomena of light through magnetism and light scattering, to analytical spectroscopy. The book ends with a series of essays on special topics and includes a detailed index.

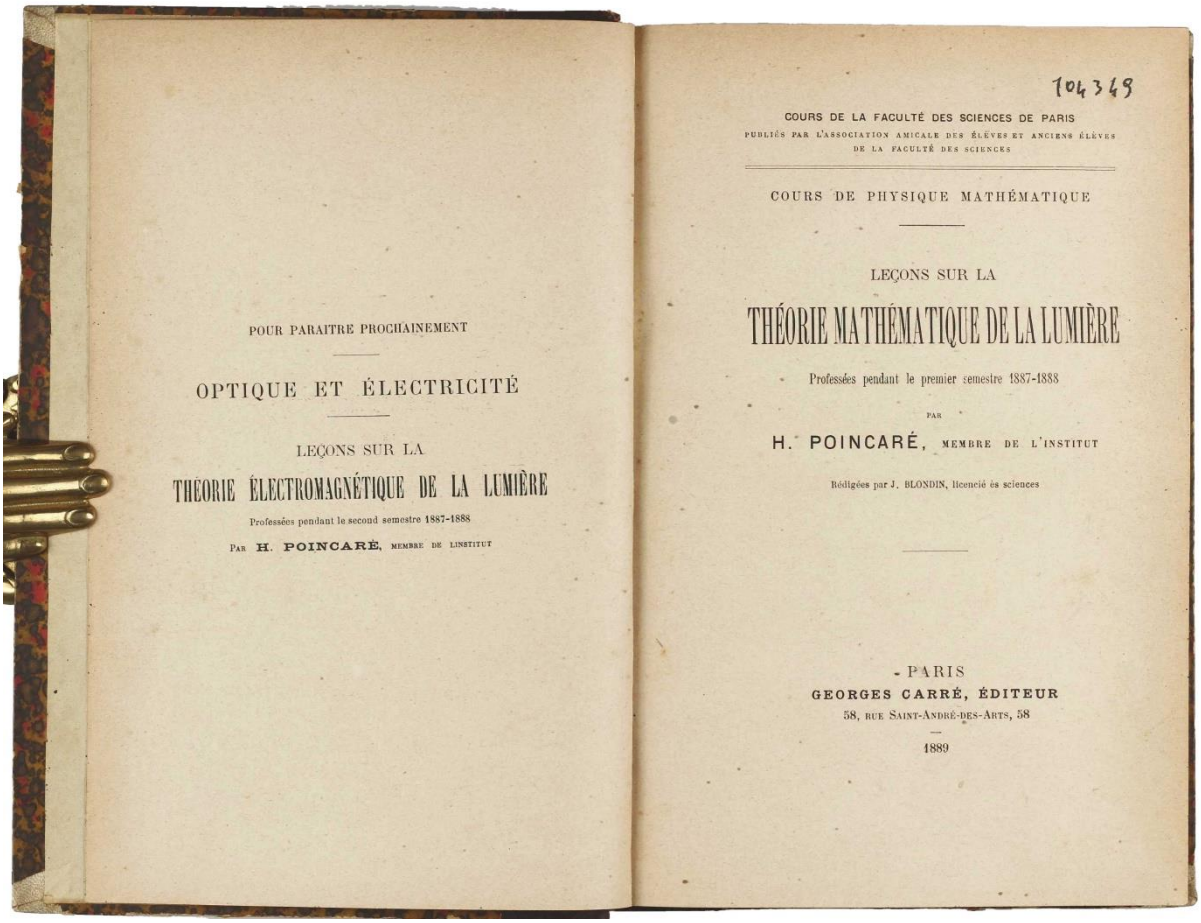


*Lord Claud Hamilton PC (1813-1884) was a British Conservative politician. He notably served as Treasurer of the Household in 1852 and between 1858 and 1859 and as Vice-Chamberlain of the Household between 1866 and 1868. The eldest of his three daughters, Louisa Charlotte Hamilton (1845-1940), married physicist John Tyndall on 29 February 1876, when he was in his 50s, and she just over 30. Tyndall had met Louisa through the social connections of the Royal Institution, which her mother, Lady Claud Hamilton, born Elizabeth Emma Proby (1821-1900) joined in 1874. Tyndall socialised with them at their country house Heathfield Park in Sussex and travelled with them in the Alps. Lady Hamilton is best known for her translation from the French of René Vallery-Radot biography of Louis Pasteur (Louis Pasteur: His Life and Labours, 1885) of with John Tyndall was the editor.

