Advances in Science Optics & Microscopy

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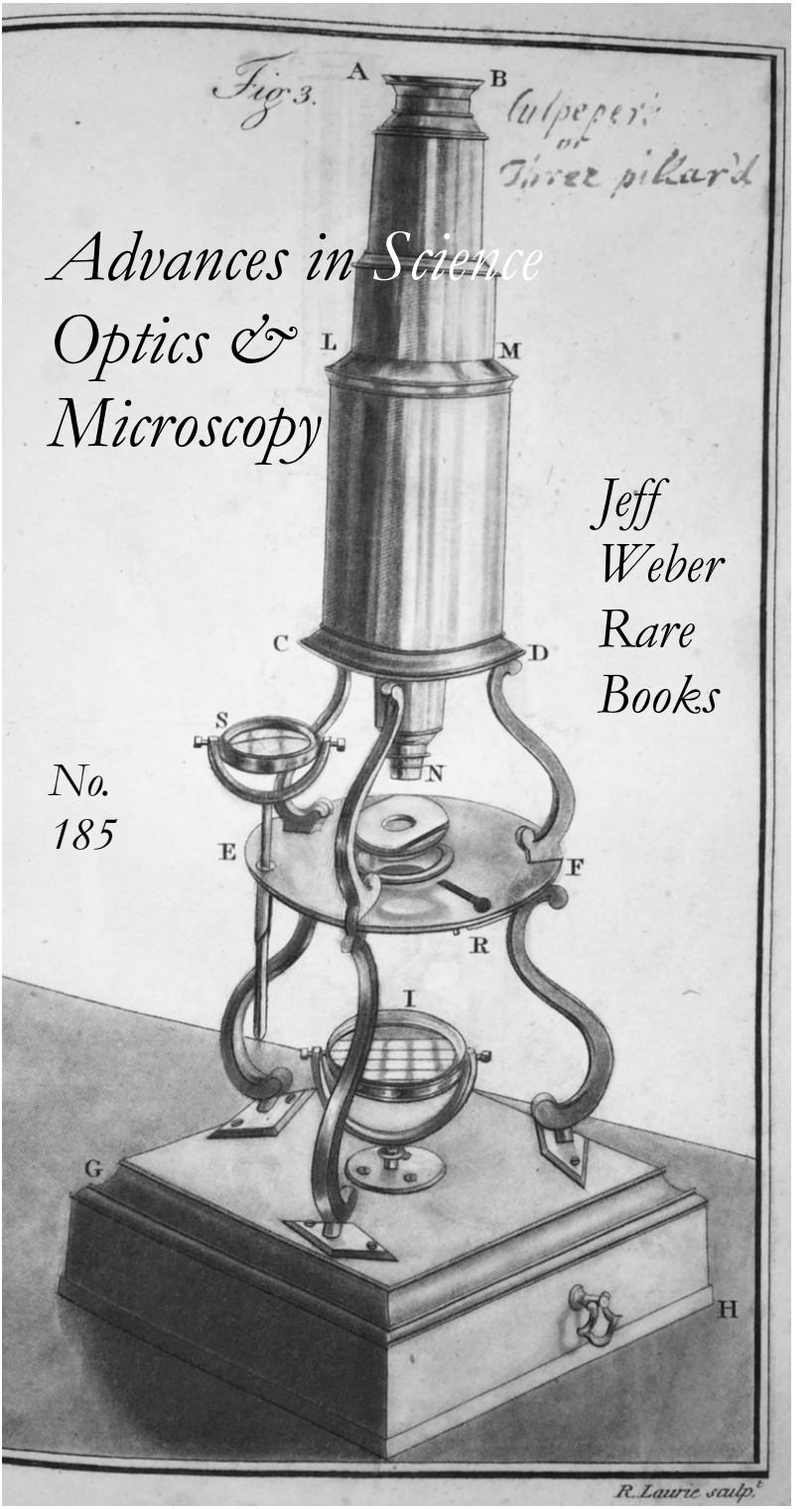

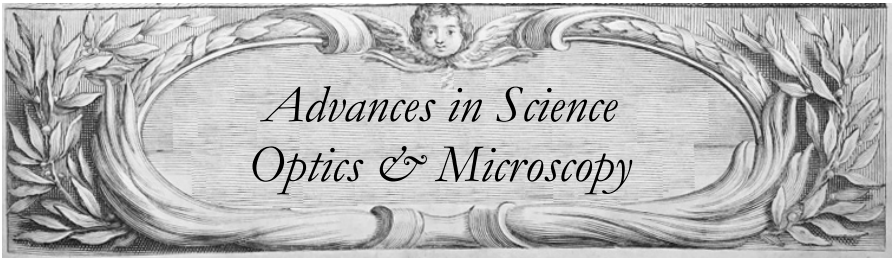

2016 Catalogue 185

We have recently acquired the optics & microscopy library of a private collector. This the second catalogue offering more highlights from this collection.

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COVER detail: 2 ADAMS

Jeff Weber & Mahshid Essalat-Weber

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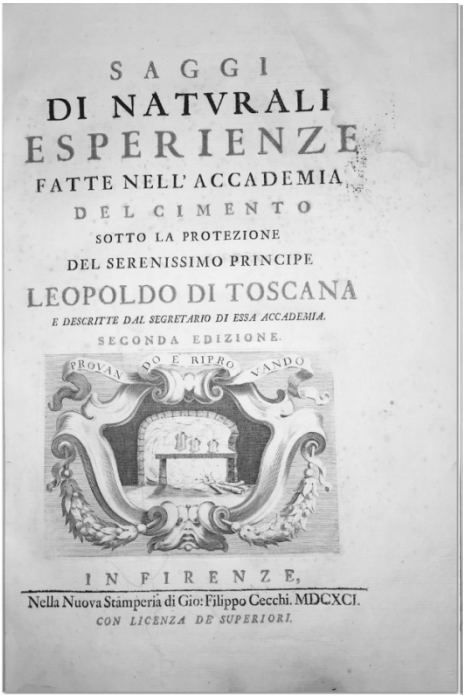
SAGGI
DI NATVRALI
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DEL CIMENTO
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DEL SERENISSIMO PRINCIPE
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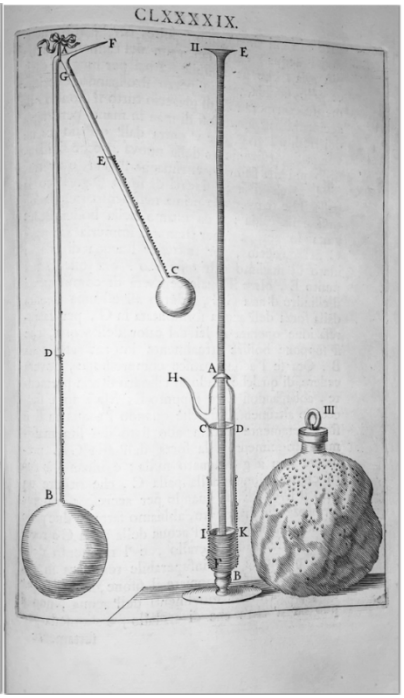
E DESCRITTE DAL SEGRETARIO DI ESSA ACCADEMIA.
SECONDA EDIZIONE.
PROVANDO E RIPROVANDO
IN FIRENZE,
Nella Nuova Stamperia di Gio: Filippo Cecchi. MDCXCI.
CON LICENZA DE' SUPERIORI.



Landmark Experiments on
Air Pressure, Temperature and Electricity

1. **Accademia del Cimento; Lorenzo MAGALOTTI** (1637-1712). *Saggi di Naturali Esperienze* … Florence: Gio: Filippo Cecchi, 1691.

   Large 4to. [xv], CCLXIX, [20] pp. Half-title, title printed in red & black, title vignette, 75 copper engraved plates, numerous woodcut initials and head & tailpieces, index; prominent waterstains to corners, lacks the portrait of Cosimo (some copies have the portrait, others do not). Later quarter vellum, marbled boards, black leather gilt-stamped spine label, vellum tips. Very good.

   $ 1,750

   Second edition, first printed in 1666/7. This marvelous work contains descriptions of experiments on air-pressure, freezing of water, an early account of Torricelli's invention of the barometer, thermometer, electrical and magnetic experiments, measurements of the velocity of sound and light, and experiments on heat and cold. It contains many large, full-page engravings of experimental apparatus used to conduct these early experiments in natural physics. The engravings on pages iii, vi, viii and xiii show Torricelli's thermometer with a column of liquid and capsules of various density liquids that will either float of sink, depending upon the surrounding temperature. Also known as a "termometro lento" (slow thermometer), this clever instrument is still marketed as a functioning curiosity today.

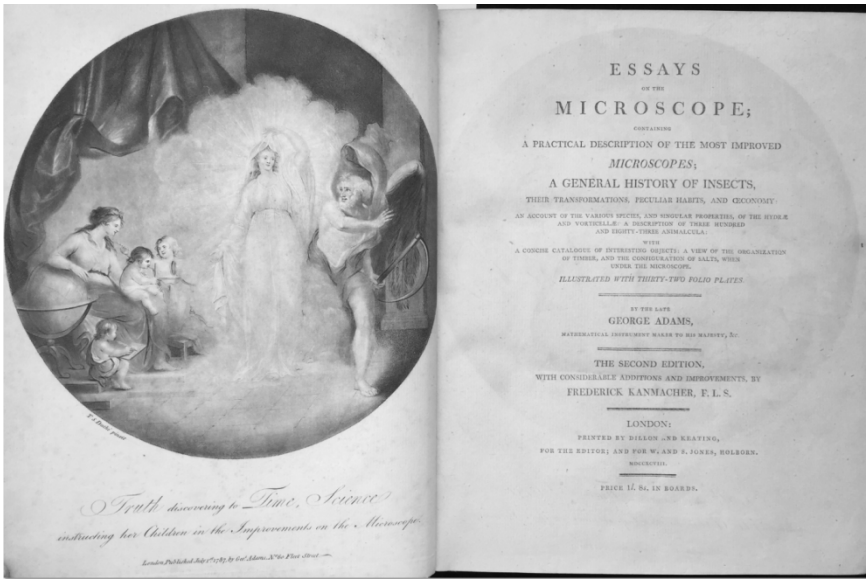
   As the mechanism of the atmosphere exerting continuous pressure on the surface of the earth was unknown at that time, the experiments using a barometer and bell jar (pp. xxiv-xxxi) seem rather naïve to us today. The members of the Academy couldn't

determine why the mercury in the column didn't fall, once the barometer was 'shielded' from the surrounding atmosphere. What they failed to realize is that the air pressure inside the bell jar remained the same as the outside, since it had not been evacuated. Page lxxxxix depicts a curious experiment in which an organ pipe and a bellows to blow air through a pipe are encased in a vacuum chamber. The experiment demonstrated that when the chamber was evacuated, the pipe no longer made sound, even though the bellows were still forcing 'air' through the apparatus, therefore showing that air at normal pressure was a necessary component to produce sound.

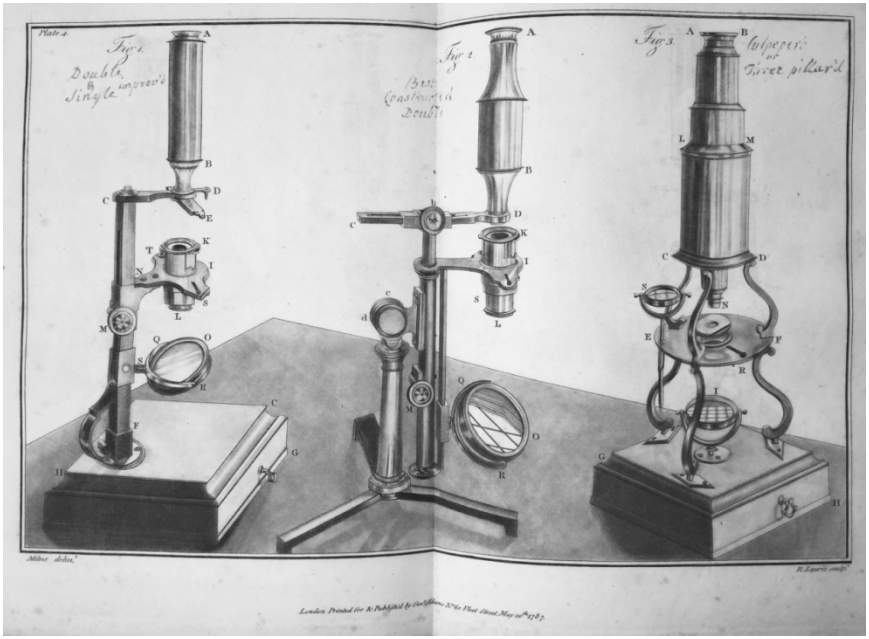
The Academy of Experiments was founded in Florence in 1657 and flourished for only ten years (1657-1667) and presents the first group effort at scientific investigation on the part of scientists including such original minds as Viviani, Borelli, Steno, Redi, Cassini and Torricelli. Its moving spirits were two of Galileo's most distinguished disciples, Viviani and Torricelli. The necessary financial support came from the two Medicis, the Grand Duke Ferdinand II of Tuscany and his brother Leopold; both of them had studied under Galilei. More than a decade before the formal institution of the Academy, the two Medici brothers had started a laboratory, well equipped with such scientific apparatus as was then obtainable. – Wolf.

"This collection contains papers describing experiments on light, sound and electricity. Amber rubbed in vacuo … magnetic attraction across a vacuum … magnetic screening … rubbed amber and gems … discharging action of flames … electrical attraction is mutual…" – Wheeler.

☼ Barchas-Stanford 1345 (1666/7 ed.); Boffito, 'Gli strumenti della scienza', pp. 133-134; Brunet, V-29; Catalogo Bibl. Mediceo-Lorenese, 569; Cinti 163; Dibner, *Heralds of Science*, 82; *DSB*, IX, p.3 [Magalotti]; Gamba, 853; Krivatsy/NLM p.25 (1666/7); Maylender, Michele, "Storia delle Accademie d'Italia," (1926-30), II, pp. 7-16; Michel, V-76; Riccardi, II, 407; Wellcome III, p. 23; Wheeler 196 (1684 ed.); Wolf, *The History of Science, Technology and Philosophy*, I, p. 55. This edition not in Bakken (but has the 1684 translation).



2. **Adams, George, Jr.** (1750-1795). *Essays on the Microscope; Containing a Practical Description of the Most Improved Microscopes; A General History of Insects..., An account of the various species … A Description of Three Hundred and Eighty-Three Animalcula, with a Concise Catalogue of Interesting Objects: A view of the organization of timber, and the Configuration of Salts when Under the Microscope. By the late George Adams … The second edition, with considerable additions and improvements by Frederick Kanmacher, F.L.S.* London: Printed by Dillon and Keating, for the Editor, 1798.



2 vols. bound in one (i.e. with Atlas dated 1787). 4to. xvii, [vii], 724, 14, 2 pp. 32 engraved double-page plates, with the allegorical frontispiece mezzotint (dated 1787), "Truth discovering to Time, Science, instructing her children in the improvements of the microscope," after T.S. Duchè, with the folded title-page for the Atlas of plates, errata, list of plates (numbered 1-31; with 26A and 26B, making 32), index; occasional foxing. Original half calf by Hering (with his stamp: "Bound by Hering 9 Newman St"); quite worn, inner joints reinforced with kozo. Bookplates of Max Erb and William Seymour. Good.

$ 3,000

SECOND EDITION, enlarged, with the first issue of the frontispiece plate and first of the Atlas title. This work is a most thorough treatment on microscopy, reviewing the history of the topic, of optics, a description of microscope instruments, before entering into describing various items from nature. Adams states "When I first undertook the present essays, I had confined myself to a re-publication of my father's work, entitled, *Micrographia Illustrata;* but I soon found that both his and Mr. Baker's tracts on the microscope were very imperfect. Natural history had not been so much cultivated at the period when they wrote, as it is in the present day… I have in the fifth chapter, after some general observations on the utility of natural

history, endeavoured to remedy their defects, by arranging the subject in systematic order, and by introducing the microscope reader to the system of Linnaeus, as far as relates to insects: by this he [the reader] will learn to discriminate one insect from another, to characterize their different parts, and thus be better enabled to avoid error himself. And to convey instruction to others." (pp. x-xi). Adams, being "seduced" by these "little creatures" expanded his descriptions of them. With chapter six he bases his discussion of insects on the work of Lyonet (1742), focused on the caterpillar of the Phalaena Cassus.

Adams, Jr. (1750-1795), son of well-known instrument-maker George Adams (1709-1772), both instrument makers to the king. He was an optician, instrument maker (to George III) and prolific writer on instruments and scientific issues. Gee notes that Adams had studied Louis Joblot on the microscope and animalculae and Abraham Trembley on the polyp.

Provenance: Max Erb, of Max Erb Instruments, Santa Ynez, California. This company started in 1954 and specializes in microscopes.

See: *DNB*; Brian Gee, *Francis Watkins and the Dollond Telescope Patent Controversy*, Ashgate, 2014, p. 67; John R. Millburn, *Adams of Fleet Street: instrument makers to King George III*, Aldershot: Ashgate, 2000.

3. **ARDENNE, Manfred von** (1907-1997). *Elektronen-Übermikroskopie; Physik, Technik, Ergebnisse*. Berlin: Julius Springer, 1940. 8vo. XVI, 393, [iii] pp. Frontis., 404 illus., index; lacks rear free endpaper. Original navy blue gilt-stamped cloth. Lacks 4 stereo images from rear. Scarce.

$ 75

First edition. Heavily annotated copy, 17 tabs applied to fore-edge (hand-labelled), underlined and with marginalia (ink or pencil). There was a cheaper issue in printed wrappers – this copy in original publisher's cloth.

Manfred von Ardenne was a German research and applied physicist and inventor, made patents in electron microscopy, medical technology, plasma physics, radio and television technology. In 1937, Ardenne developed the scanning transmission electron microscope. Then, in 1947, he received the Stalin Prize for developing a table-top electron microscope. Another Stalin Prize was later rewarded for contributions to the Russian atomic bomb.

"Manfred von Ardenne was a brilliant advocate of supermicroscopy, a domain in which his outstanding talents as organizer and engineer and his gift for understanding the needs of users, mostly biologists and chemists at this time, were recognized by Siemens. With the help of this company …, his outstanding engineering work would lead him a year later to publish a comprehensive book on a universal electron microscope 'for operation in a bright field or dark field and stereo-imaging.' This treatise is striking in its clarity, concision, and efficient architecture, qualities which are reminiscent of the contemporary achievement of V. K. Zworykin and his team in television in the United States, a new and brilliant style for scientific books... In 1940 … Ardenne dedicated his treatise on electron super-microscopy to his brother Gothilo, who fell in the field during the war in Poland. Soon, hundreds of thousands of French losses were added to the Polish ones in the battle of France. … after July, 1940, the author found it difficult to finish the writing of his doctoral thesis (in the field of what is now called plasma physics) …" Peter W. Hawkes, *The Beginnings of Electron Microscopy*, (2013), pp. 229-30.

4. **BAKER, Henry** (1698-1774). *The Microscope Made Easy: or, I. The Nature, Uses, and Magnifying Powers of the best Kinds of Microscopes Described, Calculated, and Explained … The second edition: with an additional Plate of the Solar Microscope, and some farther Accounts of the Polype*. London: Printed for R. Dodsley, 1743. 8vo. [ii], xvi, 311, [xiii] pp. 14 copper-engraved plates (11 folding – incl. frontis.), folding table (facing p.36), index; occasional pencil marginalia. Original half calf, gilt-stamped spine, black leather spine label, marbled boards; joints and extremities heavily rubbed. Bookplates of Francis Hubert Barclay ("FHB from JGB, 1890") and Max Erb. Good.

$ 450

Second edition, with additions (see title) of this extremely popular work which went into a number of editions. The first edition was issued in 1742, and was full of material that the author "compiled, abstracted and copied everything available about the instrument, even Leeuwenhoek's plates found in the archives of the Society" [Ratcliff, p.80], this edition includes the discovery of the polyp. Even so, no one had studied Leeuwenhoek's instruments that were considered so valuable for his own pioneering and systematic research, until Baker took the task up some 20 years later – those instruments having been donated in 1723 on Leeuwenhoek's death. Arranged in two parts, the first dealing with various types of microscopes, their employment and adjustment, including the instruments of Wilson, Leeuwenhoek, Culpepper, Scarlett, Cuff, and Lieberkühn. The second part is devoted to the examination of natural specimens established by and similar to Hooke's *Micrographia*. This work and the author's *Employment of the Microscope*, contain the bulk of his more important communications to the Royal Society.

Ratcliff offers more insight to the relationship Baker had with the various persons involved with instrument making, including Cuff and Lieberkühn. Some description of the distribution and translations of the edition are also mentioned. Ratcliffe also writes, "With, *The Microscope Made Easy*, Baker achieved an important place as microscopical observer in the Society…" (p.180). See: Dr. Marc J Ratcliff, *The Quest for the Invisible: Microscopy in the Enlightenment,* (2013), page 268.

This copy belonged to Joseph Gurney Barclay and bears within a number of pencil inscriptions in his hand, noted on the various engraved plates – which he labeled with identifying remarks. For example, the folding frontispiece of the "Solar Microscope" is inscribed in pencil in his hand. Additionally, Pl. I is inscribed "Mr. Wilson's single pocket microscope." II: "Wilson's Microscope with the addition of a speculum." III: "The double reflecting microscope." IV: "Microscope for opake objects." V: "The magnified diameter of a grain of sand." VI: "Box for opake objects." VII: "from fig. 1 to 6 – found in pepper water." And where the text is discussing worms: margin of p. 267: "* Birds are liable to have the tape worm, which prevents their being fat."