Of surprising rarity

44 **POINCARÉ, Henri**. *Cours de physique mathématique* : *Lecons sur la théorie mathématique de la lumière - Professées pendant le premier semestre 1887-1888*. Paris: Georges Carré, Éditeur, 1889. 8vo (235 x 156 mm). iv, 408 pp., including half-title. Bound in polished half-calf over marbled boards, spine ruled and lettered in gilt and with paper sticker (extremities rubbed, slight wear to corners). Text with light even browning and scattered foxing throughout. Illegible pencil signature on half-title and ink shelf number on title. Provenance: Giancarlo Beltrame Library. Very good copy. (#003058) € 4500

Sotheran I, 3671 (2nd edition only); DSB XI, pp. 51-61. EXCEPTIONALLY RARE FIRST EDITION of Poincaré's lectures course on the mathematical theory of light. Another course of lectures in mathematical physics by Poincaré, on the same subject, was published in 1892 under the title *Théorie mathématique de la lumière II*. "The development of mathematics in the nineteenth century began under the shadow of a giant, Carl Friedrich Gauss; it ended with the domination by a genius of similar magnitude, Henri Poincaré ... For more than twenty years Poincaré lectured at the Sorbonne on mathematical physics; he gave himself to that task with his characteristic thoroughness and energy, with the result that he became an expert in practically all parts of theoretical physics, and published more than seventy papers and books on the most varied subjects, with a predilection for the Théories of light and of electromagnetic waves." (DSB XI, p.51, 58). This book is surprisingly rare. We can trace only two copies in



POUR PARAITRE PROCHAINEMENT

OPTIQUE ET ÉLECTRICITÉ

LEÇONS SUR LA

THÉORIE ÉLECTROMAGNÉTIQUE DE LA LUMIÈRE

Professées pendant le second semestre 1887-1888

PAR H. POINCARÉ, MEMBRE DE L'INSTITUT

COURS DE LA FACULTÉ DES SCIENCES DE PARIS

PUBLIÉS PAR L'ASSOCIATION AMICALE DES ÉLÈVES ET ANCIENS ÉLÈVES DE LA FACULTÉ DES SCIENCES

COURS DE PHYSIQUE MATHÉMATIQUE

LEÇONS SUR LA

THÉORIE MATHÉMATIQUE DE LA LUMIÈRE

Professées pendant le premier semestre 1887-1888

PAR

H. POINCARÉ, MEMBRE DE L'INSTITUT

Rédigées par J. BLONDIN, licencié ès sciences

PARIS

GEORGES CARRÉ, ÉDITEUR

58, RUE SAINT-ANDRÉ-DES-ARTS, 58

1889

US libraries (Huntington Library and NY Public Library) and only one at auction (Sothebys, May 12, 1969, lot 463). All other entries concern E-books (reproduced either from the Huntington Library or the Bibliothèque Nationale de France copy).

45 **ZEEMAN, Pieter.** A group of 13 offprints by P. Zeeman (Nobel Prize 1902) and co-authors, 1894 to 1936, one with signed presentation inscription to upper wrapper. Various states of preservation, wrappers mostly browned and dust-soiled and with occasional edge-chipping, text generally little browned. Front wrappers mostly with shelf marks and ink stamps. (#003166) € 600

1. The phase in the case of polar reflexion from cobalt and nickel and the angle of reversal of the null rotation according to theory and experiment. Offprint from: *Communications from the Laboratory of Physics at the University of Leiden by Heike Kamerlingh Onnes*, No. 10, 1894. 7 [1] pp., 1 plate. Publisher's printed wrappers. Ink stamp by Royal Society Mond Laboratory Cambridge.

2. Measurements concerning Kerr's phenomenon with normal polar reflection from iron and cobalt. / On the determination of the optical constants of magnetite. Offprint from: *Communications from the Laboratory of Physics at the University of Leiden by Heike Kamerlingh Onnes*, No. 15, 1895. 29 [1] pp., 1 fold. plate. Publisher's printed wrappers. Ink stamp by Royal Society Mond Laboratory Cambridge.