PROVENANCE: [I-II]: Joseph Gurney Barclay (1816-98), FRAS, a Quaker, head of Barclay's Bank, was an astronomer and the father of Francis Hubert Barclay (1869-1932), who married Hannah Maud Buxton and had 5 children. Joseph Gurney Barclay had a private observatory at the family home in Leyton, East London. This book was inscribed from the father to his son. See: "Mr. Barclay's Observatory, Leyton, Essex," MNRAS, 1876, pp. 170-171; Ken Goward, FRAS, "Joseph Barclay's Observatory At Leyton, East London." – Orwell Astronomical Society, Ipswich. [III]: Max Erb (bookplate), of The Max Erb Instrument Co., Burbank, California. Max Erb, of Max Erb Instruments, Santa Ynez, California. This company started in Burbank, California, 1954 and specializes in microscopes.

☼ *DNB*, II, pp. 929-30; *DSB*, I, pp. 410-12; Gascoigne 10868.1; Poggendorf, I, col. 91.

5. **BATES, Henry Walter** (1825-1892). AUTOGRAPH LETTER SIGNED, to [Abraham Dee?] Bartlett, on stationary of the Royal Geographical Society, London, 15, Whitehall Place, December 23, 1864. 7x4 ½ inches. 1 page. Signed by Bates. Fine.

$ 1,250

Written one year after his most important book, *The Naturalist on the River Amazons,* 1863.

Text: "Dear Bartlett, The name of the ship owners who have regular trade with Pará are / Messrs. Duarte, Potter & Co. / 2 Royal Bank Building, Liverpool. / I hear they have a vessel once a month … - I am at home every evening till Monday … H.W. Bates". See: Messrs. Edward Potter, Ricardo T Duarte, Samuel W Chaddock, W. E. Potter, 2nd January 1865. See: Estell & Co.*, The Liverpool Commercial List, 1871-1872, sixth and seventh years*. London, 1871. p.3.

"Bates and Wallace sailed from Liverpool in April 1848, arriving in Pará (now Belém) at the end of May. For the first year they settled in a villa near the city, collecting birds and insects. After that they agreed to collect independently, Bates travelling to Cametá on the Tocantins River. He then moved up the Amazon, to Óbidos, Manaus and finally to the Upper Amazon (Solimões). Tefé was his base-camp for four and a half years. His health eventually deteriorated and he returned to Britain, sending his collection by three different ships to avoid the same fate as Wallace. He spent the next three years writing his account of the trip, *The Naturalist on the River Amazons*, widely regarded as one of the finest reports of natural history travels."

"Bartlett" is almost surely Abraham Dee Bartlett (1812-1897), the British taxidermist and an expert on captive animals and birds, member of the Zoological Society of London, becoming Superintendent of the Zoological Gardens. Through this position he corresponded with other world naturalists, including especially Charles Darwin. See: A.D. Bartlett & Edward Bartlett, "Biographical notes," Wild animals in captivity, 1898.

☼ *DSB* Vol. I, pp. 500-4.

"…the finest shell illustrations ever made" – Henry A. Pilsbry

6. **BINNEY, Amos** (1803-1847). *The Terrestrial Air-Breathing Mollusks of the United States, and the adjacent territories of North America … edited by Augustus A. Gould.* Vol. III. Boston: Little, Brown, 1857. Vol. III plate volume only. 8vo. 40 pp. 90 colored plates [plates numbered, I-LXXIV, with added pls. numbered VIa, XIa, XIIIa, XXIIa, XXIVa, XXIXa, XLa, LIa, LIb, LXIIa, LXVIIa, LXVIIb, LXVIIc, and LXXIIa – with pl. XXVI mislabeled XVI]. Modern full blue morocco, paper spine label. Very good. Complete sets are rare on the market.

$ 750

"The first comprehensive treatment was that of Dr. Amos Binney, 1851-2, in a work notable for its beautiful illustrations as well as for the scholarly text." Binney and his collaborator Thomas Bland were considered the leading authorities on mollusks "up to nearly the end of the century." – Henry Augustus Pilsbry, *Land Mollusca of North America: (north of Mexico)*, (1939), page ix.

Conchologist Amos Binney, co-founder and president of the Boston Society of Natural history, was an American physician and malacologist. He died at about 44 years of age in Rome. "He devoted much time to Natural History, and accumulated the most valuable Library on that subject, in this country. He collected many valuable specimens of Sculpture and Painting. … His costly and elaborate work in three volumes, with

plates, on the *Terrestrial Air-Breathing Mollusks of the United States,* has been published by his direction, by Dr. A.A. Gould, Boston…" – Charles J. F. Binney, The History and Genealogy of the Prentice Or Prentiss Family in New England ... Boston, 1852, p. 259.

The drawings were made by Helen E. Lawson (ca.1808-1853), "Helen's drawings also made an impact upon Boston conchologist Amos Binney (1803-1847), who had undertaken a study of air-breathing terrestrial mollusks. Binney had already begun work on his plates with an artist in Boston, but upon seeing Helen's illustrations for Haldeman, he "cancelled all the drawings that had already been made for his own, and wrote at once to procure her assistance in preparing others." This volume, *The Terrestrial Air-breathing Mollusks of the United States*, was ultimately brought to completion by Gould, and it was not published until 1857, four years after Lawson's death. H.A. Pilsbry stated that he considered the plates of this volume to be the finest shell illustrations ever made." Lawson died, January 20, 1853, of tuberculosis which she contracted with year prior. Henry A. Pilsbry (1862-1957) was an authority on North American terrestrial mollusks and other subjects relating to conchology.

7. **BIOT, Jean-Baptiste** (1774-1862). *Sur les Modifications qui s'operent dans le sens de le Polarisation des Rayons Lumineux*. Paris: Imprimerie Royale, 1846 Offprint, from the Journal des Savants, 1846. Offprint. 4to. 52 pp. Original plain blue-green wrappers; edges chipped, early ink inscription on upper cover.

$ 100

On polarization of light-rays. François Arago is considered the discoverer of circular polarization in 1811, and Biot added much to his studies, finding that the rainbow was polarized. Brewster also saw a confirmation of Descartes' law and his polarizing angle.

"Laplace encouraged Biot to undertake experimental investigation of a wide range of problems, many of which constituted a deliberate extension of the Newtonian framework of science. This can be seen particularly in Biot's research on refraction, polarization of light, and sound. If we were to select any one branch of physics to which Biot made the most important contribution, the choice would be the polarization of light, but, since none of his contributions in this field occurred before 1812, it will be convenient to deal first with his varied contributions to other branches of physical science… After this review of Biot's miscellaneous contributions to science, we must turn to the field in which he did his most important work—the study of polarization of light, the research for which Biot was awarded the Rumford Medal in 1840 by the Royal Society of London. The polarization of light by reflection had been discovered by Malus in Paris in the fall of 1808. This was of fundamental importance in the history of optics, since it showed that a phenomenon that had previously been observed in a few crystalline substances, such as Iceland spar, was a general property of light. Malus's discovery opened up an entirely new field of research, and no one was stimulated more than his two associates in the Arcueil group, Arago and Biot. In August 1811, Arago announced that he had found that white light polarized by reflection could, on passing through certain crystals, be split into two differently colored beams… Biot's interpretation of his results was in terms of a repulsive force that caused polarization by acting on the particles of light. This conception was first worked out in detail in a memoir presented to the First Class on 30 November 1812. The discovery of polarization had greatly encouraged Laplace, Biot, and others who supported a corpuscular theory of light. Malus had been successful in deriving the fundamental cosine law of polarization on such a model. To explain the complementary polarization in crystalline plates, Biot developed a theory of "mobile polarization." The particles of a polarized ray were supposed to preserve their original polarization until they reached a certain depth in the crystal, when they began to oscillate around their center of gravity

so that the axes of polarization were carried alternately to each side of the axes of the crystal. The period was considered to vary with the color (as in Newton's theory of fits). When the ray emerged from the crystal, oscillation stopped, and the ray assumed "fixed polarization," in which the axes of the particles were arranged in two perpendicular directions. The theory was plausible up to a point, but Biot had considerable difficulty in accounting for the difference in the effect of thin and thick plates on polarized light. In 1841 Biot considered that he had found a new phenomenon of polarization, which was dependent on the existence of different layers in the crystal and which he called lamellar polarization." – *DSB.*

Boyle on Hydrostatics, Atmospheres, Color, Chemistry, Blood

8. **BOYLE, Robert** (1627-1691). *Opera Varia. Quorum posthac exstat Catalogus. Cum Indicibus necessariis, multisque Figuris Aeneis.* Genevae, Apud Samuelem de Tournes, 1680-88. 2 vols. Sm. 4to. Collation: Vol. 1: †^{4}, †^{4}, ††^{2}, A-V^4; ¶^{2}, a-q^4, r^2; X-Ii^4, Kk^2; Ll-Nn^4; ¶^{4}, ¶¶^{4}, a-i^4; ã^2, A-Y^4, Z^2; §^{4}, §§^{2}, a-s^4, t^2; *^{4}, **^{4}, ***^{2}, A-Y^4; Vol. 2: ã^4, A-K^4; ¶^{2}, A-K^4, L-M^2; [-]^1, A-M^4; ñ^3; A-G^4, H^1; †^{4}, ††^{4}, A-L^4; †^{4}, A-L^4, M^2; A-F^4; A-C^4; †^{4}, A-F^4; *^{4}, A-H^4; †^{4}, ††^{4}, †††^{4}, ††††^{4}, A-S^4, T^2; ¶^{4}, ¶¶^{4}, A-^{4}. Variously paginated according to section. Titles printed in red & black, frontispiece engraved portrait of Boyle, 8 plates (7 folding). Each work has a separate title page dated from 1680-1688; title vol. I with top corner torn away, scattered foxing. Original full calf, elaborate gilt-stamped spine with gilt titles; joints weakened, headcap loose, corners showing. Inscription on front endpaper: "ach. 12th 2 vol. cher anisson De Sous le Montier 1693" [tome I] and "achette cher anisson 12th - … G. De Souslemontier, les deux volumes" [tome II]. Very good.

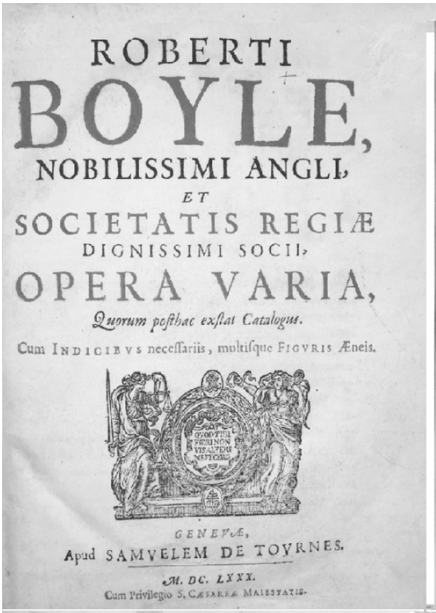
$ 2,000

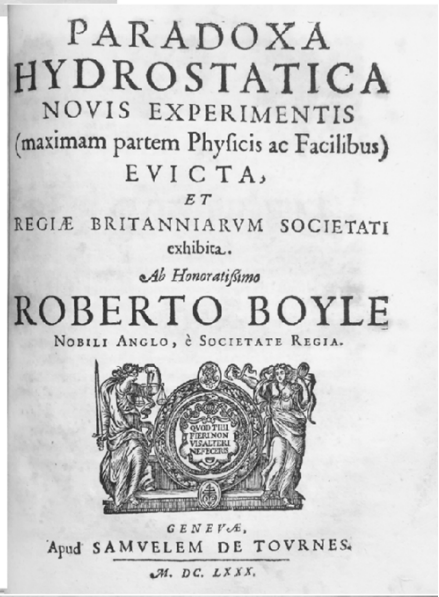
The second edition of Boyle's *Opera Varia* first issued in 1677, with added material and title pages dated up to 1688. Includes his key works such as the *Skeptical Chemist,* hydrostatics and color theory. "More or less complete Latin editions of his works were issued at Geneva in 1677, 1680, and 1714; at Cologne in 1680-95; and at Venice in 1695." – *DNB*, II, p.1030.

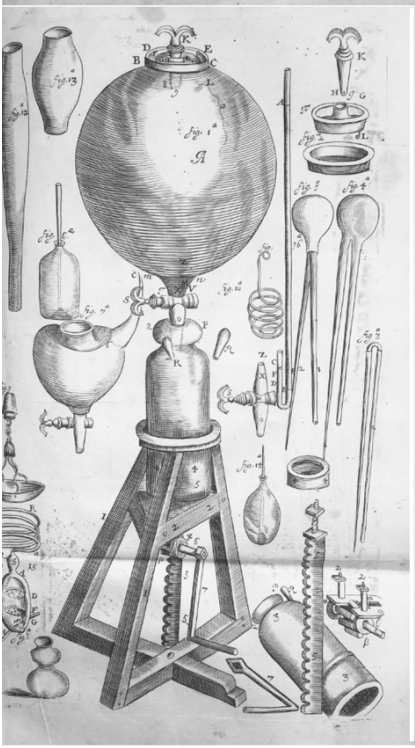
Contents [19 works]: [I:] Nova Experimenta Physico-Mechanica; Defensio Doctrinae de Elatere & Gravitate Aeris; Tractatus de Mira Aeris; Paradoxa Hydrostatica novis Experimentis; Tentamina quedam Physiologica; Chymista Scepticus; Experimentia & Considerationes de Coloribus; [II:] Introductio ad Historiam Qualitatum Particularium; Tractatus in quibus continentur Suspiciones de Latentibus Quibusdam Qualitatibus Aëris; Exercitationes de Atmosphaeris; Specimen de Gemmarum Origine & Virtutibus; Cogitationes de S. Scripturae Stylo; Apparatus ad Historiam Naturalem Sanguinis Humani; Nova Experimenta Pneumatica Respirationem Spectantia; Observationes de Salsedine Maris; Tentamen Porologicum sive Ad Porositatem Corporum tum Animalium; De Specificorum Remediorum cum Corpusculari Philosophia Concordia; Origo Formarum et Qualitatum; Tractatus de Ipsa Natura.

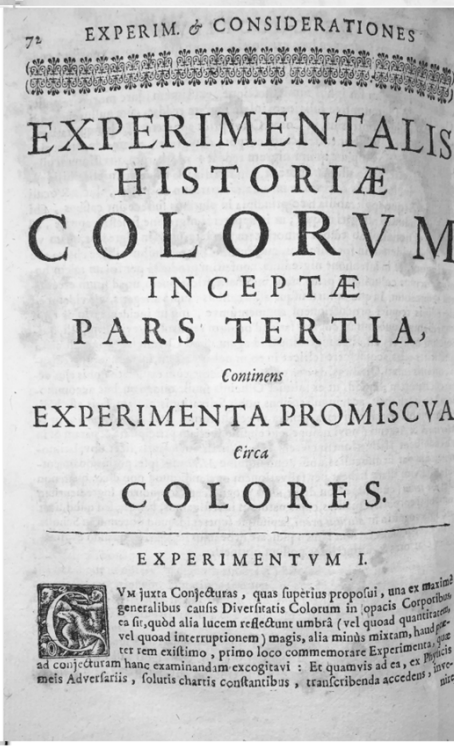
PROVENANCE: Possibly the copy of Guy René de Souslemontier (1656-1716).

"Robert Boyle (1627–1691) was born at Lismore Castle, Munster, Ireland, the 14th child of the Earl of Cork. As a young man of means, he was tutored at home and on the Continent. He spent the later years of the English Civil Wars at Oxford, reading and experimenting with his assistants and colleagues. This group was committed to the New Philosophy, which valued observation and experiment at least as much as logical thinking in formulating accurate scientific understanding. At the time of the restoration of the British monarchy in 1660, Boyle played a key role in founding the Royal Society to nurture this new view of science.


ROBERTI
BOYLE,
NOBILISSIMI ANGLI,
ET
SOCIETATIS REGIÆ
DIGNISSIMI SOCII,
OPERA VARIA,
Quorum posthac exstat Catalogus.
Cum INDICIBVS necessariis, multisque FIGVRIS Æneis.
GENEVÆ,
Apud SAMVELEM DE TOVRNES.
M. DC. LXXX.
Cum Privilegio S. CÆSAREÆ MAIESTATIS.


PARADOXA
HYDROSTATICA
NOVIS EXPERIMENTIS
(maximam partem Physicis ac Facilibus)
EVICTA,
ET
REGIÆ BRITANNIARVM SOCIETATI
exhibita.
Ab Honoratissimo
ROBERTO BOYLE
NOBILI ANGLO, è SOCIETATE REGIA.
GENEVÆ,
Apud SAMVELEM DE TOVRNES.
M. DC. LXXX.




72 EXPERIM. & CONSIDERATIONES
EXPERIMENTALIS
HISTORIÆ
COLORVM
INCEPTÆ
PARS TERTIA,
Continens
EXPERIMENTA PROMISCVA
Circa
COLORES.
EXPERIMENTVM I.
GVm juxta Conjecturas, quas superius proposui, una ex maxim
generalibus causis Diversitatis Colorum in opacis Corporibus
ea sit, quòd alia lucem reflectunt umbrâ (vel quoad quantitatem
vel quoad interruptionem) magis, alia minùs mixtam, haud pa
ter rem existimo, primo loco commemorare Experimenta, qua
ad conjecturam hanc examinandam excogitavi: Et quamvis ad ea, ex Physicis
meis Adversariis, solutis chartis constantibus, transcribenda accedens, inve
nire

☼ Fulton 247; Neu 666.

Not in Duveen, Edelstein, *Bibliotheca Tinctoria*, Ferguson, or Roy Neville.

9. **BREWSTER, Sir David** (1781-1868). *Ferguson's Lectures on Select Subjects, in mechanics, hydrostatics, hydraulics, pneumatics, optics, geography, astronomy, and dialing. With notes and an appendix. The second edition. With: Plates illustrating a new edition of Ferguson's Lectures … This American edition, carefully revised and corrected by Robert Patterson*. Edinburgh: Printed for Bell & Bradfute …, 1806. Atlas printed: Philadelphia: Mathew Carey, 1806. Mixed issues. Second edition. 2 volumes + atlas. 8vo. + 4to. lxviii, 422, [1]; x, 510, [2] pp. Index; some spotting. Original full tree calf; spine and extremities very worn. Atlas: 48 engraved plates (4 folding); some plates browned, torn, worn, covers essentially a remnant, being heavily chipped, covers off. Lacks ffep (vol. II). Atlas with ownership signatures of John F. Mansfield and Ethan Stone, January 4th, 1812. Three additional book labels from: Apprentices' Library, Ohio Mechanic' Institute Library, [and] Ohio School Library, Cincinnati. As is.

$ 150

Brewster's edition of Ferguson's lectures was a popular source for scientific learning.

PROVENANCE [for Atlas]: Ethan Stone was president of the Bank of Cincinnati, first established in 1814. He was also Justice of the Peace and a second vice-president of "The Cincinnati for the Promotion of Agriculture." He built a bridge over Mill Creek, though it was destroyed in 1822. See: Charles Theodore Greve, *Centennial History of Cincinnati and Representative Citizens*, vol. 1, Chicago, (1904), pp. 448, 475, 528, 574, 578. Captain John F. Mansfield "was thought by my parents, who were good judges, to be the most promising man they knew. He was a man of genius, a student of science, and an elegant writer … [He] was Captain of one of the two volunteer companies in Cincinnati in the spring of 1812 and became a part of the army of American General William Hull during the War of 1812, and with that army was surrendered to the British at Fort Detroit. He was seized with a fever while crossing Lake Erie and died just after his return to Cincinnati 'not of fever alone but of a broken heart.'" (p. 282).

10. **BREWSTER, Sir David** (1781-1868). *On the laws of polarization and double refraction in regularly crystallized bodies*. London: Printed by W. Rawlins, 1818. Within: Philosophical Transactions of the Royal Philosophical Society. 2 parts in 1. 4to. Brewster: pp. 199-273. [Whole volume: vi, [2], 273; 26; iv, (275)-527, [vii] pp. 23 engraved plates (some folding)]. Original full blind and gilt-stamped calf; rebacked with red and black spine labels, joints rubbed. Bookplate and embossed stamps of the Boyce Thompson Institute for Plant Research, Yonkers, New York. Very good.

$ 250

"In order to determine the laws of polarisation and double refraction, Dr. Brewster examined no fewer than *one hundred and eighty* crystals, in 160 of which he found the property of double refraction. Only *twenty-two* of these possess one axis, while about *eighty* possess two separate axes of double refraction; and since the experimental laws of double refraction and polarisation have been investigated only for crystals with one axis, the general laws of the phenomena remained undetermined. In the course of this paper, Dr. Brewster has proved that there is a constant connexion between the primitive forms of crystals, and the number of their axes, so that the latter may be predicted from the former, and that these axes are coincident with some prominent lines in the primitive forms; he has shown that the irregularities observed by M. Biot in sulphate of lime, are the legitimate and calculable results of its having two axes; he has established general laws by which the phenomena of the coloured rings, and the phenomena of double refraction, may be calculated with the utmost facility of accuracy for any given number of axes … [these are] laws founded on the principles of mechanics." – *The Annals of Philosophy*.

Additional papers [27 total] contained are: Robert Seppings, *On the great strength given to ships of war* …; Capt. James Burney, *A memoir on the geography of the north-eastern part of Asia, and on the question whether Asia and America are contiguous, or are separated by the sea*; Sir Everard Home, *Additional facts respecting the fossil remains of an animal, … the bones of the sternum resemble those of the ornithorhynchus paradoxus*; Capt. Henry Kater, *An account of experiments for determining the length of the Pendulum vibrating seconds in the latitude of London*; James Smithson, *A few facts relative to the colouring matters of some vegetables*; George Rennie, *An account of experiments made on the strength of materials*; T.A. Knight, *On the office of the heart wood of trees*; John F. W. Herschel, *On circulating functions, and on the integration of a class of equations of finite differences into which they enter as coefficients*; Sir H. Davy, *On the fallacy of the experiments in which water is said to have been formed by the decomposition of Chlorine*; E. Home, *On the changes the blood undergoes in the act of coagulation*; John Brinkley, *On the parallax of certain fixed stars*; John Davy, *On the urinary organs and secretions of some of the amphibia*; E. Home, *On a mal-conformation of the uterine system in women* …; Sir H. Davy, *New experiments on some of the combinations of phosphorus;* A. Ure, *New experimental researches on some of the leading doctrines of caloris* …; T. Greatorex, *Observations on the heights of mountains in the north of England*; J. Pond, *On the different methods of constructing a catalogue of fixed stars*; E. Home, *A description of the teeth of the Delphinus Gangeticus*; Wm. Prout, *Description of an acid principle prepared from the lithic or uric acid*; Sir Wm. Herschel, *Astronomical observations and experiments, selected for the purpose of ascertaining the relative distances of clusters of starts, and of investigating how far the power of our telescopes may be expected to reach in space, when directed to ambiguous celestial objects*; Thomas Smith, *On the structure of poisonous fangs of serpents*; J. Pond, *On the parallax of □Aquilae*; Pond, *On the parallax of the fixed stars in right ascension*; Wm. Lambton, *An abstract of the results deduced from the measurement of an arc on the meridian* …

☼ See: Gordon Brewster, Margaret Maria, *The Home Life of Sir David Brewster. By His Daughter*. Edinburgh: Edmonston and Douglas, 1869, no. 34; Thomas Thomson, *The Annals of Philosophy* …, Volume XI, Jan.-June, 1818, London, (1818), pp. 143-4.

11. **BUSCH, Emil A.G.** *Microscopes and Accessories*. Rathenow: Emil Busch, 1925. 8vo. 95 pp. Illus. Original brown printed wrappers. Very good. RARE.

$ 95

Emil Busch, (1820-1888), was an instrument maker who specialized in cameras and used Zeiss lenses, achieving much success. Objectives & eyepieces, Objective Changing Appliances, Illuminating Appliances (mirrors, diaphragms, condensers, apparatus), Dark Ground Illumination, Illumination of Opaque Objects, Stages, Stands, Microscopes, Dissecting apparatus, Photo-micrographic apparatus, projection microscope, metallurgical microscopes, microscope lamps, polarizing apparatus, reversing prism, drawing apparatus, sundries.

12. **Bausch & Lomb Optical Co., Rochester, NY**. *Microscopes and Accessories*. Rochester: Bausch & Lomb, 1900. 8vo. 186 pp. Numerous illustrations. Original green cloth, titles in brown and gilt; extremities worn, soiled covers. Signature of Prof. Albert Sauveur.

$ 75

PROVEANCE: Albert Sauveur (1863-1939) was an American Metallurgist, originally from Belgian. He studied at Athénée Royal in Brussels, then the School of Mines, Liege and graduated at the Massachusetts Institute of Technology in 1889. Sauveur founded the first metallographic laboratory in a university. From 1924 to 1939, he held the Gordon McKay Professor of Mining and Metallurgy title at Harvard University. – Wikip.

13. **BUSH, Vannevar** (1890-1974). "As we may think" Contained in: *The Atlantic Monthly*, Vol. CLXXVI, No. 1, July 1945, pp. 101-8. Boston: Atlantic Monthly Co., 1945. ¶ 4to. 129 pp. Original maroon & gold printed wrappers; small hole on spine (with minor loss), overall some wear, creasing. Six rubber-stamped dates on p.1. Generally very good.

$ 800

FIRST EDITION. In this article, "As we may think", Bush introduced the concept of what he called the memex during the 1930s, which is a microfilm-based "device in which an individual stores all his books, records, and communications, and which is mechanized so that it may be consulted with exceeding speed and flexibility. It is an enlarged intimate supplement to his memory." He wanted the memex to behave like the "intricate web of trails carried by the cells of the brain"; essentially, causing the proposed device to be similar to the functions of a human brain. The important feature of the memex is that it ties two pieces together. Any item can lead to another immediately. After thinking about the potential of augmented memory for several years, Bush set out his thoughts at length in the essay "As We May Think" in *The Atlantic Monthly*, which was published July of 1945. In the article, Bush predicted that "*Wholly new forms of encyclopedias will appear, ready made with a mesh of associative trails running through them, ready to be dropped into the memex and there amplified.*"

An associative trail as conceived by Bush would be a way to create a new *linear* sequence of microfilm frames across any arbitrary sequence of microfilm frames by creating a chained sequence of links in the way just described, along with personal comments and *side trails*. At the time Bush saw the current ways of indexing information as limiting and instead proposed a way to store information that was analogous to the mental association of the human brain: storing information with the capability of easy access at a later time using certain cues (in this case, a series of numbers as a code to retrieve data). The closest analogy with the modern Web browser would be to create a list of bookmarks to articles relevant to a topic, and then to have some mechanism for automatically scrolling through the articles (for example, use Google to search for a keyword, obtain a list of matches, and then use "open in new tab" in your browser and visit each tab sequentially). Modern hypertext systems with word and phrase-level linking offer more sophistication in connecting relevant information, but until the rise of wiki and other social software models, modern hypertext systems have rarely imitated Bush in providing individuals with the ability to create personal trails and share them with colleagues - or publish them widely. [Wikipedia].

Vannevar Bush was an American engineer and science administrator known for his work on analog computing, his political role in the development of the atomic bomb as a primary organizer of the Manhattan Project, and the idea of the memex, an adjustable microfilm-viewer which is somewhat analogous to the structure of the World Wide Web. As Director of the Office of Scientific Research and Development, Bush coordinated the activities of some six thousand leading American scientists in the application of science to warfare.

This half-year of *The Atlantic Monthly* covers the period of the end of World War II. In addition to many war-related articles (chief of which is *Einstein on the atomic bomb*), there are two chapters of Betty MacDonald's *The egg and I*, and Gannett's article, *John Steinbeck: Novelist at work*.

☼ Norman, *Origins of cyberspace* 519. [S11759]

14. **DANA, Edward Salisbury** (1849-1935). *The System of Mineralogy … Descriptive Mineralogy. Sixth edition. With First [Second, Third] Appendix …* New York: John Wiley & Sons, 1920, 1914. Thick 8vo. lxiii, 1134, x, 75, x, 114, xiii, 87 pp. Over 1400 illustrations, index. Original quarter gilt-stamped leather, black cloth; joints starting. Very good +.

$ 75

Sixth edition. The preface justifies the printing of a new edition, the first in nearly 24 years, made at a time of increased scholarship and research in the field of mineralogy, resulting in much new information. Dana, a prominent American mineralogist and physicist, became an editor of the *American Journal of Science* in 1875 and continued to direct it until 1926. His was known for his work in crystallography. In 1884 was elected a member of the National Academy of Sciences.

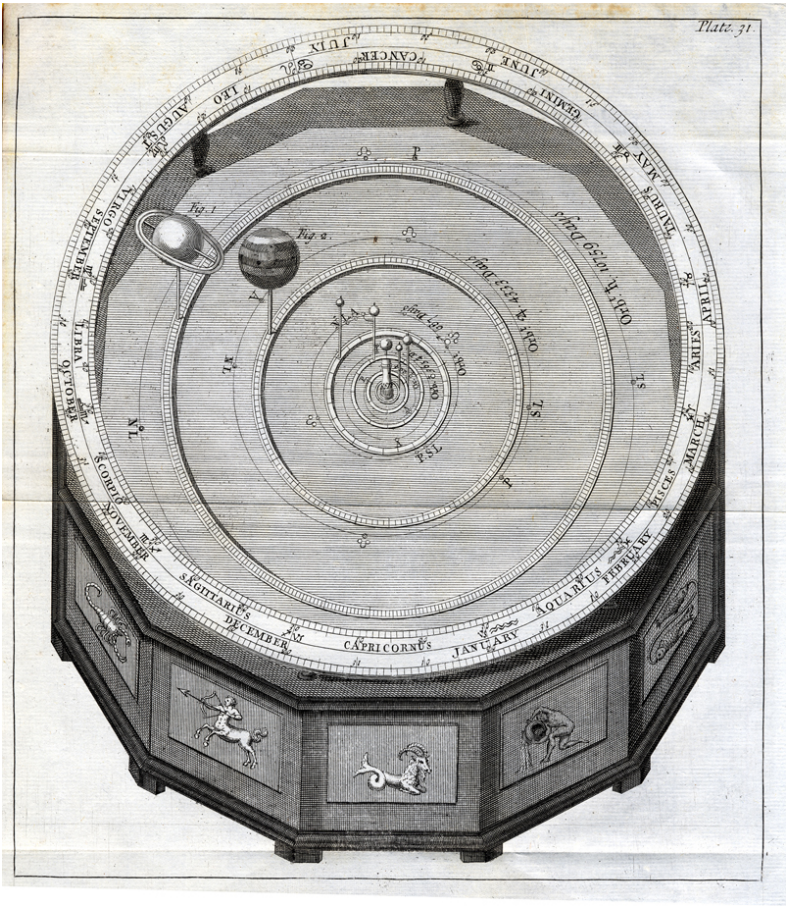
One of Those Responsible for Popularizing Newton

15. **DESAGULIERS, John Theophilus** (1683-1744). *A Course of Experimental Philosophy*. London: Printed for John Senex; Printed for W. Innys … M. Senex, 1734, 1744. 2 volumes. 4to. [xxiv], 463, [1], [xii]; xv, [1], 568, [viii] pp. 32 + 46 [=78] engraved plates. Subscriber's list, indexes. Original calf, raised bands, gilt spine compartments, leather spine labels; joints reinforced with kozo. Very good. RARE.

$ 3,800

First edition. This is the expanded complete work that was promised in the author's preface of 1717 where a select group of lectures were issued. For this see: *Physico-mechanical lectures*, 1717. (80 pp. and 78 plates). Desaguliers was, in fact, the chief designer of experiments for the Royal Society, something which he devoted his life work towards. Many of these experiments were oriented towards optics and mechanics, and then later to electricity. "It was Desaguliers who popularized the demonstrative experiments to the public … 'Without Observations and Experiments, he wrote in the preface to the first volume of his *Course of Experimental Philosophy* (1734), 'our natural Philosophy would only be a Science of Terms and an unintelligible jargon.' By deliberate choice he demonstrated to the eye not only things discovered by experiment but also those 'deduc'd by a long Train of mathematical consequences; having contrived Experiments, which step by Step bring us to the same Conclusions,' for he recognized that the Newtonian philosophy was not accessible to all through mathematics. Thus Desaguliers occupies a leading position (along with Keill, Pemberton, and Maclaurin) among those who gave Newtonian science its ascendancy in eighteenth-century England." – Hall, p. 45.

"John Theophilus Desaguliers, Huguenot émigré, priest, freemason, engineer and natural philosopher, was both a protégé and promoter of Newton. An Oxford graduate and popular lecturer, he became Newton's experimental assistant in 1713, and a fellow of the Royal Society in 1714. Desaguliers promoted Newtonianism in various settings, and for various ends. Within the Royal Society, he devised new experiments to defend several of Newton's claims (for instance, concerning the shape of the earth) against French critics. His skill as an experimental demonstrator also helped establish him within the competitive world of commercial lecturing. His popular lectures, intended to demonstrate Newtonian propositions to a non-academic audience, provided the basis of several publications. Desaguliers' natural philosophical credentials were also useful in obtaining patronage: he performed experiments for the royal family, and his allegorical poem, The Newtonian System (1728), compared the certainty and stability of Newton's universe with that of the Hanoverian monarchy." – Whipple Library.



"One of Desaguliers' lectures concerned Isaac Newton's recently established three laws of motion. He also used a planetarium, or orrery, to visualise the motion of the heavenly bodies in our solar system according to the Copernican system. By turning a crank the planets and Earth are set in motion around the Sun." [See: plate 31, vol. I] – *Museum of the History of Science.*

"DESAGULIERS, JOHN THEOPHILUS (1683–1744), natural philosopher, son of Jean Desaguliers, pastor of a protestant congregation at Aitré, was born on 13 March 1683 at La Rochelle. On the revocation of the edict of Nantes in 1685 his father fled to England, bringing with him John Theophilus. The latter, it has been said, was concealed in a barrel, and thus carried on board the Refugee vessel. As a boy he read classics with his father, who, after a brief residence in Guernsey, became minister of the French chapel in Swallow Street, London, and kept a school at Islington, with his son as assistant. After his father's death Desaguliers matriculated from Christ Church, Oxford. Here he took the degree of B.A., and entered into deacon's orders in 1710, in which year he was also appointed successor to Dr. Keil as lecturer on experimental philosophy in Hart Hall. He followed the method adopted by his predecessor, and lectured on hydrostatics, optics, and mechanics. On 3 May 1712 he proceeded M.A., and in the

following year took up his residence in Channel Row, Westminster, and there continued his lectures. In July 1714 he was elected a fellow of the Royal Society, and invited to become their demonstrator and curator. He was held in great esteem by Sir Isaac Newton, then president of the society, and became chaplain in the same year (1714) to the Duke of Chandos, who presented him with the living of Stanmore Parva, or Whitchurch, Middlesex. In 1717 he lectured before George I, who rewarded him with a benefice in Norfolk, worth 70l. a year, which was afterwards exchanged for a living in Essex on the presentation of George II. About this time he was appointed chaplain to Frederick, prince of Wales. On 16 March 1718 he completed his degrees at Oxford as bachelor and doctor of laws. In February 1741–2 he received the Copley gold medal from the Royal Society in acknowledgment of his successful experiments. When old Westminster Bridge was built (1738–9) his opinion on the structure was often sought, but his house with Channel Row had to be pulled down. Desaguliers removed to a lodging in Bedford Coffee-house, over the great piazza in Covent Garden, where he continued his lectures with great success until his death on 29 Feb. 1744. He was buried in the Savoy on 6 March following. In personal appearance he was unattractive, short and thickset, of irregular features, and extremely near-sighted. He was a member of the Gentlemen's Society at Spalding (Nichols, Lit. Anecdotes, vi. 81). He is said to have been the first to deliver learned lectures to the general public. His lectures were attended by the most learned men of the day, and were made interesting by skilful experiments. In a journey through Holland his lectures likewise attracted the attention of men like Huyghens and Boerhaave. He was the inventor of a machine called the planetarium, which served to determine the exact distances of the heavenly bodies according to the systems of Newton and Copernicus. He also erected a ventilator, by order, in a room over the House of Commons. Desaguliers contributed a vast number of papers on light, colours, the barometer, &c., to the 'Philosophical Transactions,' a list of which is to be found in Maty's index to the 'Philosophical Transactions.' James Cawthorn, in his poem 'The Vanity of Human Enjoyments,' credits Desaguliers with poverty at death. A portrait is in Nichols's 'Anecdotes,' ix. 640–1. He left three sons, of whom John Theophilus (1718–1752) was vicar of Cratfield and Lexfield, Suffolk. Thomas, the youngest, is separately noticed." – *DNB*.

☼ *DSB*, IV, pp. 43-46, by A. Rupert Hall.

Pioneer research with viral T4 bacteriophage

16. **EDGAR, Robert S.; Richard P. FEYNMAN** [no.8]. [Total: 13 offprints] [1] EDGAR, R. S. & W. B. WOOD. *Morphogenesis of bacteriophage T4 in extracts of mutant-infected cells*. Offprint from: *Proc. Nat. Acad. Sci*., Vol. 55, No. 3, March 1966. pp. 498-505. Self-wraps. Communicated by Max Delbrück. Fine. [2] EDGAR, R. S. *Phenotypic properties of heterozygotes in the bacteriophage T4*. Offprint from: *Genetics*, Vol. 43, No. 2, March 1958. pp. 235-248 Self-wraps. [3] EDGAR, R. S. & C. M. STEINBERG. *On the Origin of High Negative Interference over Short Segments of the Genetic Structure of Bacteriophage T4*. Offprint from: *Virology*, Vol. 6, 1958. pp. 115-128. Self-wraps. [4] EDGAR, R. S. *Mapping Experiments with rII and h Mutants of Bacteriophage T4D*. Offprint from: *Virology*, Vol. 6, 1958. pp. 215-225. Self-wraps. [5] EDGAR, R. S. & F. H. EPSTEIN. *Inactivation by Ultraviolet Light of an Acriflavine-Sensitive Gene Function in Phage T4D*. Offprint from: *Science*, Vol. 134, No. 3475, August 4, 1961. pp. 327-8. Self-wraps. [6] STEINBERG, C. M., & R. S. EDGAR. "On the Absence of High Negative Interference in Triparental Crosses." Offprint from: Virology, vol. 15, no. 4, 1961. [New York]: Academic Press, 1961. 8vo. 511-512 pp. Single leaf. Fine. [7] HARTWELL, Leland H. *An Upper Limit to the Map Distance Separating the Two Cistrons of the rII Region of Bacteriophage T4B*. Offprint from: *Virology*, Vol. 15, No. 4, December 1961. pp. 510-11. Self-wraps. [8] EDGAR, R.

S., R. P. FEYNMAN, S. KLEIN, I. LIELAUSIS & C. M. STEINBERG. *Mapping experiments with r Mutants of Bacteriophage T4D*. Offprint from: *Genetics*, Vol. 47, No. 2, February 1962. pp. 179-186. Self-wraps. [9] STEINBERG, C. M. & R. S. Edgar. *A critical test of a current theory of genetic recombination in bacteriophage*. Offprint from: *Genetics*, Vol. 47, No. 2, February 1962. pp. 187-208. Self-wraps. [10] EDGAR, R. S., G. H. DENHARDT & R. H. EPSTEIN. *A comparative genetic study of conditional lethal mutations of bacteriophage T4D*. Offprint from: *Genetics*, Vol. 49, No. 4, April 1964. pp. 635-648. Self-wraps. [11] EDGAR, R. S. & I. LIELAUSIS. *Temperature-sensitive mutants of bacteriophage T4D: Their isolation and genetic characterization*. Offprint from: *Genetics*, Vol. 49, No. 4, April 1964. pp. 649-662. Self-wraps. [12] EDGAR, R. S. & R. H. EPSTEIN. *Conditional lethal mutations in bacteriophage T*. Offprint from: *Genetics Today*, Proc. of the XI Int'l. Congr. of Genetics, 1964. Self-wraps. Ink initials of Norman H. Horowitz. [13] EDGAR, R. S. *The Bacteriophage Chromosome*. Offprint from: the *National Cancer Institute Monograph No. 18, Genes and Chromosomes,* 1965. pp. 67-77. Self-wraps. Pencil initials of Norman H. Horowitz. [Various of these papers in in collaboration with] G. H. Denhardt, F. H. Epstein, R. P. Feynman, Leland H. Hartwell, S. Klein, I. Lielausis, C. M. Steinberg, W. B. Wood.]

$ 500

Robert ["Bob"] S. Edgar, known for his work with bacteriophage T4, studied under Dr. August H. Doermann at Stanford University, initially went to study the mechanism of recombination in bacteria at the Institut Pasteur, Paris, was later associated with the Dept. of Biology, University of Rochester, NY, University of California-Santa Cruz, and the Division of Biology, California Institute of Technology, Pasadena (thus the Richard Feynman connection). He worked with Norman H. Horowitz, had his own lab, and was a leader in the field of human microbiology and human genetics. He retired ca. 1990.

17. **EVELYN, John** (1620-1706); **Alexander HUNTER**. *Silva: or, a discourse of forest-trees, and the propagation of Timber in his Majesty's Dominions: … Together with an historical account of the sacredness and use of standing groves*. York: Printed by A. Ward, for J. Dodsley,… 1776.

4to. [lvi], 649, [ix] pp. Engraved frontispiece portrait of the author (signed by F. Bartolozzi), 40 copper-engraved plates by John Miller (1 double-page plate included), letterpress folding table, subscribers list, index; large waterstain affecting half the volume. Original full calf, elaborate gilt-stamped spine and gilt ruled borders; joints reinforced with kozo, extremities worn. Ownership signatures of Henry J. Baxter, Norwich; Heynes Hardwicke, [Esq., of Saxlingham, Norfolk Co.] 1869. Good copy of what was originally a deluxe binding.