3. COHN, E. & ZEEMAN, P. Observations concerning the propagation of electrical waves in water. Offprint from: *Communications from the Laboratory of Physics at the University of Leiden by Heike Kamerlingh Onnes*, No. 21, 1895. 14 pp. Publisher's printed wrappers. Ink stamp by Royal Society Mond Laboratory Cambridge.

4. Measurements concerning the influence of a magnetization, perpendicular to the plane of incidence on the light reflected from an iron mirror. Offprint from: *Communications from the Laboratory of Physics at the University of Leiden by Heike Kamerlingh Onnes*, No. 29, 1896. 13 [1] pp. Publisher's printed wrappers (edge chipping of front wrapper). Ink stamp by Royal Society Mond Laboratory Cambridge.

5. *Recent Progress in Magneto-Optics*. Weekly evening meeting, Friday, March 30, 1906. Offprint: Royal Institution of Great Britain. 12 pp, 8 plates. Stapled as issued

6. Spektralanalytische Untersuchung der magnetische Felder auf der Sonne. Offprint from: *Physikalische Zeitschrift*, Vol. 9, No. 23, 1908, pp. 834-835. Original publisher's wrappers (heavily chipped at outer margins). Inscribed by Zeeman on front wrapper.

7. The law of shift of the central component of a triplet in a magnetic field. Offprint from: *Proceedings of the Meeting of Thursday December 24, 1908, Koninklijke Akademie van Wetenschappen TE Amsterdam*. July 1909, pp. 473-477. Original publisher's wrappers.

8. Changement de longueur d'onde de la raie médiane d'un triplet dans un champ magnétique. Offprint from: *Archives Néerlandaises des Sciences Exactes et Naturelles*, serie II, tome XIV, 1909, 12 pp., 1 plate. Original publisher's wrappers (rear wrapper detached). And a duplicate.

9. BAKKER, C.J.; DE BRUIN,T.L. & ZEEMAN, P. The ZEEMAN-effect of the spectrum of ionized Argon (Ar II). Offprint from: *Proceedings of the Koninklijke Akademie van Wetenschappen TE Amsterdam*. Vol. 31, no. 7, 1928, 20 pp., 1 plate. Original publisher's wrappers.

10. ZEEMAN, P. & RISCO, M. Experimental verification of the principle of Doppler-Fizeau for light. Offprint from: *Proceedings of the Koninklijke Akademie van Wetenschappen TE Amsterdam*. Vol. 32, no. 9, 1929, 5 [1] pp. Original publisher's wrappers.

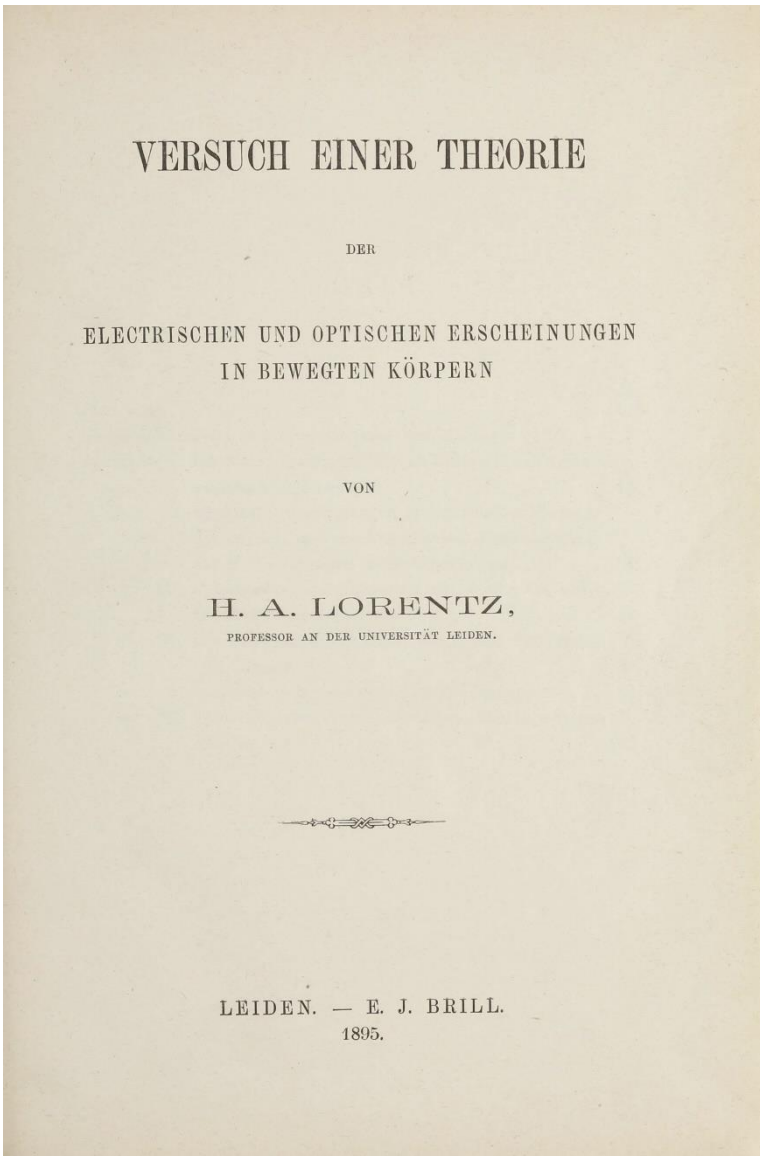
11. ZEEMAN, P.; BACK, E. & GOUDSMIT S. Zur Hyperfeinstruktur des Wismuts. Offprint from: *Zeitschrift für Physik*, Vol. 66, Issue 1-2, 1930, 12 pp. Original publisher's wrappers.