$ 575

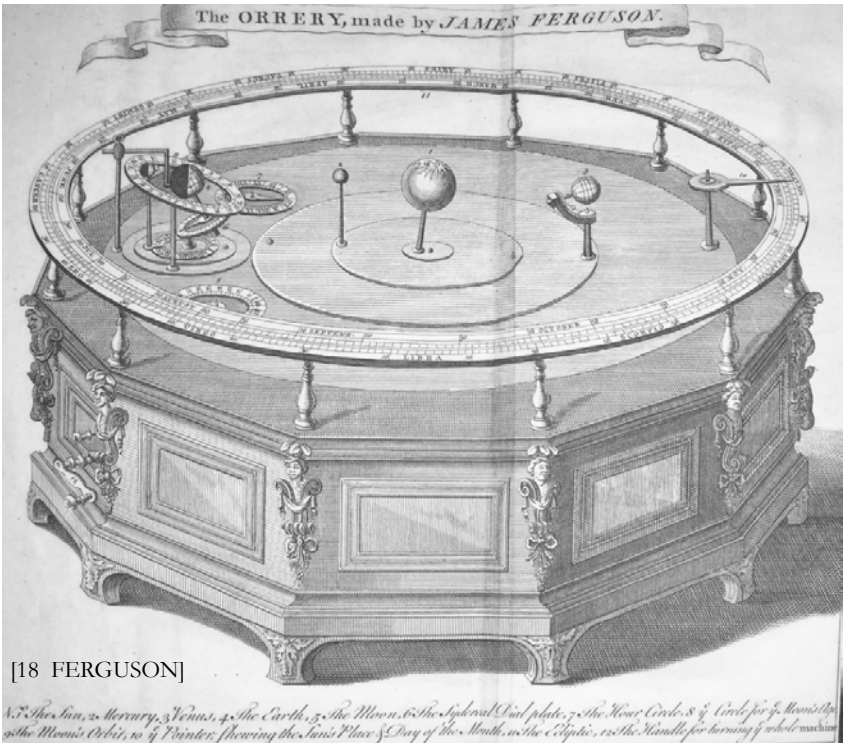
First Hunter edition, with notes by Alexander Hunter, M.D., F.R.S., including a life of the author. First published in 1664 this gentleman's account of the forest trees commonly found in Britain, also anticipates the fashion of the walking tour, the picturesque and the appreciation of nature that became so popular with the period of this issue in 1776 through the end of the 18th century.

"John Evelyn …, another of the early Fellows of the Royal Society, was responsible for the first important book to be published in this country on forest trees." (p. 101). "Seventy years after Evelyn's death a new edition of *Sylva* was published, with extensive notes by Dr. Alexander Hunter of York. Four further editions of this were issued in 1786, 1801, 1812, and 1825 respectively. ¶ There can be little doubt that, throughout the period covered by the present *History*, no other work on arboriculture exerted a greater influence on forestry in this country than Evelyn's *Sylva*, and certainly no other book on the subject was so often quoted." (p. 108.) "Hunter's 're-publication of the

Sylva revived the ardour which the first edition had excited…" (p.110). "The Hunter edition of *Sylva* (spelt *Silva*), a handsome quarto volume with extensive notes to bring it up to date and illustrated with a number of whole-page engravings, was published by private subscription, and the long list of several hundreds of subscribers indicates the wide interest in the work by persons and institutions ... The numerous whole-page illustrations depicting the foliage, flower, and fruit of the trees described are drawn and engraved by John Miller, otherwise Johann Sebastian Miller, the noted eighteenth-century botanical draughtsman and engraver. The excellence of these figures resulted in their being used to illustrate later works on silvi-culture, even up to the present day…" (p. 111) – Henrey, vol. I.

PROVENANCE: Henry J. Baxter, Norwich was born in 1851, his mother named Harriet Butterfaul. Roger Heynes Hardwicke, M.R.C.S., born in Devon Nov, 21 1815, baptized 1816, the sixth son of William Hardwicke of Diamond Hall, lived in Saxlingham, Norfolk Co., married Eleanor Murray Hardwicke in 1843. In 1857 he has the title of surgeon. His residence was at Hill House. His name shows up related to medicine in various medical journals, usually without "Roger". In 1848 he is listed as surgeon to the Depwade Union. His title was Medical Officer of Health for Guiltcross. They had a daughter (who died young) and two sons. See: *The Reliquary and Illustrated Archaeologist,: A Quarterly* ... London: Bemrose & Sons, 1883, vol. XXIII, pp. 238-39.

☼ *DNB*; Geoffrey Keynes, *John Evelyn: a Study in Bibliophily, with a Bibliography of His Writings*, Oxford, (1968), 47; Blanche Henrey, *British Botanical and Horticultural Literature*, London, (1975), 137; Nissen BBI 615.

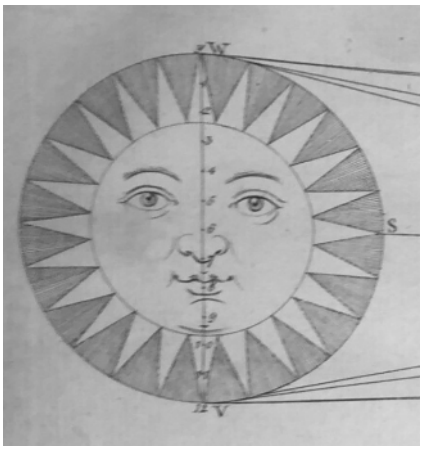


[18 FERGUSON]

18. **FERGUSON, James** (1710-1776). *Astronomy Explained Upon Sir Isaac Newton's Principles, and made easy to those who have not studied mathematics*. London: Printed for, and sold by the Author, 1757. 4to. [viii], 283, [8, 1] pp. 14 engraved plates (including folding frontispiece), directions to the binder (final leaf). Original full calf, brown leather label; joints broken, cords holding. Good.

$ 1,000

SECOND EDITION (first issued in 1756 and issued in many subsequent editions). This is the work, his first major book, considered by many to be Ferguson's greatest. "It at once took a high position, and, for a great many years, superseded all other treatises on Astronomy. It still continues to be held in high esteem…" – p. 215. "This is one of the earliest and most successful attempts to explain Newton's ideas in popular terms." – Babson.



Includes the striking image, being the folding frontispiece engraving of "The Orrery Made by James Ferguson." Henderson writes, "Ferguson gives a large folding engraving of the exterior of this Orrery, and with great minuteness describes its external parts, its motions, phenomena, &c., but says nothing about the internal mechanism by which so many astronomical particulars were exhibited; his not having done so was the cause which induced the public of that day to consider this Orrery "*a mechanical puzzle and a paradox*." Few could account for so many astronomical motions and phenomena being produced by four-wheels only, and that too without the aide of a pinion or a screw." – p. 99.

"Ferguson's '*Astronomy explained on Sir Isaac Newton's Principles'* was published in July 1756, and met with immediate and complete success. The first issue was exhausted in a year; the thirteenth edition, revised by Brewster, appeared in 1811, and the demand for successive reprints did not cease until ten years later." – *DNB*.

James Ferguson (1710-1776), the multifaceted Scottish astronomer, who is also a philosophical lecturer, instrument, clock and globe maker, with "significant interests in electricity, mechanics, horology and chronology." Though schooled only for a mere three months, this remarkable man contributed much to astronomy and scientific instrumentation in the mid-18th century.

☼ Babson II, 10; 58 (for the 1764 Third Edition--the Second Edition not listed); *DNB*; Gray 75; Ebenezer Henderson, *Life of James Ferguson, in a brief autobiographical*, 1870; Houzeau and Lancaster 8879; Millburn, John R., *A*

Bibliography of James Ferguson, FSR (1719-1776); Hockey, Thomas. *The Biographical Encyclopedia of Astronomers*, 2009; Wallis 752; Rothman, Patricia, By 'The Light of His Own Mind': The Story of James Ferguson, Astronomer." Notes Rec., Royal Society, London, 54 (1), 33–45 (2000).

"His Greatest Work" in the field of Optics

19. **GAUSS, Carl Friedrich** (1777-1855). *Dioptrische Untersuchungen*. Göttingen: Druck und Verlag der Dieterichschen Buchhandlung, 1841. 4to. [ii], 34, [1] pp. Contemporary German paste-paper board boards. Small rubber-stamp on verso of title: Biblioteka[?] … Breslau. Fine – attractive copy.

$ 3,000

Gauss's last significant scientific contribution and has been called his greatest work by his scientific biographer Clemens Schafer (1878-1968). [See: Gauss, *Werke*, 1929]. In this work Gauss gives the first systematic analysis on the formation of images under a paraxial approximation (Gaussian optics).

"By far Gauss' greatest achievement in the field of optics was his *Dioptrische Untersuchungen ,* which appeared in 1840. According to his own claim he had possessed the results for forty or forty-five year, but had always hesitated to publish such elementary meditations. A work of Bessel on the determination of the focal distance of the Königsberg heliometer objective gave him the impetus necessary to publications. [Bessel made an error in calculation]. *Dioptrische Untersuchungen* treats the problem of pursuing the course of a ray of light through a centered system of refracting spherical surfaces. The equations of the ray before the first refraction are to be set in relation to the equations of the ray after the last refraction, that is, the coefficients of the latter equations are to be deduced from those of the former. ¶ In the *Dioptrische Untersuchungen* there are data on the construction of the image when the principal points and foci of the system are given, and finally formulas for a simple lens of nonvanishing thickness are given. Bessel's determination of the focal distance of the Königsberg heliometer objective was examined. While Bessel estimated the error of this result at 1/75,000, Hauss showed that it amounted to 1/1,300. ¶ Gauss wrote in unpublished notes that reflections on spherical surfaces are to be incorporated into his theory by making the index of refraction negative. The light rays fall on a lens, are refracted the first time on the front surface, reflected at the rear surface, and refracted again at the front surface. His formulas indicate principal points and foci for this case. ¶ The *Dioptrische Untersuchungen* emphasized that the position of the principal points and foci depends on the index of refraction of the lenses of the system, that is, it varies from wave length to wave length, and that in general chromatic aberration occurs. For achromatism he demanded that all parallel rays independently of color coverage at one point, that is, not only such as are parallel to the axis, but such as are inclined to it. In the usual achromatic objectives, in which lenses are close to each other, these conditions are approximately fulfilled, but not in the case of dialytic objectives. This explains why Gauss had doubts about the dialytic principle. ¶ Gaussian dioptrics represents the perfection of those investigations which relate to central rays

(Paraxial rays), that is, to the point by point projection of means of narrow pencils of rays. In the century which has passed, practically nothing has been added to the Gaussian theory." – G. Waldo Dunnington, Jeremy Gray, Fritz-Egbert Dohse, *Carl Friedrich Gauss: Titan of Science,* The Mathematical Association of America, 2003, p.171.

"In the same year he finished *Dioptrische Untersuchungen* (1841), in which he analyzed the path of light through a system of lenses and showed, among other things, that any system is equivalent to a properly chosen single lens. Although Gauss said that he had possessed the theory forty years before and considered it too elementary to publish, it has been labeled his greatest work by one of his scientific biographers (Clemens Schäfer. in *Werke*, XI, pt. 2, sec. 2, 189 ff.). In any case, it was his last significant scientific contribution." – Kenneth O. May, *DSB,* V, pp. 298-315.

Gauss (1777-1855), German mathematician, ranks as one of the greatest geniuses in the history of mathematics. His wide-range of contributions to science includes number theory, algebra, statistics, analysis, differential geometry, geodesy, geophysics, mechanics, electrostatics, astronomy, matrix theory, and optics. Sometimes referred to as the *Princeps mathematicorum* (Latin, "the Prince of Mathematicians" or "the foremost of mathematicians") and "greatest mathematician since antiquity," Gauss had an exceptional influence in many fields of mathematics and science and is ranked as one of history's most influential mathematicians. – Wikip.

☼ Haskell F. Norman, 884.

With 7 Original Microphotographs

20. **GERLACH, Joseph von** (1820-1896). *Die Photographie als Hülfsmittel Mikroskopischer Forschung*. Leipzig: Wilhelm Engelmann, 1863. 8vo. viii, 86, [2] pp. Half title, 9 figures, 7 original albumen photographs mounted on 4 stiff plates. Original printed wrappers; joints split, edges chipped. Good +.

$ 1,850

First printing. Joseph von Gerlach (1820-1896), a famous and respected histologist Professor of Anatomy and Physiology at Erlangen. This is considered the first instructional manual for photomicrography. He was one of the first medical researchers who used microphotography for their scientific aims in basic tissue research. "Already in 1863, Gerlach published a famous handbook on the methodology of the microphotographic technique, entitled *Die Photographie als Hülfsmittel mikroskopischer Forschung*. Here, he discussed the technological, practical and epistemological standards and constraints of the newly introduced visualization technique of scientific photography… some of the most important arguments put forward by some of his peers are closely compared and thoroughly scrutinized. These anatomical and biological microscopists objected frequently to Gerlach's photographic approach as being "unscientific" or "insufficient" to support the growth of experimental morphology and neurohistological research. In his scientific self-defense, Gerlach developed important auxiliary arguments that display many facets of the epistemological discourse of 19th-century medical research, particularly on the question of how scientific objects should be visualized and identified in the experimental laboratory." – Stahnisch.

☼ Frank Stahnisch, "Die Photographie als Hülfsmittel mikroskopischer Forschung? Joseph von Gerlach (1820-1896) und die frühen anatomischen Mikrophotographen," in: *Berichte zur Wissenschaftsgeschichte*, vol. 28, #2, June, 2005, pp. 135-50.

Zeitlinger: "Rare"

21. **GIOVANNI MARIA DELLA TORRE, somasque Le P.** (1710-1792). *Nuove Osservazioni Microscopiche, del P. D. Giovanni Maria Della Torre…* Naples: Con Licenza de' Superiori, 1776. Sm. 4to. viii, 135, [1] pp. Title vignette, 14 folding engraved plates, index. Contemporary quarter gilt-stamped calf, gilt spine titles, marbled boards; bds. freckled. Very good.

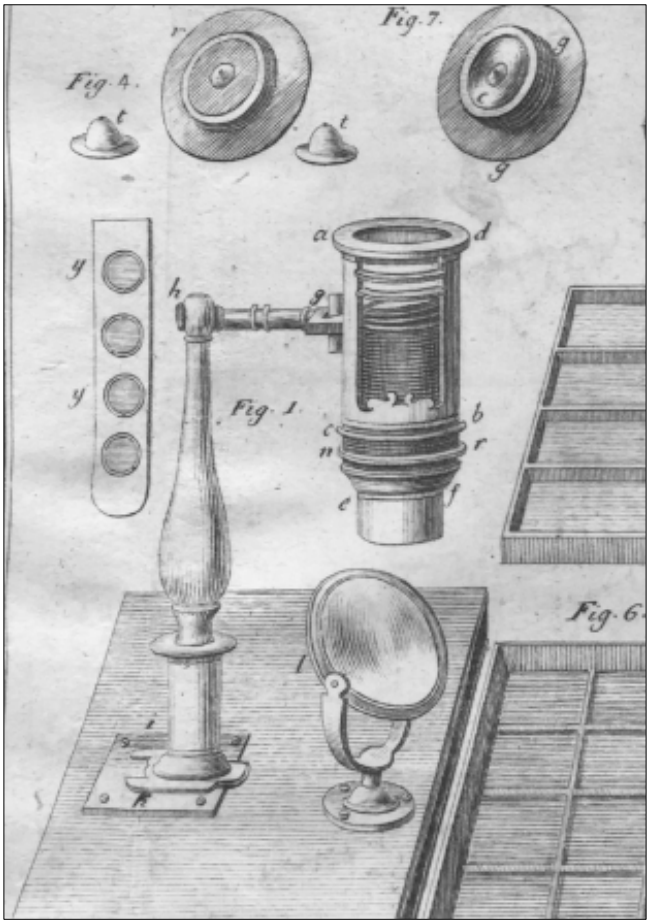
$ 1,250

First edition. Of interest for microscopy, instrument makers, neurologists and hematologists. The first two plates depict images of Della Torre's microscope.


NUOVE
OSSERVAZIONI
MICROSCOPICHE
DEL
P. D. GIOVANNI MARIA
DELLA TORRE
C. R. Somasco.
IN NAPOLI MDCCLXXVI.
Con Licenza de' Superiori.

Selected contents: Vinegar (p.47), Preserves (p.47), of animals & vegetables (p.48/50, the caterpillar (p.51), butterflies and their wings (p.52), silkworms (p.53), grasshopper (p.54), snake skin (p.55), brain (pp.56-62), nerves (p.63), retina (p.65), eye lens (p.66), lungs (p.72), colon & rectum (pp.73-4), peritoneum (p.74), testicles (p.77), tunica vaginalis testis membrane (p.77), etc.

Della Torre is one of a group of globalists including Leeuwenhoek, F.G.F. Fontana, J. Procháska, and M. Neuburger. "The globule was an optical illusion, spherical in form, with a bright center and a dark outline, and due to the optical aberrations of crude lens systems. Nevertheless, descriptions of them have deceived those investigating early microscopy…" – see: Edwin Clarke, L. S. Jacyna, *Nineteenth-Century Origins of Neuroscientific Concepts*, (1992), p. 387.

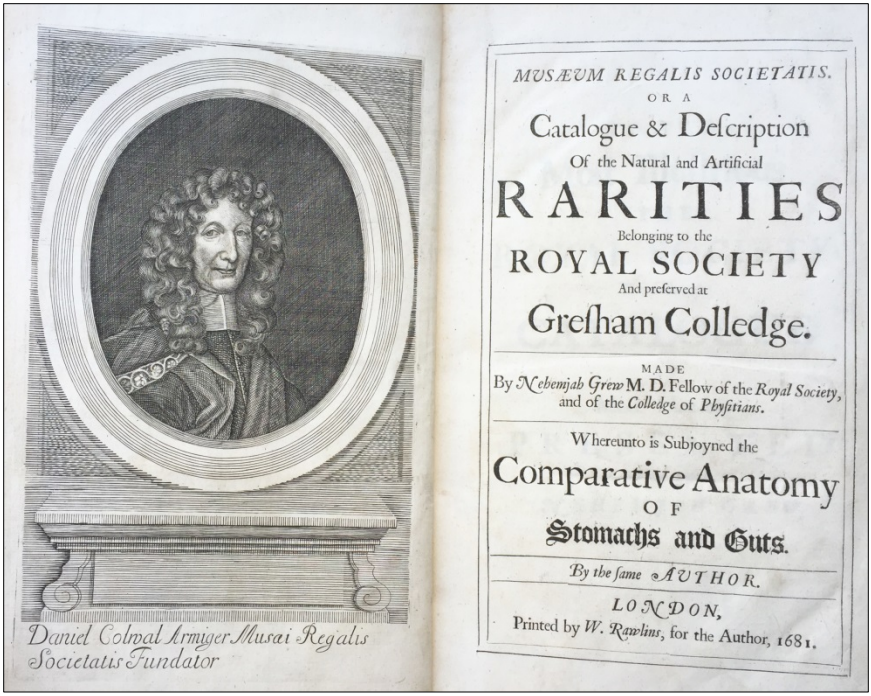


"According to Della Torre, these globules differ in volume and transparency in all parts of the nervous system; the largest being found in the cerebrum so called, the next in size are those of the cerebellum, while those of the medulla oblongata are still smaller, although larger than those of the medualla spinalis; the smallest and most opaque are found in the nerves; even in these they vary in size, diminishing continually from the origin of the nerves to their terminations…" – Johann Friedrich Meckel, *Manual of Descriptive and Pathological Anatomy*, Volume 1, (1832). p. 155.

"In Naples, interest in the microscope dated back to 1640 and was later shared by Somascan friars. Frà Giovanni Maria Guevara succeeded in making spherular lenses by the early 1740s, and building microscopes. Along with other friars and scholars, Father Giovanni Maria Della Torre improved spherules and built simple microscopes in the early 1750s. With his observations of red blood cells appearing as a ring divided into six sacs, Della Torre launched a quarrel in the 1760s which involved scholars from most countries of Europe. During the 1770s, new enthusiasts of the microscope appeared, such as Barba, Macri and the optician Father Mazzola who both made spherules. " – Dr. Marc J Ratcliff, *The Quest for the Invisible: Microscopy in the Enlightenment*, (2013), pp. 95-6.

See: Alfred Norman Disney, Cyril Francis Hill, Wilfred E. Watson Baker, *Origin and Development of the Microscope: As Illustrated* ... (1928).

☼ Zeitlinger, *Sotheran's Price Current of Literature*, [1915], 15319 – "Rare".



First of the Scientific Cabinets of Curiosities

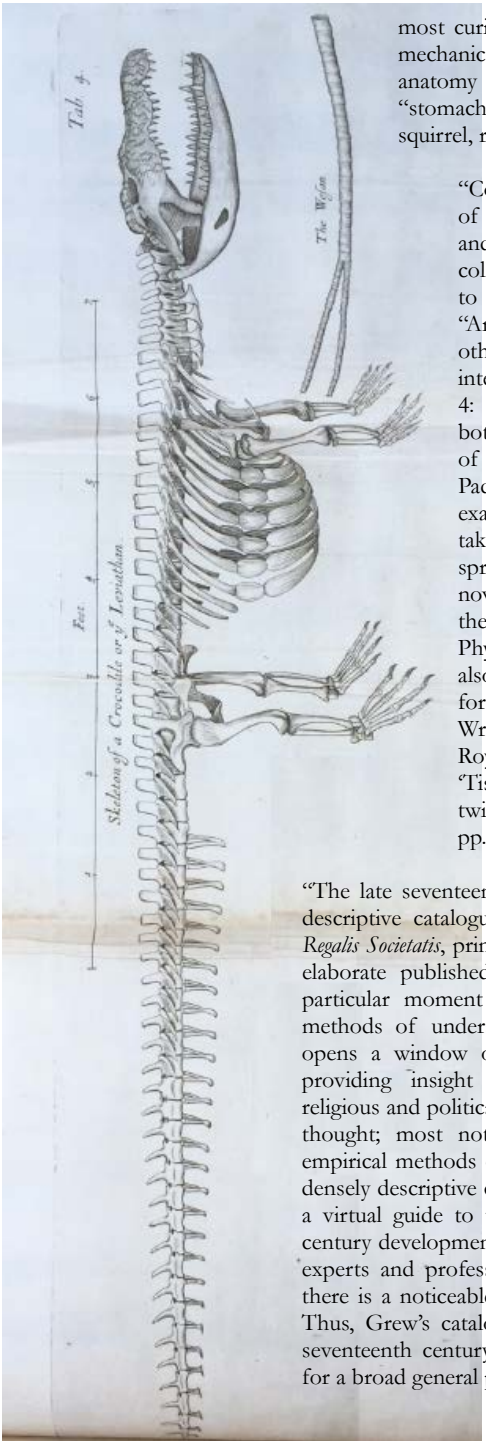
22. **GREW, Nehemiah** (1641-1712). *Musaeum Regalis Societatis. Or a Catalogue & Description of the Natural and Artificial Rarities Belonging to the Royal Society and preserved at Gresham Colledge. Whereunto is Subjoyned the Comparative Anatomy of Stomachs and Guts.* London: Printed by W. Rawlins, for the Author, 1681.