12. ZEEMAN, P. & DE GIER, J. A new isotope of Argon. Offprint from: *Proceedings of the Koninklijke Akademie van Wetenschappen TE Amsterdam*. Vol. 37, no. 3, 1934, 4 pp., 1 plate. Original publisher's wrappers.

13. DE GIER, J. & ZEEMAN, P. An Eighth Isotope of Molybdenum. Offprint from: *Proceedings of the Koninklijke Akademie van Wetenschappen TE Amsterdam*. Vol. 39, no. 3, 1936, 4 pp., 1 plate. Original publisher's wrappers.

46 **LORENTZ, Hendrik Antoon.** *Versuch einer Theorie der electrischen und optischen Erscheinungen in bewegten Körpern*. Leiden: E. J. Brill, 1895. 8vo (215 x 144 mm). [4], 138, [2] pp. Bound in contemporary half cloth, gilt-lettered spine, red sprinkled edges (minor rubbing of boards and extremities). Text very little age-toned, but generally clean and bright. A near fine copy, free of markings or stamps. (#003629) € 3800

PMM 378b; Norman 1388; DSB VIII, p. 494; Magill, *The Nobel Prize Winners*: Physics, pp. 35-42. FIRST EDITION, LAYING THE MATHEMATICAL FOUNDATION FOR EINSTEIN'S SPECIAL THEORY OF RELATIVITY. It is the second of


VERSUCH EINER THEORIE

DER

ELECTRISCHEN UND OPTISCHEN ERSCHEINUNGEN
IN BEWEGTEN KÖRPERN

VON

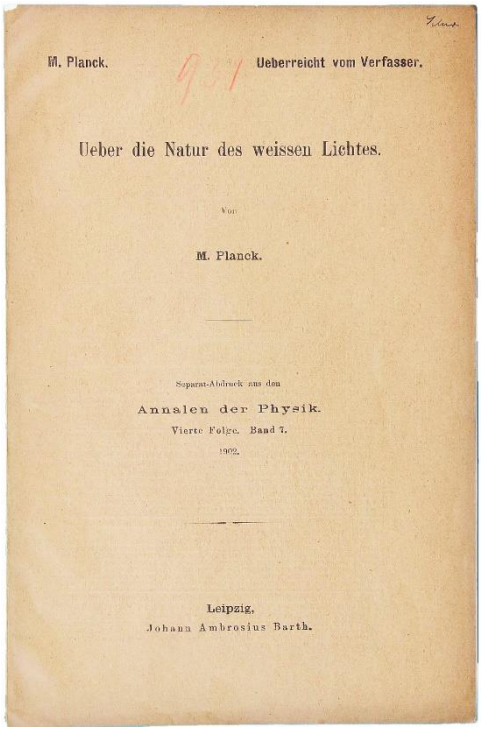
H. A. LORENTZ,
PROFESSOR AN DER UNIVERSITÄT LEIDEN.