Tall 4to. [xii], 386, [vi], 43, [1] pp. Engraved frontispiece portrait of Sir Daniel Colwall (d. 1690), 31 engraved plates, index "of some medicines"; small ink correction p.181. Later full antique-style paneled calf, tooled in blind, raised bands, red leather spine label. Very good.

$ 950

First Edition. This is the first work to describe a scientific society, in this case the Royal Society was founded in 1660, and their efforts to collect objects worthy of study, or "cabinets of curiosities", including books, natural history items, antiquities and art. This forms the basis of club collections and also serves to mark a point in time when private scientific collections emerge, including those of John Evelyn, Sir Hans Sloane, Robert Hooke, and La Croix du Maine.

The work is arranged in four parts: Animals, Plants, Minerals, and "Artificial Matters." "Humane Rarities" starts the exhibits, followed by quadrupeds, serpents, birds, fish, shells, and insects. The Plant section begins with trees, fruits, nuts, berries, shrubs, herbs. mosses, mushrooms, sea plants (sponges, etc.). The Minerals include petrified "animal" and "vegetable bodies," corals, gems, "regular" and "irregular" stones, metals (gold, silver, copper, tin, lead, iron, antimony, mercury), salts, sulphur, etc. Maybe the



most curious section is the last: chemistry, mathematics, mechanics, coins, medicines, etc. Grew's comparative anatomy section follows, with descriptions of the "stomachs and guts" of the weasel, polecat, fox, mole, squirrel, rat, rabbit, horse, pig, sheep, calf, etc.

"Colwall entrusted the preparation of the catalogue of the Royal Society's museum to Nehemiah Grew and it was completed in 1681. He divides the collection into four main parts, specimens relating to Animals, Plants, Minerals and what he terms "Artificial Matters", that is, coins, instruments and other "manufactured" articles. One of the most interesting items to us is the one recorded on page 4: "All the principal Veins, Arteries, and Nerves, both of the Limbs and Viscera. The generous gift of John Evelyn, Esquire. He bought them at Padua, where he saw them with great industry and exactness (according to the best method then used) taken out of the body of a Man, and very curiously spread upon four large Tables, whereon they are now preserved. The work of Fabritius Bartoletus then Veslingius's Assistant there, and afterwards Physician to the King of Poland." There is another also, described on page 31, which the College is fortunate enough to possess. This is "A Spiral or Wreathed Tusk of an Elephant. Presented from the Royal African-Company by Thomas Crispe, Esq. 'Tis about an Ell long.... Whether this be naturally twisted or by art, I will not determine." – Dobson, pp. 34-35.

"The late seventeenth century was the golden age of the printed descriptive catalogue. Nehemiah Grew's 1681 catalogue, *Musæum Regalis Societatis*, printed for London's Royal Society, exemplifies this elaborate published genre of early museum literature during a particular moment in time when collecting and ordering were methods of understanding the world… *Musæum Regalis Societatis* opens a window onto late seventeenth-century English culture, providing insight into Grew's opinions about contemporary religious and political debates and illustrating trends within scientific thought; most notably, the influence of Francis Bacon's new empirical methods on Grew's object descriptions. This results in a densely descriptive catalogue with vivid object descriptions, creating a virtual guide to the Repository. However, with the eighteenth-century development of museums as sites of leisure and the rise of experts and professionals in the burgeoning scientific disciplines, there is a noticeable decline in this genre of descriptive catalogue. Thus, Grew's catalogue exemplifies a critical moment in the late seventeenth century in which scientific catalogues were published for a broad general public." – Emma Hughes.

"Grew, secretary to the Royal Society, compiled this great illustrated catalogue of its museum, then housed at Gresham College. Published with the catalogue is Grew's study of the stomach organs, which is the first zoological book to have the term "comparative anatomy" on the title page, and also the first attempt to deal with one system of organs only by the comparative method." – Garrison and Morton 297.

Cole, *Comparative anatomy*, pp. 245-51; Cushing G402; *From Wunderkammer to Museum*, 65; Garrison and Morton 297; *Heirs of Hippocrates* 640; Nissen ZBI, 1714; Norman 945; Osler 2840; Russell 333; Wellcome III, p.164; Wing G-1952.

See: Jessie Dobson, "The Place of John Hunter's Museum," *Annals of the Royal College of Surgeons of England*, 1963 July; 33(1): pp.32-40; Emma Hughes, "A Perfect Catalogue of all the Rarities": Nehemiah Grew's *Musæum Regalis Societatis* and Cataloguing Culture in Late Seventeenth-Century England," [Dissertation], University of Manitoba, 2012.

23. **HENREY, Blanche**. *British botanical and horticultural literature before 1800. Comprising a history and bibliography of botanical and horticultural books printed in England, Scotland, and Ireland from the earliest times until 1800*. London: Oxford University Press, 1975. 3 vols. 4to. xxvi, 290; xvi, 748; xvii, 142 pp. Color frontis., 194 plates (some color), index. Navy blue gilt-stamped cloth. Lacks slip-case issued with set. Fine copy.

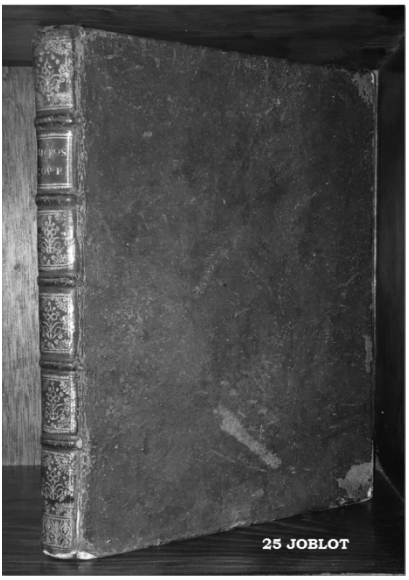
$ 200

"Henrey has produced a monumental work of reference if interest and use for all librarians, booksellers, collectors, and, indeed, everyone concerned with the literature of botany and the history of printing and publishing in [Britain]." More than 1500 entries are present, each fully collated and with considerable supportive textual research explaining the importance and place of the persons and publications listed. Books and pamphlets are listed and anything printed in England, Scotland and Ireland from the sixteenth century up through 1800. – Reviewed by V. T. H. Parry, *Journal of the Society for the Bibliography of Natural History*, Volume 8, Issue 1, pp. 88-89.

24. **HORNELL, James**. *Microscopical Studies in Marine Zoology. vol. 1*. Jersey: The Biological Station, 1901. 8vo. 124 pp. Frontispiece, 10 plates. Original blue rubbed cloth; joints mended with kozo. As is.

$ 45

Complete as issued, only volume I was published. WITH: Autograph Letter Signed from Ronald F. Le Sueur, Museum, Jersey, Channel Islands, England, to Frank Burt, Bridgeport, Connecticut, date October 9, 1955. "I was most interested in your letter concerning Bryozod. To my knowledge, there is no other work on this subject which deals closely with coral forms, other than the publication you mention [this book]. James Hornell was the son-in-law of Jersey's great naturalist, the late Joseph Sinel. Together they ran the Jersey Marine Biological Station – now long since defunct… I was most interested to learn that you are a devotee of microscopy. For a long time I dabbled with this fascinating hobby, and during the long war years when I served with the Royal Air Force and my home island was occupied by the Germans, I often thought of my micro-equipment and its safety. I eventually recovered my microscope in 1945, though I lost many slides that I had so patiently mounted in canada Balsam glycerine jelly, etc. I now possess a Watson's 'Service' stand for fine work and a Zeiss stereoscopic binocular dissecting stand for my general zoological work…"



Influenced by van Leeuwenhoek
Frist French Microscopist
Important Microscope Instrument Maker
First to Sterilize by Heat
First to Publish Material to Disprove Spontaneous Generation

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

Two parts in one volume. 4to. [xii], 78; 96, [5, 1 blank] pp. Woodcut title-page vignette, headpieces, decorative initials, page 1 of Part 1 engraved, tailpieces, engraved headpiece at beginning of Part 2, 34 plates; occasional marginal worming. Original calf, raised bands, original maroon leather spine label, gilt spine, all edges red, marbled end-leaves; corners showing, joints starting, cord strong. Bookplate of [Francisci?] Henr. Petit, Doct. Med. Suessionaei. Near fine. RARE.

$ 8,500

FIRST EDITION of one of the most desirable of eighteenth-century books on microscopy, valued for the lovely engravings devoted to Joblot's microscope, the first French microscopist. This is also the first separate treatise written on protozoology and or microorganisms. It contains the "first experiments ever made to disprove the theory" of spontaneous generation and the first to announce the regular process heat sterilization. – Lechevalier. An exceedingly scarce work issued in two parts: the first dealing with the construction of the microscope, and the second with the animalcules studied by the author. "Joblot was the first to carry out experiments on heated infusions to see whether they were capable of producing animalcules." Bullock, *The history of bacteriology*, pp. 30, 70-71.

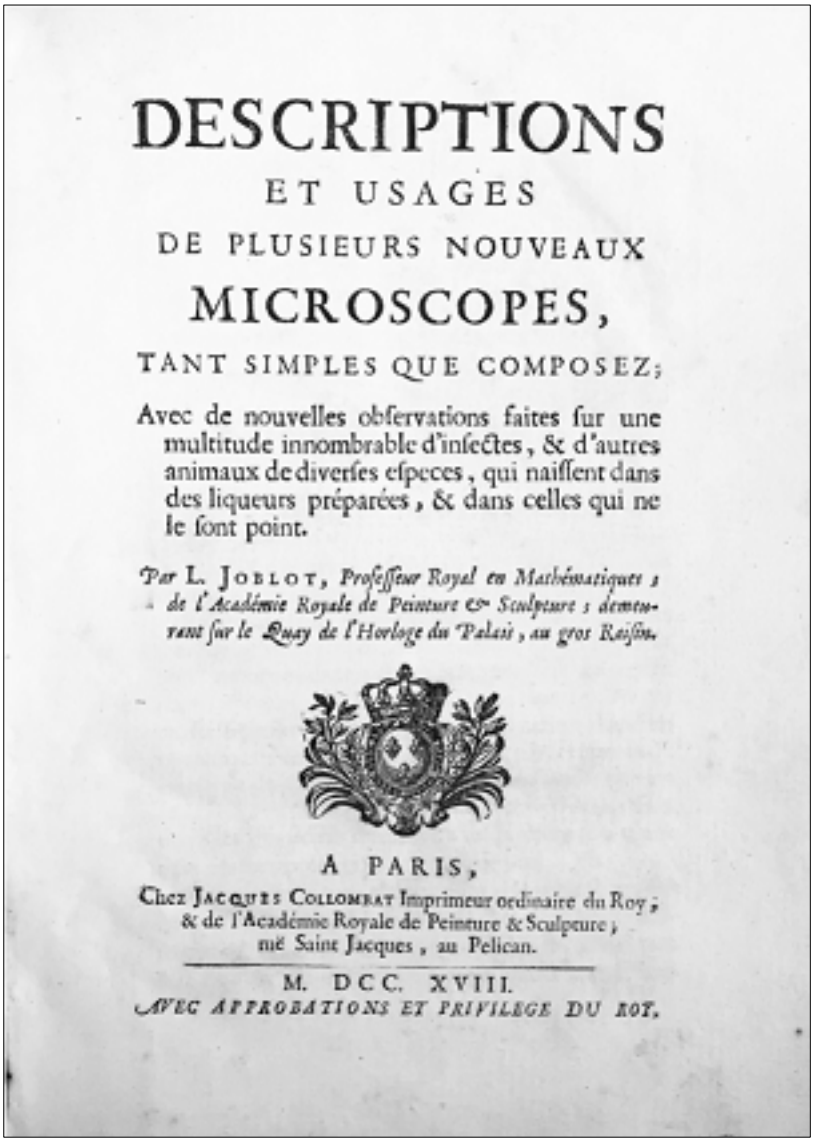
The frontispiece/vignette to part II is believed to be Joblot himself in his laboratory. The plate VI, fig. 12 shows a remarkable curiosity: a mustached "organism" – complete with a face!

Louis Joblot, a contemporary of van Leeuwenhoek, was professor of perspective and geometry in Italy, then professor mathematics at the École Nationale des Beaux-Arts. Joblot probably was inspired to begin this work in the summer of 1678, when Huygens and Hartsoeker visited Paris with microscopes which they demonstrated. "During his life, Joblot was engaged primarily in the study of physics: magnetism and optics had a special fascination for him. It is mainly because of his microscopes and what he saw with them that we remember him." – Lechevalier, p.241.

PROVENANCE: [Francois] Henri Petit (1681-1766), of Soissons, France, studied medicine in Paris, physician for Louis Phillipe, Duc d'Orleans, Paris; he was replaced by Théodore Tronchin (1709-1781). He owned a vast library with books in the fields of medicine and science. The collection was later owner by his two sons, with Antione-François Petit of Tournelles, a physician, writer and bibliophile.

☼ Blake, *NLM*, p. 235; Bulloch, *The history of bacteriology*, passim; Clay & Court, *History of the Microscope*, pp. 57-59; Cole Library 1265; Cole, *History of protozoology*, pp. 39-40; *DSB*, VIII, pp. 110-112; Gascoigne 10867.1; Nissen, ZBI, 2113; Waller 10856; Wellcome, III, p. 356.

See: Hubert Lechevalier, "Louis Joblot and His Microscopes," *Bacteriological Reviews*, Mar. 1976, pp. 241-258.



DESCRIPTIONS

ET USAGES

DE PLUSIEURS NOUVEAUX

MICROSCOPES,

TANT SIMPLES QUE COMPOSEZ;

Avec de nouvelles observations faites sur une multitude innombrable d'insectes, & d'autres animaux de diverses especes, qui naissent dans des liqueurs préparées, & dans celles qui ne le sont point.

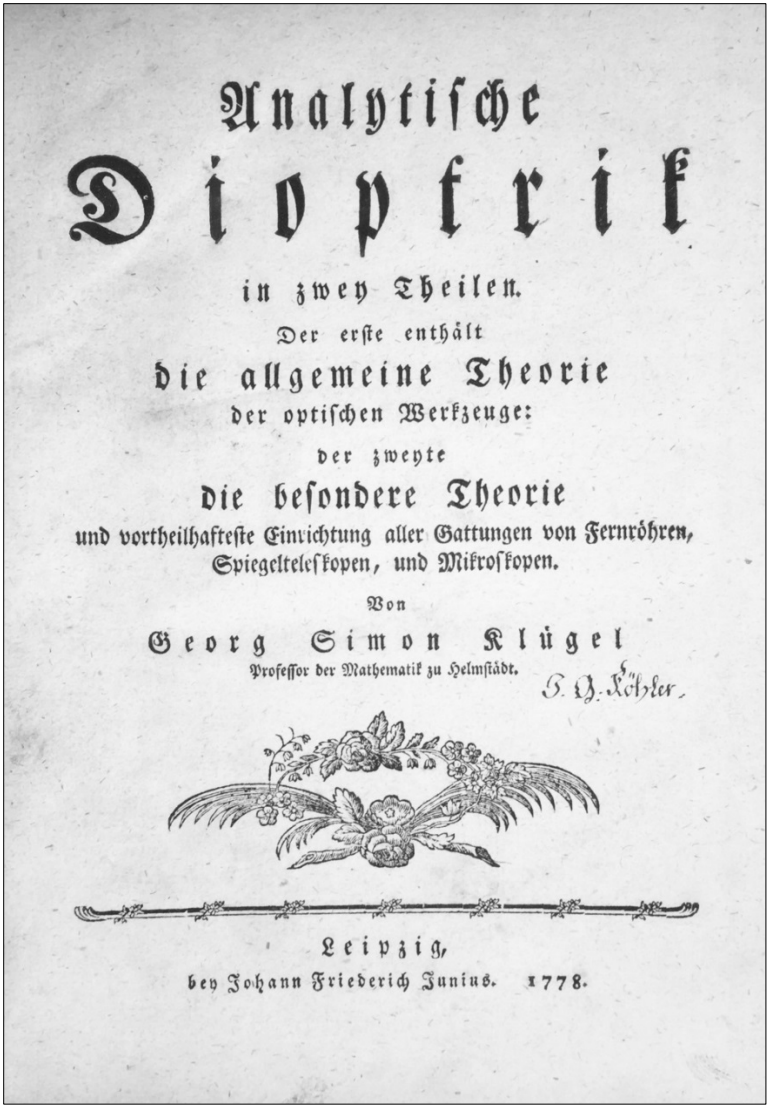
Par L. JOBLOT, *Professeur Royal en Mathématiques ; de l'Académie Royale de Peinture & Sculpture ; demeurant sur le Quay de l'Horloge du Palais, au gros Raisin.*

A PARIS,

Chez JACQUES COLLOMBAT Imprimeur ordinaire du Roy, & de l'Académie Royale de Peinture & Sculpture, mê Saint Jacques, au Pelican.

M. DCC. XVIII.

AVEC APPROBATIONS ET PRIVILEGE DU ROY.


Analytiſche
Dioptrik
in zwey Theilen.
Der erſte enthält
die allgemeine Theorie
der optiſchen Werkzeuge:
der zweyte
die beſondere Theorie
und vortheilhafteſte Einrichtung aller Gattungen von Fernröhren,
Spiegelteleſkopen, und Mikroſkopen.
Von
Georg Simon Klügel
Profeſſor der Mathematik zu Helmſtädt.
J. G. Köhler.
Leipzig,
bey Johann Friederich Junius. 1778.

26. **Klügel, Georg Simon** (1739-1812). *Analytische Dioptrik in zwey Theilen. Der erste enthält die allgemeine Theorie der optischen Werkzeuge: der zweyte die besondere Theorie und vortheilhafteste Einrichtung aller Gattungen von Fernröhren, Spiegelteleskopen, und Mikroskopen.* Leipzig: Johann Friederich Junius, 1778.

2 parts in 1 vol. Sm. 4to. [xxiv], 303, [1] pp. Title vignette, 4 folding engraved plates (with 32 figs.), head and tail-pieces. Original half calf, decorative boards; very worn, joints splitting, extremities well worn. Title page signed by J. G. Köhler; bookplate of Ing. Dr. Edmund Neusser.

$ 3,750

First edition, dedicated to the famous mathematician Leonhard Euler (1707-1783). Klügel based his writings on that of Euler's work on optics. In his parts VII and VIII he deals with the telescope and especially the microscope.

Euler's own work on the theory of the achromatic microscope was written as early as 1762 and 1771, when he dealt with the subject more fully. In 1774, Euler's pupil and friend, Nicolas Fuss, wrote a little book on how to construct an achromatic microscope. Klügel translated that work in 1778 and then followed that with this more thorough treatment, being his *Analytische Dioptrik* [also 1778]. Due to the crudeness of design of the objective made in 1791by François Beeldsnyder (1755-1808), a colonel in the Amsterdam cavalry, Mayall asserts (and others uphold this view) that he feels the discussion of the dates of origin or this instrument are at best unclear. – Mayall. See also: S. Bradbury, *The Evolution of the Microscope*, pp. 179-180.

Georg Simon Klügel (1739-1812), German mathematician and physicist, born in Hamburg, studied under Abraham Kästner ["the best teacher of mathematics in Germany" – Vincenzo De Risi, Gerolamo Saccheri (1667-1733), *Euclid Vindicated from Every Blemish: Edited and Annotated* ... (2014), p.52.] at the University of Göttingen. He was appointed professor of mathematics at the University of Helmstedt and then was chair of mathematics and physics at the University of Halle. In this compendious work he corrected some of Euler's results and expanded with his own findings. In 1803-31 he published his famous dictionary of mathematics, *Mathematisches Wörterbuch* (5 vols.).

Provenance [II]: [I] Johann Gottfried Köhler (1745-1801), Germen astronomer, known for discovering a number of nebulae, start clusters and galaxies. He was a colleague of Johann Elert Bode, another German astronomer of importance. In 1785 Köhler was appointed jointly director of the Desden Mathematisch-Physikalischer Salon and the Kunstkammer. His catalogue of nebulae was published in 1780. He wrote a number of astronomical papers in German, and the following in the *Philosophical Transactions*, "Observations on the transit of Mercury 1786, May 4, at Dresden", (P.T., 1787). See: Hockey, Thomas, *The Biographical Encyclopedia of Astronomers*, 2009; Poggendorff, pp. 1290-1.