LEIDEN. — E. J. BRILL.
1895.

Lorentz' two expositions of his electron theory of matter (the first titled *La theorie electromagnetique de Maxwell et son application aux corps mouvants* appeared in 1892 as an article in the journal *Archives neerlandaises des Sciences exactes et naturelles*) "Hertz's experimental and theoretical researches generated widespread interest in Maxwell's theory among Continental physicists. Of the major theoretical statements of Maxwellian electrodynamics following Hertz's researches, several advanced a molecular view of electricity together with a stationary ether. Such theories - soon to be called electron theories - were proposed independently in the early 1890s by Lorentz, by Weichert, and by Larmoor . . . Of the three theories, Lorentz's gained the greatest authority on the Continent, in part because of its clear, if ultimately unsatisfactory, dualism of electron and field" (DSB). Lorentz's theory, for which he won the Nobel prize for physics in 1902 (shared with Pieter Zeeman), rested on the "fundamentally new assumption that the behavior of light and matter could be understood in terms of particles" (Norman). His articles contain the mathematical explanation of the results of the Michelson-Morley experiment, one of several "ether-drift" experiments that had disproved the theory that the speed of light is interfered with by the "luminiferous ether" that was still believed to surround the earth. The ether theory had attempted to explain the so-called "angle of aberration", the fact that in examining any fixed star it is necessary to point the telescope a bit in advance of the star. In this second paper Lorentz explained the optical aberration by his "famous contraction hypothesis" (DSB) which assumes that matter is of an electrical nature, so that "all electrical particles became shortened when in motion along the direction in which the ether drifts" (PMM). In 1905 Einstein published his special theory of relativity, which refuted the Michaelson-Morley experiment as fundamentally flawed since it presumed the existence of an observer independent of and unrelated to the universe, and for which he adopted the equations of Lorentz's theory. Although Lorentz admired Einstein's reinterpretations of his equations, "to the end of his life he believed that the ether was a reality and that absolute space and time were meaningful concepts" (DSB).

47 **PLANCK, Max.** Zur elektromagnetischen Theorie der Dispersion in isotropen Nichtleitern. Offprint from: *Sitzungsberichte der königlich preussischen Akademie der Wissenschaften*, Vol. 24, 1902, 25 pp. Original orange wrapper (little marginal soiling), internally lightly browned. Presentation copy ("Überreicht vom Verfasser"). (#001902) € 550

FIRST EDITION. Rare early offprint, presentation copy, of Planck's paper on the electromagnetic theory of dispersion in isotropic nonconductors.


M. Planck. Ueberreicht vom Verfasser.

Ueber die Natur des weissen Lichtes.

Von

M. Planck.

Separat-Abdruck aus den

Annalen der Physik.

Vierte Folge. Band 7.

1902.

Leipzig,

Johann Ambrosius Barth.

48 **PLANCK, Max**. Ueber die Natur des weissen Lichtes. Offprint from: *Annalen der Physik*, vol. 7, 1902, pp. 390-400. Berlin: Johann Ambrosius Barth. 8vo (223 x 145 mm). Original printed wrapper (little soiling and chipping, ownership inscription to top corner), internally fresh and unmarked. Presentation copy ("Überreicht vom Verfasser"). (#001954) € 300

FIRST EDITION. Rare early offprint, presentation copy, of Planck's paper on the nature of white light. Planck states, according to the second law of thermodynamics, [that] "the white light also presents a kind of microscopic indeterminacy: 'the white light, with constant intensity, is completely defined by: 1. energy distribution relative to frequency; 2. the statement that, inside a small spectral region, where one can consider uniform the distribution of energy, amplitudes and phases constant of any partial oscillation, obtain values in absolute irregularity'" (C. Garola & A. Rossi, *Foundations Of Quantum Mechanics, The: Historical Analysis And Open Questions*, World Scientific, 2000, p.90).

49 **PLANCK, Max**. Über die optischen Eigenschaften der Metalle für lange Wellen. Gesamtsitzung v. 5. März 1903. Offprint from: *Sitzungsberichte der Königlich Preussischen Akademie der Wissenschaften*, vol. 13, 1903, 3 pp. 4to (252 x 177 mm). Original printed wrappers (very little soiling and tanning, old signature partially erased from cover, ex-libris "Christian Heuer" to inner cover), internally fresh and unmarked. Presentation copy ("Überreicht vom Verfasser"). (#001956) € 300

FIRST EDITION. Rare early offprint and presentation copy by Max Planck about the optical properties of metals for long waves.

50 **RAMAN, Chandrasekhara Venkata & KRISHNAN, K. S.** A New Type of Secondary Radiation. In: *Nature*, vol. 121, No. 3051, Supplement, 31st March 1928, pp. 501-502, original printed wrappers with rusted staples, slim large 8vo. (#001734) € 590

On February 28, 1928, Raman through his experiments on the scattering of light, discovered the effect which is named after him. It was instantly clear that this discovery was an important one. It gave further proof of the quantum nature of light. Raman spectroscopy came to be based on this phenomenon, and Ernest Rutherford referred to it in his presidential address to the Royal Society in 1929. He won the 1930 Nobel Prize in Physics "for his work on the scattering of light and for the discovery of the effect named after him. He was the first Asian and first non-White to get any Nobel Prize in the sciences.

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Jörn Koblitz
Schulstrasse 18A
27721 Ritterhude, Germany
Phone: +49 (0) 421 1754235
E-Mail: info@milestone-books.de

accordingly in an unequivocal statement (e.g. letter sent by post, telefax or e-mail) of your decision to withdraw from the agreement. You may use the attached sample revocation form for this purpose, however this is not mandatory. Sending notification of your intention to exercise your right of revocation prior to expiry of the period of revocation shall be sufficient to comply with the period of revocation.

2.2 Consequences of Revocation

If you withdraw from this agreement, we shall refund all payments that we have received from you, including delivery costs (with the exception of additional costs that arise if you have selected a form of delivery other than the cheapest form of standard delivery offered by us) without undue delay and within fourteen days at the latest from the date on which we received the notice of revocation. For this refund we use the same method of payment that you used for the original transaction, unless expressly agreed otherwise with you; in no event will you be charged any fees for this refund.

We may refuse the refund until the goods have been returned to us or until such time as you have provided evidence that you have returned the goods, whichever is the earlier.

You must return or hand over the goods to us without undue delay and, at all events, within fourteen days at the latest from the date on which you notified us of your withdrawal from the agreement. The deadline shall be deemed to have been complied with if the goods are dispatched prior to expiry of the deadline.

The immediate costs of returning the goods shall be borne by you.

You shall only be required to compensate any loss of value if said loss of value can be attributed to any unnecessary handling of the goods for the purpose of testing the condition, properties and functionality of said goods.

2.3 Exclusion of the right of revocation.

There is no right of revocation for agreements on the delivery of goods that are not prefabricated and for the manufacture of which the consumer has made an individual selection or stipulation, or that have been clearly tailored to meet the personal requirements of the consumer.

Revocation form

If you wish to withdraw from the agreement, please fill in this form and send it back to:

Milestones of Science Books
Joern Koblitz
Schulstrasse 18A
27721 Ritterhude, Germany
Phone: +49 (0) 421 1754235
E-Mail: info@milestone-books.de

I / we(*)
hereby withdraw from the agreement signed by me / us (*) for the purchase of the

following goods:_____

_____

Ordered on ( ) Received on ( )

Name of consumer(s): _____

Address of consumer(s):

_____

_____

_____

_____ _____

Signature of consumer(s): Date:

(*) delete as appropriate

Widerrufsbelehrung für Verbraucher

Widerrufsrecht

Sie haben das Recht, binnen vierzehn Tagen ohne Angabe von Gründen diesen Vertrag zu widerrufen. Die Widerrufsfrist beträgt vierzehn Tage ab dem Tag, an dem Sie oder ein von Ihnen benannter Dritter, der nicht der Beförderer ist, die Waren in Besitz genommen haben bzw. hat.