[II]: Ing. Dr. Edmund Neusser (1852-1912), born in Krakow, was appointed in 1893 a full professor and director of medicine in the University of Vienna. A highly respected clinician, he specialized in disorders of the blood and wrote about the circulatory system, liver and adrenal glands. See: *Austrian Biographical Encyclopaedia*.

☼ *DSB* VII, pp. 404-05; Poggendorff I, 1277; John Mayall, *Cantor Lectures on the Microscope*, p. 61. See: Dieter Gerlach, *Geschichte der Mikroskopie,* (2009), p. 200.

27. **Koristka, Fratelli; Atelier d'optique F. Koristka**. *Microscopes Koristk*a. Catalogue Micro XXXIII. Milan: Officine Galileo, 1931. 8vo. 106, 15, [1] pp. 86 illus. Original printed wrappers; light waterstain to extremities, generally very good. Extremely rare.

$ 175

Koristka, of Polish origin, was an Italian optical company, based in Milano, "became the most important in Italy for the construction of microscopes and one of the few Italian precision industries that exported both in Europe and America." It was founded in the 1880s and the full name was Fratelli Koristka. They made binoculars, microscopes, and some camera lenses. – Cameraopedia.

28. **Krauss, E., Paris & Tokyo**. *Microscopes et Accessoires. Condensateurs pour l'Ultra-Microscopie; Microscopes minéralogiques et métallographiques, microphotographie, appareils pour l'étude du sang, polarimètres, saccharimètres, microtômes.* Paris: E. Krauss, 1926. 8vo. 79, [1] pp. Figs., tipped-in at p.61 "Tubes en verres pour Centrifugeurs" printed on pink paper. Original printed wrappers; covers off. Very scarce.

$ 75

"E. Krauss was a French camera and lens maker, founded in the late 1880s. Founder Eugen Krauss was the brother of G. A. Krauss. The company had a license to produce lens types of Carl Zeiss." – Camerapedia.

"First Systematic Treatment of Analytic Number Theory"

29. **LANDAU, Edmund** (1877-1938). *Handbuch der Lehre von der Verteilung der Primzahlen.* Leipzig & Berlin: B.G. Teubner, 1909. 2 vols. 8vo. XVIII, 564; IX, (565)-961, [1] pp. Original navy blue cloth, gilt-stamped titles; covers rubbed. Ownership stamp of W.C. Brenke; pencil signature of R. [Ralph] Hull, September 26, 1945. Very good.

$ 650

First edition of the first systematic treatment of analytic number theory. – *DSB*.

"Landau's principal field of endeavor was analytic number theory and, in particular, the distribution of prime numbers. In 1796 Gauss had conjectured the prime number theorem… This theorem was demonstrated in 1896 by Hadamard and de la Vallée-Poussin, working independently of each other. In 1903 Landau presented a new, fundamentally simpler proof, which, moreover, allowed the prime number theorem and a refinement made by de la Vallée-Poussin to be applied to the distribution of ideal primes in algebraic number fields. In his two-volume *Handbuch der Lehre von der Verteilung der Primzahlen* (1909), Landau gave the first systematic presentation of analytic number theory. For decades it was indispensable in research and teaching and remains an important historical document… Through his books and his more than 250 papers Landau exercised a great influence on the whole development of number theory in his time." – Bruno Schoenberg for *DSB*, VII pp. 615-16.

Landau (1877-1938), born in Germany, of a wealthy Jewish heritage, took his degree at the University of Berlin, and started teaching there. He married Marrianne Ehrlich, daughter of Nobel Prize winner Paul Ehrlich (to whom this book is dedicated). Very early in school, Landau slowed exceptional talent in mathematics, coupled with a remarkable sense of duty and precision. Perfection characterized His lectures and papers. He was appointed professor of mathematics at the University of Göttingen in 1909, the year this publication was issued. From the 1920 Landau was instrumental in establishing the Institute of Mathematics newly established Hebrew University of Jerusalem. In 1927, Landau and his family emigrated to Palestine and taught at the Hebrew University. He returned to Göttingen but the Nazis forced him out of his post. He moved to Berlin and died in 1938. His studies dealt with analytic number theory and

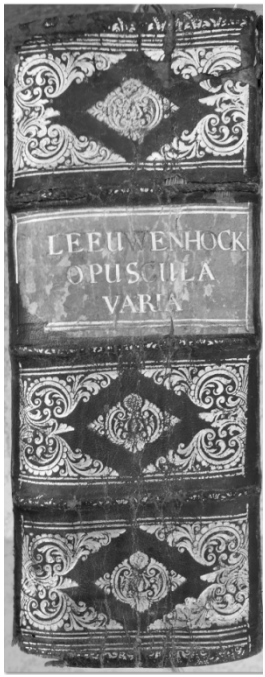
the theory of functions of a complex variable. Proceeding from the properties of the positive integers, Landau wrote a course in analysis constructed with faultless logical rigor.

PROVENANCE: William Charles Brenke (1874-1964), American mathematician, studied mathematics under Maxime Bôcher at Harvard, taught at the University of Nebraska at Lincoln, introduced Brenke polynomials, wrote, *A Text-Book on Advanced Algebra and Trigonometry, with Tables*, 1911, and *Elements of Trigonometry, with Tables,* 1918. His successor for the chair of mathematics in 1943 was Ralph Hull, a Ph.D. graduate from the University of Chicago, and whose signatures appear in these volumes.

See: Hardy, G. H., and H. Heilbronn. "Edmund Landau," *The Journal of the London Mathematical Society*, 1938, vol. 13, no. 4, pp. 302–10; Schappacher, Norbert, "Landau's Göttingen – From the life and death of a great mathematical center," *Mathematical Intelligencer,* 13, (1991), pp. 12-18; [obituary] *Journal London Mathematical Soc.*, 13, (1938), pp. 302-310.

First Systematic Use of the Microscope

30. **LEEUWENHOEK, Antoni van** (1632-1723). [FOUR WORKS BOUND TOGETHER]: [I] *Anatomia Seu interiora Rerum, Cum Animatarum tum Inanimatarum, ope & beneficio exquisitissimorum Microscopiorum Detecta variisque experimentis demonstrate, una cum discursu & ulteriore dilucidatione Epistolis quibusdam ad Celeberrimum, quod ser[enissi]mi Magnae Britanniae Regis auspicio Londini floret, Philosophorum Collegium, datis comprehensa* …1687; *De Vivis animalculis in lactibus seu semine masculo piscium* … [issued continuous with previous title] [with II]: *Continuatio epistolarum, datarum ad longe Celeberrimam Regiam Societatem Londinensem.* 1689; [with III]: *Arcana Naturae Detecta* … Delphis Batavorum, Apud Henricum a Krooneveld, 1695; [with IV]: *Continuatio Arcanorum Naturae Detectorum* … Delphis Batavorum, Apud Henricum a Kroonevelt, 1697. Lugduni Batavorum: Apud Cornelium Boutesteyn, 1687.



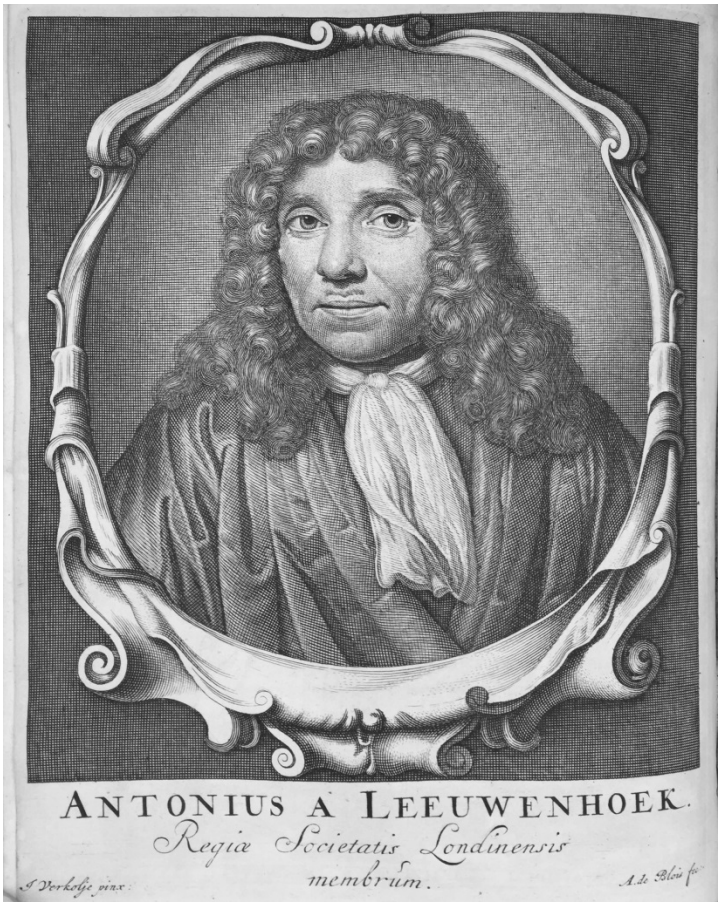
5 works in one volume. Sm. 4to. [ii], [iv], 3-78; 258; [viii], 124; [viii], 568, [xiv]; [ii], 192, [viii] pp. Page numbers 231-232 repeated in pagination [first section]. Numerous engraved plates (many folding); occasional light foxing. Original vellum backed with quarter calf with elaborate gilt-stamped spine;

some wear to joints. [Spine title: "LEEUWENHOCK – OPUSCULA VARIA"]. Bookplates of Pierre Lambert and Pierre Amalric; three rubber-stamps on title (scribbled), final leaf with two additional stamps (not scribbled) Bibliotheca Mellicensis.

$ 7,500

First or early collected printings of Leeuwenhoek's letters. "To Antonio van Leeuwenhoek, of Delft, belongs the high merit of having been the first to use the microscope systematically and having brought the construction of the simple microscope in his own hands to a high degree of perfection… Self-taught and never having attended a university, ignorant of Latin and Greek and of the classical texts, he became one of the greatest and most expert microscopists, thanks to the sagacity of his observations and the perfection of his technique" – Arturo Castiglioni, *A History of Medicine* … pp. 528-529).

"Leeuwenhoek was a mast lens-grinder and, during his lifetime, constructed several hundred microscopes, grinding a new lends for each new investigation which he undertook. ¶ These volumes contain some eighty letters from among several hundred in which Leeuwenhoek communicated the results of his microscopical investigations to the Royal Society in London and which were published in its *Philosophical Transactions* over many years. Though not a trained scientist and unable to follow up his hundreds of investigations, he opened up avenues of anatomy hitherto unknown and unseen, leading to accurate physiology and, in turn, to accurate therapeutics. One example is use of his perfected microscope by Malpighi … to define the ultimate structure of the capillaries, which closed the final link in Harvey's description of the circulation of the blood. Leeuwenhoek first described the individual plant cell, the individual striped muscle cell, spermatozoa, red corpuscles, and the crystalline lens of the eye. These works are richly illustrated with Leeuwenhoek's drawings, which are of fundamental importance to histologic anatomy." – *Heirs of Hippocrates* 585, 586, 587, 589, 590.



"Van Leeuwenhoek was the first to see protozoa under the microscope. He found microorganisms in the mouth and on the teeth and, for the first time, furnished exact descriptions of the shapes of bacterial clumps and chains as well as of individual bacilli. No one else was to see bacteria again for over a century. He also wrote about the cell nucleus and the structure of spermatozoa, gave the first accurate account of red blood corpuscles, delineated the conformation of the crystalline lens, and discovered the sarcolemma and the striped nature of skeletal muscle. His thorough examination of the capillary circulation which Malpighi had recently touched on briefly with appreciating its significance, completed proof of the blood circulation proposed by Harvey sixty years earlier." – LeFanu-Lilly Library.

"*Anatomia Seu interiora Rerum"* comes in two states: this is the issue with "*Inanimatarum*" on the title instead of "*Inanimarum*". Other points include: "nebeficio" instead of "beneficio". Cf. Dobell 22.

Contains Leeuwenhoek letters: Anatomia seu … (1687): 28-31, 34-6, 38, 42-52; Continuatio epistolarum … (1689): 53-60; Arcana … (1695): 32, 33, 37, 39-41, 61-92; Continuatio Arcanorum … (1697): 93-107.

PROVENANCE: Pierre Amalric (1923-1999), born in Velour sur Agouti, France, studied medicine in Toulouse, after the WWII be mentored Professor Calmettes, a well-known ophthalmologist, becoming himself an ophthalmologist and through his career contributed some 670 articles. "His main medical contributions were on choroidal circulation, the treatment of diabetic retinopathy, and a description of the Triangle Syndrome indicating choroidal infarction, which bears his name." – "The Mystery of Heinrich Heine's Neuro-Ocular Disease," *Historia Ophthalmologica Internationalis*, 2015, 1: pp. 153-164 [published posthumously]. He was a member of l'Académie nationale de médecine, American Academy of Ophthalmology, de l'Académie de Médecine de Rome, Royal College of Ophthalmologists (London). He was also a very important rare book collector, owning a firs edition of Vesalius' *Fabrica* with hand coloring, etc.

PROVENANCE: Pierre Lambert (1899-1969) was a Parisian bookseller [Catalogue de la librairie Pierre Lambert, *Livres anciens et quelques livres modernes,* Mars 1927]; he bequeathed his personal collection of Joris-Karl Huysmans to the Bibliothèque de l'Arsenal. He was Président de la Société J-K. Huysmans 1967 through 1969. Also owned the Leeuwenhoek's *Opera Omnia ... Editio Novissima. Leiden: Johannes Arnold Langerak*, 1722-1719, sold at Christie's Andras Gedeon sale of April 23, 2008. See: Lethève J., "The donation Pierre Lambert in the Arsenal Library" within *Bulletin bibliophile*, 1972, pp. 184-188; André Billy, "Pierre Lambert," *Bulletin de la Société J.-K. Huysmans*, 1969-1970.

☼ Clay & Court, *The History of the Microscope*, pp. 32-36, 41; Dobell 23, 24, 25, 26; Krivatsy, NLM 6782, 6783, 6787, 6788; LeFanu-Lilly Library, *Notable Medical Books* 97 [*Arcana Naturae Detecta*]; Haskell F. Norman 1319, 1317, 1321 – see 1320 note for *Anatomia seu interior rerum*, 1687 "greatly expanded second edition"; Osler 1020, 1021; Waller 10876, 10882, 10877, 10880; Wellcome III, See: Garrison and Morton 67 and *Grolier One Hundred Books Famous in Medicine* 37 for an historical inventory of the Leeuwenhoek letter sequence.

Illustrated with 31 Plates Showing
the High Quality of Work Achieved by Leeuwenhoek

31. **LEEUWENHOEK, Antoni van** (1632-1723). *Send-Brieven, Zoo aan de Hoog Edele Heeren van de Koninklyke Societeit te Londen, als aan andere aansienelyke en geleerde lieden, over verscheyde verborgentheden der natuure, namentlyk over het wonderlyk gestel van de veselen der spieren in veelderley gedierte; de pesen en derselver werking; verscheyde zaden; 't oog van een walvis; 't hair de dierkens aan het eende-kroost; de hop; demeel-stoffe in de granen; de zaad-vaten en dierkens in't mannelyk zaad ... & c.* Delft: Adriaan Beman, 1718.

Sm. 4to. [viii], 460, [xxviii] pp. Engraved allegorical half-title – featuring a small portrait of the author set within an oval frame (signed by J. Goeree), 30 engr. plates [31 total], index; occasional foxing. Original blind-stamped vellum, manuscript spine title; small exposed part of upper board (along fore-edge), else fine.

$ 3,500

Leeuwenhoek was the greatest of the early microbiologists, and was responsible for many important discoveries. He published 165 letters in his lifetime, numbered in two separate series - the first numbered with Arabic numerals, the second with Roman. The first series began with No.28 and ran to No. 146; while the second series was consistently numbered I to XLVI. [cf. Dobell, Anthony van Leeuwenhoek, 1932]. The letters were mostly written in Dutch and then translated into Latin.

"Leeuwenhoek's observations were so striking, owing to the minuteness of the structures that he dealt with and the accuracy of his observation, that there was very great curiosity as to the kind of instrument that he must be using to obtain such wonderful results, and in 1681 there was a discussion about them. … [He never revealed the secret of his instruments]. At the death of Leeuwenhoek, a cabinet containing 26 of his microscopes was left to the Royal Society… Leeuwenhoek reached a high standard in the art of grinding these small lenses, but he excelled still more in his skill in dissecting and mounting his objects, and in his powers of observation and deduction." – Clay & Court, pp. 34-5.

"Leeuwenhoek published the *Send.brieven* in 1718 and at his death left the plates and Latin translations prepared for another publication." (p.170). "Leeuwenhoek himself was by no means unsuspecting of the encroachment of preconceptions upon observations. Acutely conscious indeed of the danger of self-deception, he often emphasized how many times he repeated observations before feeling secure about what he saw." (p.198) "Not surprisingly, the drives at work in that research appear in fact to have been numerous and diverse. Late in his life, Leeuwenhoek insisted that his microscopic efforts derived only from his inquisitiveness and an inclination to explore the principles … of things." (p.157) – Edward G. Ruestow, *The Microscope in the Dutch Republic: The Shaping of Discovery*, 2004.

"To Antonio van Leeuwenhoek, of Delft, belongs the high merit of having been the first to use the microscope systematically and of having brought the construction of the simple microscope in his own hands to a high degree of perfection. . . . Self-taught and never having attended a university, ignorant of Latin and Greek and of the classical texts, he became one of the greatest and most expert microscopists, thanks to the sagacity of his observations and the perfection of his technique (Arturo Castiglioni, *A history of medicine*. New York, 1946. pp. 528-529). Leeuwenhoek was a master lens-grinder and, during his lifetime, constructed several hundred microscopes, grinding a new lens for each new investigation which he undertook. These volumes contain some eighty letters from among the several hundred in which Leeuwenhoek communicated the results of his microscopical investigations to the Royal Society in London and which were published in its Philosophical Transactions over many years. Though not a trained scientist and unable to follow up his hundreds of investigations, he opened up avenues of anatomy hitherto unknown and unseen, leading to accurate physiology and, in turn, to accurate therapeutics. One example is use of his perfected microscope by Malpighi (see No. 569) to define the ultimate structure of the capillaries, which closed the final link in Harvey's description of the circulation of the blood. Leeuwenhoek first described the individual plant cell, the individual striped muscle cell, spermatozoa, red corpuscles, and the crystalline lens of the eye. These works are richly illustrated with

Leeuwenhoek's drawings, which are of fundamental importance to histologic anatomy." – *Heirs of Hippocrates*.

See "Lens on Leeuwenhoek" by Douglas Anderson for a study of the letters of Leeuwenhoek, each offered in partial translation. The first letter, addressed to Anthonie Heinsius, for example deals with the flesh of a whale. Letter III deals with barley and a Turkish bean. Letter XI addressed to the Royal Society, deals with flesh from a cow, a hen, a mouse, a fly, the wild honeybee, legs of fleas, an ant, mite, and more. Anderson offers a lot more information for those interested.

☼ Clay, R.S. & Court, T.H., *The History of the Microscope,* (1932); Dobell, Clifford, *Antoni van Leeuwenhoek and his "little animals,"* New York, 1960; Edward G. Ruestow, *The Microscope in the Dutch Republic: The Shaping of Discovery*, 2004; Wellcome Library [32798/B].

32. **LEHMANN, Otto** (1855-1922). *Das Kristallisationsmikroskop und die Damit Gemachten Entdeckungen insbesondere die der Flüssigen Kristalle*. Braunschweig: Friedrich Vieweg und Sohn, 1910. 8vo. [viii], 112 pp. 48 figs. (incl. 1 folding table). Original orange printed wrappers mounted on later black boards [probably the work of W. Fornoff as evidenced by his mark]. Rubber-stamp on title of "Prof. Bechhold." and (on front pastedown) W. Fornoff, [buchbinder], Frankfurt am Main.

$ 195

First edition of the author's contribution using *crystallization microscope* as applied to liquid crystals, his most important and earlier discovery. His father introduced him to the microscope, and Otto later "spent a large amount of time and energy developing and improving (in a series of implementations) his invention, the heating stage microscope, that he called the *crystallization microscope.* – Cristaldi, Pennisi & Pulvirenti. "Lehman discovered liquid crystals; substances which behave mechanically as liquids but display many of the optical properties of crystalline solids." In 1891 he wrote "Die Kristallanalyse." There was a huge controversy involving Friedrich Reinitzer and Lehmann against a solid-state chemist, Gustav Tammann, who was "old-style authoritarian … [and] established in a prime chair in Göttingen," … "Ferocious arguments continued for years … Lehmann, always eccentric and solitary, became more so and devoted his last 20 years to a series of papers on 'Liquid crystals and the theories of life." – *Twentieth Century Physics*, American Institute of Physics Press, (1995), vol. III, p. 1540. His two most important works on liquid crystals were issued in 1904, *Flüssige Krystalle*, being his comprehensive accounting, and 1911, *Die neue Welt der flüssigen Krystalle* ...