Um Ihr Widerrufsrecht auszuüben, müssen Sie uns

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mittels einer eindeutigen Erklärung (z.B. ein mit der Post versandter Brief, Telefax oder E-Mail) über Ihren Entschluss, diesen Vertrag zu widerrufen, informieren. Sie können dafür das beigefügte Muster-Widerrufsformular verwenden, das jedoch nicht vorgeschrieben ist. Sie können das Muster-Widerrufsformular oder eine andere eindeutige Erklärung auch auf unserer Webseite [http://www.milestone-books.de/terms.php] elektronisch ausfüllen und übermitteln. Machen Sie von dieser Möglichkeit Gebrauch, so werden wir Ihnen unverzüglich (z. B. per E-Mail) eine Bestätigung über den Eingang eines solchen Widerrufs übermitteln.

Zur Wahrung der Widerrufsfrist reicht es aus, dass Sie die Mitteilung über die Ausübung des Widerrufsrechts vor Ablauf der Widerrufsfrist absenden.

Folgen des Widerrufs

Wenn Sie diesen Vertrag widerrufen, haben wir Ihnen alle Zahlungen, die wir von Ihnen erhalten haben, einschließlich der Lieferkosten (mit Ausnahme der zusätzlichen Kosten, die sich daraus ergeben, dass Sie eine andere Art der Lieferung als die von uns angebotene, günstigste Standardlieferung gewählt haben), unverzüglich und spätestens binnen vierzehn Tagen ab dem Tag zurückzuzahlen, an dem die Mitteilung über Ihren Widerruf dieses Vertrags bei uns eingegangen ist. Für diese Rückzahlung verwenden wir dasselbe Zahlungsmittel, das Sie bei der ursprünglichen Transaktion eingesetzt haben, es sei denn, mit Ihnen wurde ausdrücklich etwas anderes vereinbart; in keinem Fall werden Ihnen wegen dieser Rückzahlung Entgelte berechnet. Wir können die Rückzahlung verweigern, bis wir die Waren wieder zurückerhalten haben oder bis Sie den Nachweis erbracht haben, dass Sie die Waren zurückgesandt haben, je nachdem, welches der frühere Zeitpunkt ist.

Sie haben die Waren unverzüglich und in jedem Fall spätestens binnen vierzehn Tagen ab dem Tag, an dem Sie uns über den Widerruf dieses Vertrags unterrichten, an uns oder an zurück zusenden oder zu übergeben. Die Frist ist gewahrt, wenn Sie die Waren vor Ablauf der Frist von vierzehn Tagen absenden. Sie tragen die unmittelbaren Kosten der Rücksendung der Waren.

Sie müssen für einen etwaigen Wertverlust der Waren nur aufkommen, wenn dieser Wertverlust auf einen zur Prüfung der Beschaffenheit, Eigenschaften und Funktionsweise der Waren nicht notwendigen Umgang mit ihnen zurückzuführen ist.

Ausnahmen vom Widerrufsrecht

Das Widerrufsrecht besteht nicht bzw. erlischt bei folgenden Verträgen:

- Zur Lieferung von Zeitungen und Zeitschriften oder Illustrierten, mit Ausnahme von Abonnement Verträgen;

- Bei der Lieferung digitaler Inhalte (ebooks), die nicht auf einem körperlichen Datenträger (z.B. einer CD oder DVD) geliefert werden, wenn Sie dem Beginn der Ausführung vor der Bestellung ausdrücklich zugestimmt und zur selben Zeit bestätigt haben, dass mit der Ausführung begonnen werden kann und Sie Ihr Widerrufsrecht verlieren, sobald die Ausführung begonnen hat.

Ende der Widerrufsbelehrung

Muster-Widerrufsformular

(Wenn Sie den Vertrag widerrufen wollen, dann füllen Sie bitte dieses Formular aus und senden Sie es zurück.)

— An:
Milestones of Science Books
Jörn Koblitz
Schulstrasse 18A
27721 Ritterhude, Deutschland
Tel.: +49 (0) 421 1754235
E-Mail: info@milestone-books.de

— Hiermit widerrufe(n) ich/wir den von mir/uns abgeschlossenen Vertrag über den Kauf der folgenden Waren:

— Bestellt am ( ) / erhalten am ( )

— Name des / der Verbraucher(s)

— Anschrift des / der Verbraucher(s)

— Unterschrift des / der Verbraucher(s) (nur bei Mitteilung auf Papier)

— Datum