PROVENANCE: Dr. Heinrich Jakob Bechhold (1866-1937), of Frankfurt am Main, was a German chemist, known for his work on colloid chemistry in medicine, member of the Royal Institute for Experimental Therapeutics in Frankfurt am Main, and editor of *DIE UMSCHAU*, a review of science, technology, literature, & art, joint author of *Die Kolloide in Biologie und Medizin*, Dresden, 1912 and translated for the US as *Colloids in Biology and Medicine*, New York, 1919. He was also responsible for *Bechhold's handlexikon der naturwissenschaften und medizin*, 1894. During WWI he made several vaccines against cholera and typhoid. From 1916 he taught medical physical chemistry at Frankfurt University. Because he was Jewish the German Reich revoked his teaching license in 1935. In 1937 he committed suicide.

Otto Lehmann (1855-1922) was a German physicist and "father" of liquid crystal as well as a devoted microscopist. Otto was the son of Franz Xavier Lehmann, a mathematics teacher in the Baden-Wurtemberg school system, with a strong interest in

microscopes. Otto learned to experiment and keep records of his findings. Between 1872 and 1877, Lehmann studied natural sciences at the University of Strasbourg and obtained the Ph.D. under crystallographer Paul Groth. Otto used polarizers in a microscope so that he might watch for birefringence appearing in the process of crystallization.

☼ *DSB*, VIII, pp. 148-149, by John G. Burke; David J.R. Cristaldi, Salvatore Pennisi, Francesco Pulvirenti, *Liquid Crystal Display Drivers: Techniques and Circuits*, p. 2.

33. **LEITZ, Ernest, Instruments**. *No. 36. Microscopes. Ernest Leitz; Fabrique d'instruments d'optique Wetzlar*. Berlin & New York: Leitz, 1896. 8vo. 63 pp. Illustrations, index. Marginal tear on bottom edge of title, mild soiling to title. Dark maroon gilt-stamped cloth. Very good.

$ 95

Scarce illustrated catalogue of microscopes and related accessories.

34. **LEITZ, Ernest, Instruments**. *No. 42. Microscopes et Appareils Accessoires. Ernest Leitz; Fabrique d'instruments d'optique Wetzlar*. Berlin, Chicago & New York … : Leitz, 1906. 8vo. 118 pp. Illus., index. Dark green gilt-stamped cloth. Near fine.

$ 95

Scarce illustrated catalogue of microscopes and related accessories.

35. **LEYBOURN, William**. *Dialing: Plain, Concave, Convex, Projective, Reflective, Refractive. Shewing, how to make all such dials, and to adorn them with all useful furniture, relating to the course of the sun. Performed, arithmetically, geometrically, instrumentally and mechanically: and illustrated by sculptures, engraven in copper. Comprised in XI. distinct tractates, the contents whereof follow next after the Preface to the Reader. Collected, methodised and published by William Leybourn*. London: Awnsham Churchill, 1682.

Small folio. [iii-xii], 76, 89-187, [13], 189 - 192, 12, 181 - 226, 273 - 330, [2 blank] pp. [Pagination is somewhat irregular but collates correctly]. Portrait frontispiece engraved by R. White, 23 engraved plates (10 folding), plus 3 text engravings (pp. 207, 315); LACKING TITLE-PAGE but supplied in photocopy facsimile to approximate correct size, 1 minor ink marginalia (p.189), minor paper flaw (upper corner p.211). Original old full calf over boards, all edges marbled; 20th century rebacking with raised bands, blind and gilt-rules, red morocco spine label, new endleaves, corners worn. Good.

$ 400

FIRST EDITION, printed in 1682, of expanded version of Leybourn's *Art of Dialling,* originally issued in 1669.

William Leybourn (1626-1719) mathematician, began his working life as a printer and soon became a distinguished land and quantity surveyor. Such was his prestige, he was frequently employed to survey the estates of gentlemen, and he also helped to survey the remnants of London after the great fire of 1666. A prolific and eclectic author, his work *The Compleat Surveyor*, which was first published under that title in 1653 is regarded as a classic of its kind and (in collaboration with Vincent Wing), the *Urania Practica*, printed in 1649, was the first book in English devoted to astronomy. With this volume the author cites numerous other sources: John Wells, *Sciographia, or, The art of shadowes*, (1635), a partial translation of Magnon, by Mr. Thomas Gibson, and the other parts are derived from the work of Samuel Foster.

☼ See: Taylor, *Mathematical practitioners of Tudor & Stuart England*, item 222. *DNB*, XI, pp. 1087-1088; Houzeau & Lancaster 11535; Lowndes, III, p. 1356; Wing L-1913; Zeitlinger, 2nd Supplement, 4132.

36. **LEYDIG, Franz von** (1821-1908). *Zelle und Gewebe. Neue Beiträge zur Histologie des Thierkörpers*. Bonn: Emil Strauss, 1885. 8vo. VI, 219 pp. 6 folding engraved plates, index. Original quarter dark green cloth-backed printed paper over boards; kozo applied to rear joint. INSCRIBED BY THE AUTHOR TO FELLOW ZOOLOGIST & PROFESSOR JULIUS VON KENNEL, at the University of Tartu.

$ 175

First edition. "Leydig is often regarded as the founder of comparative histology, his interests including a wide range of aspects of both invertebrate and vertebrate microscopical anatomy." – Marlon R. Schneider, "The First Description of the Hair Follicle Bulge by Franz von Leydig," *Dermatology,* 2011; v.223: pp.29–31.

"The structure of the nerve-tubes: whether it is fibrillous or non-fibrillous, has been very much disputed, and to this day the point must be considered as an open question … and lately such an eminent authority as LEYDIG. In his work "*Zelle und Gewebe*" (Bonn, 1885) this veteran histologist appears to have changed his view of the structure of the nervous elements, at all events to some extent. HANS SCHUKTZE, HERMANN and those other defenders of the fibrillous structure are, he says, altogether wrong." – Fridtjof Nansen, "The Structure and Combination of the Histological Elements of the Central Nervous System," *The American Journal of Psychology*, 1888, p.31.

"Leydig studied philosophy in Munich from 1840, and medicine at the University of Würzburg from 1842 under Martin Münz (1785–1848), Schenk, and Franz von Rinecker (1811–1883). He received his doctorate in medicine at Würzburg on August 27, 1847, becoming an assistant in the physiology department, while also teaching histology and developmental anatomy under Albert von Kölliker (1817–1905). In 1848 he became prosector at the zootomic institution in Würzburg in 1848. The following year he qualified as a lecturer, and on May 9, 1855 he was appointed professor. In the winter of 1850–1851, Leydig made a journey to Sardinia, where he became aware of the rich marine life that was to become the subject of some of his most important researches. That journey, coupled with his early preoccupation with microscopy, directed the course of his life's work."

"In 1857 Leydig became full professor of Zoology and Comparative anatomy at the University of Tübingen, and he published his *Lehrbuch der Histologie des Menschen und der Tiere*: his main contribution to morphology. In the *Lehrbuch*, Leydig reviewed the crucial developments in the history of histology, including the discovery and definition of the cell by Jan Evangelista Purkyne (1797–1869), Gabriel Gustav Valentin (1810–1883), and by Theodor Ambrose Hubert Schwann (1810–1882), who described the cell as a vesicle containing a nucleus in 1839." – Wikip.

PROVENANCE: Professor Julius von Kennel (1854-1939), German zoologist and entomologist born in Schwegenheim, studied at the University of Würzburg, studying under Karl Semper, and later taught variously at the University of Kiel, University at Tartu [present day Estonia], University of Würzburg, lecturer at the Forstakademie in Aschaffenburg, full professor of zoology at the University of Dorpat.

P. Glees, University of Göttingen, writing for the *DSB*, lists this work as among the author's "most important writings."

37. **LINK, Heinrich Friedrich** (1767-1851). *Über den Ursprung der Steinkohlen und Braunkohlen nach mikroskopischen Untersuchungen.* Akademie der Wissenschaften, Juli, 26, 1838. Separate (or offprint) from: *Physik.-Math. Kl.* 1838; *Gelesen in der Akademie der Wissenschaften am 26. Juli 1838*. 4to. pp.33-44. 2 colored lithographic plates (with 25 figs.) by C.F. Schmidt. Self-wraps. Fine. RARE.

$ 100

On the examination of coal under a microscope.

Heinrich Friedrich Link, German naturalist & botanist, born in Hildesheim, studied medicine and natural sciences at the Hannoverschen Landesuniversität of Göttingen, becoming elected member of the Berlin Academy of Science and many other scientific societies, including the Royal Swedish Academy of Sciences, which elected him a foreign member in 1840. He was interested in a universal knowledge of botany and plant anatomy.

Locations [4]: Harvard University; Lehigh University Libraries; Universitätsbibliothek Leipzig; Universitätsbibliothek Rostock.

38. **MASON, Robert George**. *Illustrated Price List of Microscopes, Accessory Apparatus and Objectives manufactured by R.G. Mason, (From J. Swift.) Opticians and Scientific Instrument Maker* … London: R.G. MASON, 1893. 8vo. 28 pp. Illus. Original light brown printed wrappers. Good. RARE.

$ 175

"R.G. Mason was a professional microscope manufacturer and preparer of microscope slides during the last decades of the 19th century, continuing into the early years of the 20th. Around the year 1880, Mason quit his job with the Swift optical works and began his own business. That venture lasted until about 1900. Mason continued to produce both prepared slides and unmounted specimens until his death." – Brian Stevenson, "Robert George Mason, 1849 - 1912." [Stevenson does not list this item in his bibliography].

39. **MELLON, Paul & Mary**; **Ian MACPHAIL** (compiler). *Alchemy and the Occult: A catalogue of Books and Manuscripts from the Collection of Pau land Mary Mellon Given to Yale University Library. Compiled by … with essays by R.P. Multhauf and Aniela Jaffé and additional notes by William McGuire.* [vols. 3 & 4]: Manuscripts 1225-1671 [and 1675-1922]. Compiled by Laurence C. Witten II and Richard Pachella with an introduction by Pearl Kibre and additional notes … New Haven: Yale University Library, 1968, 1977. 4 volumes. 4to. liv, 276; [6], lxi-lxviii, [2], 279-581; xliv, 402; [6], lxxi-xciv, [2], 403-853 pp. Illus. throughout, indexes. Original buckram cloth, black leather gilt-stamped labels, slip-cases. Bookplate of John F. Peckham. Near fine. Complete set.

$ 750

Limited edition of 500 copies, vols. 1 & 2 designed and printed by The Spiral Press; vols. 3 & 4 designed and printed by The Meriden Gravure Company. Profusely illustrated with 160 books and 149 manuscripts shown. Beautifully designed and in an elegant format, this extraordinary bibliographical work is annotated throughout with great care and authority. Long considered valuable both for its scholarship and its utility for books printed from 1472 through the end of the eighteenth century, supplemented with a most remarkable collection of manuscripts from the thirteenth century up till 1922.

The collection was inspired by an alchemical collection formed by Jung. Mary Mellon started collecting in the field, but passed away in 1946. Paul Mellon took it upon

himself to continue to build the collection and honored her memory with its gift to the Beinecke Library at Yale University.

Contents: v. 1. Printed books, 1472-1623. - v. 2. Printed books, 1624-1790. - v. 3. Manuscripts, 1225-1671. - v. 4. Manuscripts, 1675-1922.

Provenance: John F. Peckham was associated with The Meriden Gravure Company.

Notable Horological Rarity

40. **MODY, N.H.N**. *A Collection of Japanese Clocks*. London: Kegan Paul, Trench, Trubner & Co.; Japan: J.L. Thompson & Co., 1932. Large 8vo. xiv, 27, [30] pp. 135 plates (some folding) with facing tissues and explanatory letterpress. English and Japanese texts. Original burgundy gilt-stamped cloth with circular centre symbol of a Japanese time piece, all edges gilt; corners worn, joints reinforced with Kozo. Ownership signature of M. Niasson [or Nisson]. Extremely rare!

$ 2,000

Limited edition of 200 numbered copies (this being no. 25). English text translated into Japanese by S. Katayama. This is the most desirable book on the early history of Japanese clocks. Malcolm Gardner, catalogue IV (1950): "A luxury production. The greater portion of the edition was destroyed by air raids, and it is thought that no more than 80 copies remain in existence." In 1997 we sold the fine Leonard Paller copy.

41. **MUSSCHENBROEK, Petrus van (1692-1761); Lorenzo Magalotti, conte (1637-1712); Accademia del Cimento** (Florence, Italy). *Tentamina experimentorum naturalium captorum in Academia del cimento sub auspiciis Serenissimi Principis Leopoldi, Magni Etruriae Ducis, et ab ejus Academiae Secretario Conscriptorum: Ex Italico in Latinum Sermonem conversa. Quibus commentarios, nova experimenta, et orationem de methodo instituendi experimenta physica addidit Petrus van Musschenbroek*. Lugduni Batavorum: Apud Joan. et Herm. Verbeek, bibliop., 1731. ¶ Two parts bound as one. 4to. [xvi], xlviii, [vii], 193, [1]; 192, [xiv] pp. Title printed in red & black, 32 engraved folding plates, 1 folding table, index; margin of p.99 trimmed [1 ¾ x 2"] away. some foxing, browning of leaves (title very browned) due to offsetting. Beautifully preserved original mottled calf, raised bands, gilt spine compartments, red leather spine label. Ownership mark on title of "Mr. Al. Liotard." Very good.

$ 1,100

FIRST EDITION, incorporating the first Latin edition of the *Saggi di naturali esperienze* (1667) prepared by the Accademia del Cimento, Florence, with substantial additions throughout by Musschenbroek. Musschenbroek was one of the great physical experimenters and lecturers of the eighteenth century, and the teacher of Nollet. This book contains the first description of the pyrometer, an instrument for measuring the expansion of solid bodies under the influence of heat. Like many of Musschenbroek's books, the *Tentamina* contains fine illustrations and is concerned with experiments in measuring humidity, magnets and electricity, air pressure, the structure of ice, heat and cold, capillarity, optics, the motion of sound, etc.

"He devised many of his experiments, in the process consulting records of other experimenters, among them those of the *Accademia del Cimento*. Musschenbroek translated their accounts into Latin, adding reports concerning his own work (1731)." – Encyclopedia.com

The work opens with Musschenbroek's *Oratio de Methodo Instituendi Experimenta Physica*, regarding his views on experimental philosophy, as inspired by Newton. "Underlying

Musschenbroek's lectures demonstrated with experiments was the experimental philosophy the principal source of inspiration was Newton, but Galileo, Torricelli, Huygens, Réaumur, and others were important to this school." – *DSB*, IX, p. 596. The Accademia del Cimento [Academy of Experiments] was founded in Florence in 1657. Among the founding members were Borelli, Steno, Redi, Cassini, Viviani and Torricelli, these final two being disciples of Galileo. This makes the Accademia older than either the Royal Society or the Académie des Sciences. Count Lorenzo Magalotti's text includes accounts of experiments on temperature and air pressure (including Torricelli's invention of the barometer), the velocity of sound and light, phosphorescence, magnetism, amber and other electrical bodies, the freezing of water, etc. The many fine plates in this translation illustrate the Accademia's work as well as Musschenbroek's own subsequent experiments. – Wolf, *History of science*, I, pp. 55-59.2 parts in 1.

Musschenbroek (1692-1761), professor of natural philosophy and mathematics at Utrecht and, later, professor of experimental physics at Leyden. He was one of the most celebrated physicists and investigators of his time; the experiments he describes are classics in primary instruction.

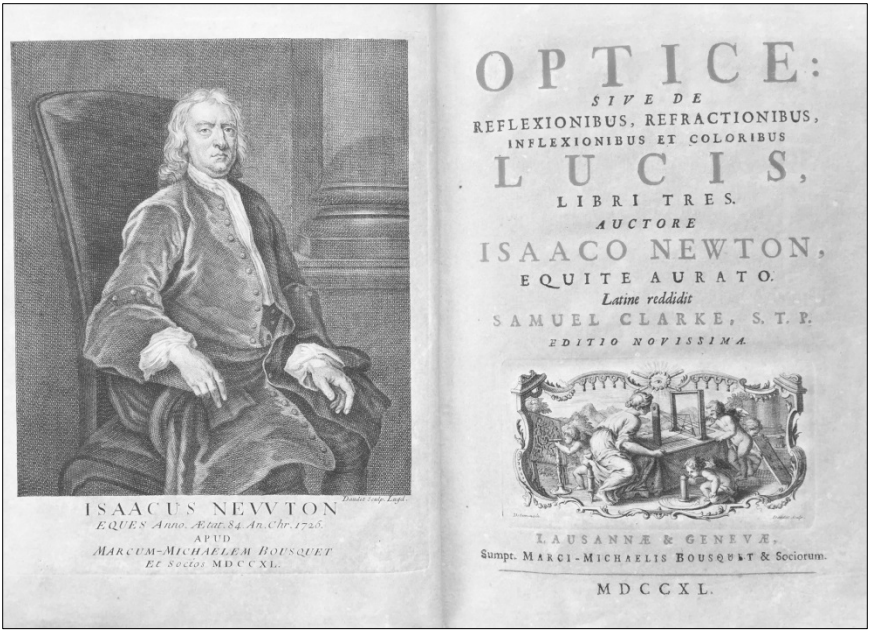
"Musschenbroek's earliest account of electricity (1731), the estimable notes to his Latin translation of the *Saggi*, is fuller, more circumspect and less coherent than 's Gravesande's, which he later entertained favorably. Two curious points emerge from the notes. To resolve the discrepancy between the results of Boyle and Hauksbee, who respectively did and did not succeed in generating electricity *in vacuo*, Musschenbroek hit on an unprecedented and prescient idea; remarking that Boyle used amber and Hauksbee glass, he concluded that these substances have different electricities… The second point concerns repulsion. Musschenbroek records without emphasizing Hauksbee's observation that light bodies are sometimes repelled farther than they are attracted; he squeezes it into a note that also gives an excellent prescription for rubbing the tube – always end with your hands together – and a warning about atmospheric humidity. He does not recognize that the *Saggi* require updating about repulsion, and concentrates on the perplexing behavior of screens, the opacity of muslin and the transparency of glass." – J. L. Heilbron, *Electricity in the 17th and 18th Centuries: A Study of Early Modern Physics,* (1979), p.242.

☼ Wheeler Gift 276. Not in Bakken.

42. **NEWTON, Isaac** (1643-1727). *Optice: sive de Reflexionibus, Refractionibus, Inflexionibus et Coloribus Lucis, libri tres. Latine reddidit Samuel Clarke … Editio novissima.* Lausannae & Geneva, Marci-Michaelis Bousquet & Sociorum, 1740. 4to. [iv], xxxii, 363, [1] pp. Half-title, engraved frontispiece portrait of Newton (engr. Jean-Louis Daudet after Vanderbank), 12 engraved folding plates, title vignette of 4 cherubs and a female figure, each using an optical instrument, representing learning optics/perspective (drawn by Delamoncein and engraved by Daudet), head & tail pieces and woodcut initial letters drawn by Papillon, index; first 11 leaves browned. Contemporary full vellum, green leather gilt-stamped spine label, edges with decorative red freckling as designed by the binder; foot of spine with faint ink marking "11-[??]". Paper unevenly browned. Verso of title with small ink annotation "=1135="; rear pastedown with another notation "á 20.Luglio 1801." Very good.

$ 2,750

Third Latin edition, edited by Bousquet, with a dedication to Joannes Bernoulli. This edition contains the full array of 31 querries.*



"Newton's contributions to the science of optics – his discovery of the unequal refractions of rays of different color, his theory of color, and his investigations of 'Newton's rings,' to mention only a few of the most noteworthy – place him among the premier contributors to that science. … Today we recognize that his work on optics offers unique rewards in its exciting, innovative conjunction of physical theory, experimental investigation, and mathematics, and in the revealing glimpse that it provides of a crucial period in the evolution of experimental science." – Alan E. Shapiro, *The Optical Papers of Isaac Newton: Volume 1*, (1984), p. xi.

Jean-Louis Daudét (1695-1756), who made the frontispiece and title vignette, was an engraver and print publisher active in Lyon, inherited business from his father Etienne Joseph Daudet. He flourished from 1722 till his death in 1756. Thereafter the business continued by his widow in association with his son-in-law Louis Martin Roch Joubert until 1773.

> "Newton famously declared that it is not the business of science to make hypotheses. However, it's well to remember that this position was formulated in the midst of a bitter dispute with Robert Hooke, who had criticized Newton's writings on optics when they were first communicated to the Royal Society in the early 1670's. The essence of Newton's thesis was that white light is composed of a mixture of light of different elementary colors, ranging across the visible spectrum, which he had demonstrated by decomposing white light into its separate colors and then reassembling those components to produce white light again. However, in his description of the phenomena of color Newton originally included some remarks about his corpuscular conception of light (perhaps akin to the cogs and flywheels in terms of which James Maxwell was later to conceive of the phenomena of electromagnetism). Hooke interpreted the whole of Newton's optical work as

an attempt to legitimize this corpuscular hypothesis, and countered with various objections."

"Newton quickly realized his mistake in attaching his theory of colors to any particular hypothesis on the fundamental nature of light, and immediately back-tracked, arguing that his intent had been only to describe the observable phenomena, without regard to any hypotheses as to the cause of the phenomena. Hooke (and others) continued to criticize Newton's theory of colors by arguing against the corpuscular hypothesis, causing Newton to respond more and more angrily that he was making no hypothesis, he was describing the way things are, and not claiming to explain why they are. This was a bitter lesson for Newton and, in addition to initiating a life-long feud with Hooke, went a long way toward shaping Newton's rhetoric about what science should be…."

"The first edition of *The Opticks* (1704) contained only 16 queries, but when the Latin edition was published in 1706 Newton was emboldened to add seven more, which ultimately became Queries 25 through 31 when, in the second English edition, he added Queries 17 through 24. Of all these, one of the most intriguing is Query 28, which begins with the rhetorical question "Are not all Hypotheses erroneous in which Light is supposed to consist of Pression or Motion propagated through a fluid medium?" In this query Newton rejects the Cartesian idea of a material substance filling in and comprising the space between particles. Newton preferred an atomistic view, believing that all substances were comprised of hard impenetrable particles moving and interacting via innate forces in an empty space (as described further in Query 31)." – Newton's Cosmological Queries – MathPages.

☼ Grace K. Babson, *Sir Isaac Newton*, (1950), 141; George J. Gray, *A Bibliography of the Works of Sir Isaac Newton*, 182; Wallis 182. See: *Printing and the Mind of Man*, 172.

43. **NEWTON, Isaac** (1643-1727). *Opuscula Mathematica, Philosophica et Philologica. Tomus secundus Continens Philosophica.* Lausannae & Geneva: Apud Marcum-Michaelem Bousquet, 1744. Vol. II (of 3) only. 4to. vi, 423 pp. Title vignette, 28 + 3 [between pls. 22/24] + 2 engraved plates (many folding); top corner waterstained (more pronounced at rear). ORIGINAL PLAIN BOARDS (untrimmed); spine fragmented. Signature of Thomas Smythe, esq. Good.

$ 450

First collected edition of Newton's works on mathematics, philosophy and philology, edited by Johann Castillon (1708-1791), born with the name of Giovanni Francesco Mauro Salvemini Melchiorre da Castiglione, but changed it later to Johann Castillon; he was a student at Pisa, engaged in the fields of mathematics and law. Later he moved to Switzerland (till 1751), taught at Lausanne, and Bern, then to the University of Utrecht (13 years). He spent his last years in Berlin, becoming Rector. He was appointed the first astronomer to the Royal Court. Babson describes the edition as "a fine piece of bookmaking."

This section contains the optical lectures XVIII through XXI. The chief works within are his treatises on the *System of the World,* of the telescope, the comet of 1671/2 and of Color. Contents: De Mundi Systemate; De Radiorum Lucis Refractionibus; De Colorum Origine; Epistola continens NNewtoni novam Theoriam de Luce et Coloribus; &c.; Descripio novi cata-dioptrici Telescopii inventi ab Isaaco Newtono …; Quod probatur Christiano Hugenio Zulichemio; Quaedam ad idem instrumentum pertinentia conscripta ab Isaaco Newtono; Quaedam de Cometa Anni 167 1/2 ; Admonitiones Newtoni nonnullae ad Telescopium ...; Pars Epistolae à Bercaeo scripta

de cata-dioptrico Telescopio, quod asserebatur redditum perfectius à Cassegrainio; etc., etc.

☼ Gray, p. 2; Babson, 9; Gjertsen, T*he Newton Handbook*, p. 98; Riccardi, I, p.297; Zeitlinger (II Suppl.), 659.

44. **NICHOLSON, John**. *The Operative Mechanic, and British Machinist; being a practical display of the Manufactories and Mechanical Arts of the United Kingdom*. Philadelphia: T. Desilver, 1831.

2 vols. 8vo. 360; xviii, [2], 448 pp. 98 engraved plates (4 folding); heavily foxed throughout, some stains, pl. facing v. I p. 8 torn at lower gutter. Minor ink annotation to v. I errata and v. II, p. 360 (foot of page). Original full sheep, gilt spine rules, 2 black leather spine labels; rubbed. Ownership mark of Aylett H. Buckner. Good (binding very good).

$ 275

Second American edition, from the Third London edition, with additions. The contents deals with friction, mechanical tools (lever, wheel, axle, pulley, inclined plane, wedge, screw), mill gearing, animal strength (horses, mules), water (mills, penstock, windmills, etc.), steam engines, flour-mills, hydraulics, simple machines, metal manufacturing, making paper, cotton, wool, silk, flax, weaving, rope-making; saw-mills, colour-mill, indigo-mill, pottery, horology, and many types of buildings (masonry, bricklaying, carpentry, joinery, plastering, plumbing, painting, railroads), arithmetic, etc.

A sales pitch for this volume states, "… comprehending a complete and systematic development of the theory and practice of the productive arts in their present state of unrivalled perfection; and exhibiting the scientific principles, actual construction and practical uses of the machinery and implements now used in perfecting the national manufacturers of every description." Most importantly its states further, these books contain information "*not as the same knowledge already exists in Books, but as it is actually found in Workshops and Manufactories of the highest character."* "It was planned under the auspices of Dr. Birkbeck, President of the Mechanics' Institution of London, and executed at his suggestion by Mr. John Nicholson, a gentleman considered as especially qualified for this duty – by education under a Father [William Nicholson] whose *Journal of Science and Natural Philosophy*, and various other highly esteemed works, had, for half a century, placed him at the head of the scientific world…"

PROVENANCE: Aylett Hawes Buckner (1816-1894), was a U.S. Representative from Missouri, studied and practiced law, worked as a judge, invested in tobacco, etc.

John Nicholson, Esq., was a civil engineer, son of William Nicholson (1753-1815), British chemist and editor of the *Journal of Science and Natural Philosophy*. The *DNB* does not mention any children of William Nicholson.

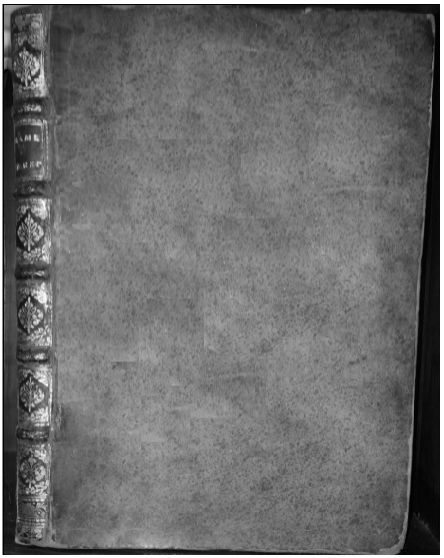
See: Goldsmiths'-Kress library of economic literature, no. 24503.

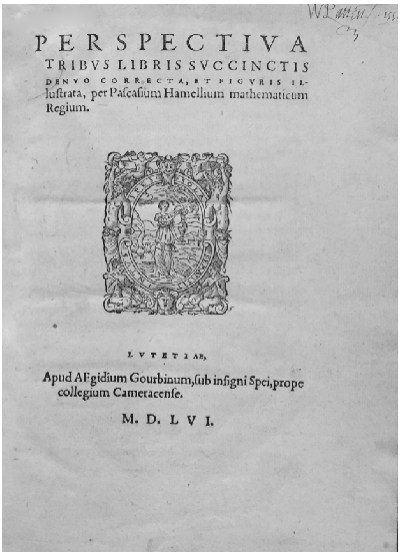
45. [**OPTICS**]. *Encyclopaedia Perthensis; or, Universal Dictionary of the Arts, Sciences, Literature, &c. intended to supersede the use of other books or reference.* "Optics" [section]. Second edition. Volume XVI. Edinburgh: For the Proprietors, 1816. Sm. 4to. pp. 319-440. 13 engraved plates (CCXLIX-CCLXI), index. Disbound. Very good.

$ 50

Divided into two parts, preceded by a history of optics: the text opens with the definition of optics by Dr. Samuel Johnson, followed by a lengthy *history* of optics [I:

Discoveries concerning light; II: Discoveries concerning the Refraction of Light; III: Discoveries concerning the reflection of light; IV: Discoveries concerning the inflection of light; V: Discoveries concerning vision; VI: Discoveries of optical instruments. Part I: Theory of optics. I: Of the properties of light in general; II: Of refraction; Of the cause of refraction, and the law by which it is performed; Of the focal distance of rays refracted, by passing out of one medium into another of different density, and through a plane surface; III: ; IV: Of glasses; III: Of glasses; Of the appearance of objects seen through media of different forms; Sec. IV: Of the refraction of light; † I: Of the cause of reflection; † II: Of the laws of reflection; † III: Of the appearance of bodies, seen by light reflected from plane and spherical surfaces; Sec. V: Of the different refrangibility of light. Part II: Sec. I: The application of the preceding theory to several Natural Phenomena. † I: Of the rainbow; † II: Of haloes, parhelia, &c.; † III: On the apparent place, distance, magnitude, and motion of objects; † IV: Of the concave figure of the sky; † V: Of the Blue colour of the sky, and of the blue and green shadows; † VI: Of the irradiations of the sun's light; † VII: Of the illumination of the shadow of the earth by the refraction of the atmosphere; † VIII: Of the measures of light. Sect. II: Of aberration. Sect. III: Of optical instruments; † I: Of the multiplying glass; † II: Of mirrors; † III: Of microscopes [pp.435-429]; † IV: Of telescopes; † V: Of the different merits of microscopes and telescopes; the discoveries made by them, and of further improvements.





PERSPECTIVA
TRIBVS LIBRIS SVCCINCTIS
DENVO CORRECTA, ET FIGVRIS IL-
lustrata, per Pascasium Hamellium mathematicum
Regium.

LVTETIAE,
Apud Aegidium Gourbinum, sub insigni Spei, prope
collegium Cameracense.
M. D. L V I.

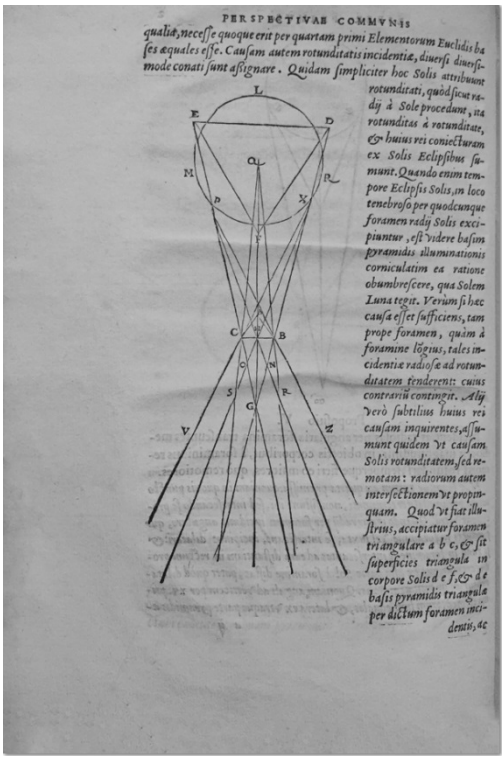
46. **PECKHAM, John (or Pecham),** (ca.1230-1292)**; HAMELLIUS, Paschasius** (d.1556)**; HARTMANN, Georg** (1489-1564). *Perspectiva Tribus Libris Succinctis denuo correcta, et figuris illustrata, per Pascasium Hamellium mathematicum Regium.* Lutetiae [Paris]: Apud Aegidium Gourbinum, sub insigni Spei, prope collegium Cameracense, 1556.

Sm. 4to. [iv], 43 ff. Title printer's woodcut device, initial letters, 2 headpieces, 62 geometrical and perspective woodcut diagrams. Printed in "beautiful" [Cicognara] italics throughout. Original full speckled calf, gilt-stamped spine, edges speckled red; rubbed. Bookplate of C.W. Turner, 1968 - gift to The Library, University of Keele. Title with ownership signature of W. Latten [?], 1557.

$ 4,500

First Paris printing in Latin, being a reprint of *Perspectiva communis*, edited in 1542 by Georg Hartmann and Pascasius Hamellius [Pascasio Duhamel], this is famous classic on perspective written by Peckham in the late 13th century. It was the most widely used optical text and was unparalleled for some 300 years. It was first printed in Milan in 1484, as *Perspectiva Communis*.

Peckham was responsible for introducing the concepts of optics and perspective of Alhazen and Arabian science and bringing them to the West. "The *Perspectiva communis* was the most widely used of all optical texts from the early fourteenth 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." (p.476) "In the first book Pecham discussed the propagation of light and color, the anatomy and physiology of the eye, the act of visual perception, physical requirements for vision, the psychology of vision, and the errors of direct vision. In book II he discussed vision by reflected rays and presented a careful and sophisticated analysis of image formulation by reflection. Book III was devoted to the phenomena of refraction, the rainbow, and the Milky Way." (p.475) – David C. Lindberg for *DSB*.



"L'obiettiva della luce e delle rifrazioni è matematicamente trattata in 43 foglietti di stampa con bei caratteri corsivi, e la figure in legno fra il testo." – Cicognara 838.

PROVENANCE: Charles W. Turner (1886-1973), of London, collected books for over 50 years and gave them in 1968 to the University of Keele Library, who "sold the collection secretly to a book dealer for one million pounds [in 1998]." – John Fauvel. See: Steven Shapin & Susan Hill, "The Turner Collection of the History of Mathematics at the University of Keele," *The British Journal for the History of Science,* Volume 6, Issue 3, June 1973.

☼ Adams H-27; Berlin Kat. 4684; Leopoldo Cicognara, *Catalogo Ragionato dei Libri d'Arte e d'Antichita* … Pisa, (1821), 838; *DSB*, X, pp. 473-76; Lindberg, David C., *Theories of Vision from Al-Kindi to Kepler*, Chicago, (1976); National Art Library (Great Britain), John Hungerford Pollen, Universal catalogue of books on art, Volume 1, p. 779; *Oxford Dictionary of National Biography*; Luigi Vagnetti, *De naturali et artificiali perspectiva: bibliografia ragionata delle fonti teoriche e delle ricerche di storia della prospettiva*, Firenze, (1979), Db8.

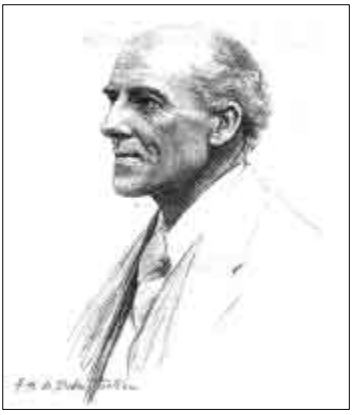
47. **POISSON, Siméon-Denis** (1781-1840). *Recherches sur la probabilité des jugements en matière criminelle et en matière civile, précédées des règles générales du calcul des probabilités*. Paris: Bachelier, 1837.

4to. [4], ix, [3], 415, [1] pp. Half title; light foxing within. Original quarter dark green gilt-stamped calf, marbled boards; extremities worn. Very good. Provenance: SIGNATURE OF KARL PEARSON (1857-1936).

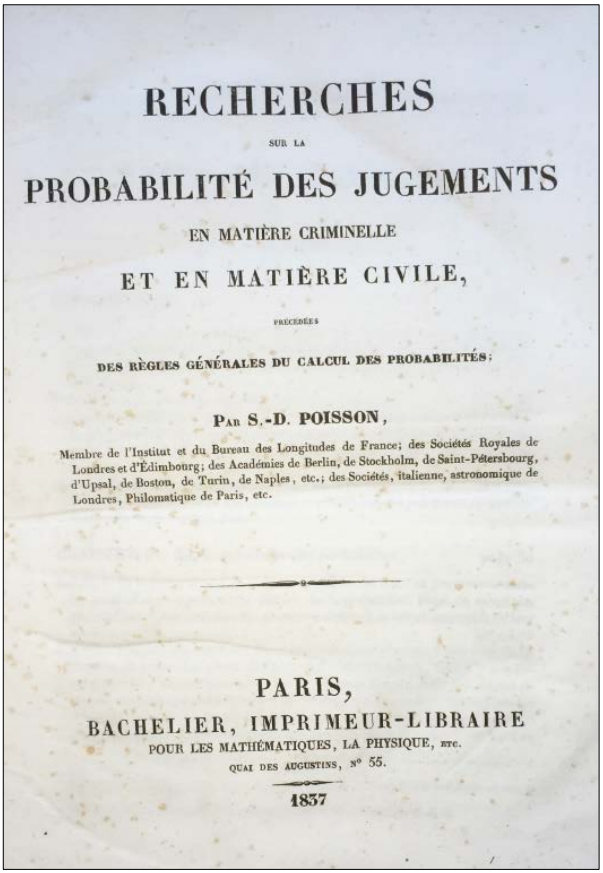
$ 4,000

First edition of the work that presented Poisson's 'Law of large numbers.' "He improved Laplace's work by relating it explicitly to Jacob Sernoulli's fundamental theorem and by showing that the invariance in the prior probabilities of mutually exclusive events is not a necessary condition for calculating the approximate probabilities. It is also from Poisson that we derive the study of a problem that Laplace had passed over, the case of great asymmetry between opposite events, such that the prior probability of either event is very small." – *DSB* (p. 489).

"Poisson's major work on probability was a book, *Recherches sur la probabilité*…, published in 1837. The book was in large part a treatise on probability theory after the manner of Laplace, with an emphasis on the behavior of means of large numbers of measurements. The latter portion (p. 318-415) dealt with the subject matter of the title. Some of this material was taken from memoirs Poisson published in the two preceding years. Only a charitable modern reading could identify a new concept in the work; yet the book contains the germ of the two things now most commonly associated with the Poisson's name. The first of these is the probability distribution now commonly called the Poisson distribution… In a section of the book concerned with the form of the binomial distribution for large numbers of trials, Poisson does in fact derive this distribution in its cumulative form, as a limit to the binomial distribution when the chance of a success is very small. The distribution appears on only one page in all of Poisson's work (see p. 206). Although it is given no special emphasis tis brief notice did catch the eye of Cournot, who republished it in 1843 with calculations demonstrating the effectiveness of the approximation (Cournot, 1843 …). The second most common appearance of Poisson's name in modern literature is in connection with a generalization of the Bernoulli law of large numbers." – Stigler.



Karl Pearson



RECHERCHES

SUR LA

PROBABILITÉ DES JUGEMENTS

EN MATIÈRE CRIMINELLE

ET EN MATIÈRE CIVILE,

PRÉCÉDÉES

DES RÈGLES GÉNÉRALES DU CALCUL DES PROBABILITÉS;

PAR S.-D. POISSON,

Membre de l'Institut et du Bureau des Longitudes de France; des Sociétés Royales de Londres et d'Édimbourg; des Académies de Berlin, de Stockholm, de Saint-Pétersbourg, d'Upsal, de Boston, de Turin, de Naples, etc.; des Sociétés, italienne, astronomique de Londres, Philomatique de Paris, etc.

PARIS,

BACHELIER, IMPRIMEUR-LIBRAIRE

POUR LES MATHÉMATIQUES, LA PHYSIQUE, ETC.

QUAI DES AUGUSTINS, N° 55.

1837

"[This work is] significant for the author's participation in an important contemporary debate. The legitimacy of the application of the calculus to areas relating to the moral order, that is to say within the broad area of what is now called the humanistic sciences, was bitterly disputed beginning in 1820 in politically conservative circles... Poission was bold enough to take pen in hand to defend the universality of the probabilistic thesis and to demonstrate the conformability to the order of nature of the regularities that the calculus of probability, without recourse to hidden causes, reveals when things are subjected to a great number of observations." –*DSB* (pp. 489).

Laid within this volume are five pages (on four leaves) of mathematical notations in French, suggesting an ownership (unknown) prior to Pearson.

Karl Pearson (1857-1936) "was a major player in the early development of statistics as a serious scientific discipline in its own right. He founded the Department of Applied Statistics (now the Department of Statistical Science) at University College London in 1911; it was the first university statistics department in the world. The present departments of Statistical Science and Computer Science, as well as the Genetics and Biometry group in Biology and the physical side of Anthropology are all part of his legacy to UCL." A major proponent of eugenics, Pearson was also a protégé and biographer of Sir Francis Galton.

"Karl Pearson was born in London on the 27th March 1857. "He was educated privately at University College School, after which he went to King's College Cambridge to study mathematics. He then spent part of 1879 and 1880 studying medieval and 16th century German literature at the universities of Berlin and Heidelberg - in fact, he became sufficiently knowledgeable in this field that he was offered a post in the German department at Cambridge University."

"His next career move was to Lincoln's Inn, where he read law until 1881 (although he never practised). After this, he returned to mathematics, deputising for the mathematics professor at King's College London in 1881 and for the professor at University College London in 1883. In 1884, he was appointed to the Goldshmid Chair of Applied Mathematics and Mechanics at University College London. 1891 saw him also appointed to the professorship of Geometry at Gresham College; here he met W.F.R. Weldon, a zoologist who had some interesting problems requiring quantitative solutions. The collaboration, in biometry and evolutionary theory, was a fruitful one and lasted until Weldon died in 1906. Weldon introduced Pearson to Francis Galton, who was interested in aspects of evolution such as heredity and eugenics, and this was another very rewarding partnership, more for the developments in statistics it led to than for the eugenics, some of which is rather problematic for a modern reader with knowledge of subsequent developments.

"Galton died in 1911 and left the residue of his estate to the University of London for a Chair in Eugenics. Pearson was the first holder of this chair, in accordance with Galton's wishes. He formed the Department of Applied Statistics, into which he incorporated the Biometric and Galton laboratories. He remained with the department until his retirement in 1933, and continued to work until his death in 1936.

"Pearson married Maria Sharpe in 1890, and between them they had 2 daughters and a son. The son, Egon Sharpe Pearson, succeeded him as head of the Applied Statistics Department at University College.

"Aside from his professional life, Pearson was active as a prominent free thinker and socialist. He gave lectures on such issues as "the woman's question" (this was the era of the suffragette movement in the UK) and upon Karl Marx. His commitment to socialism and its ideals led him to refuse an OBE (Order of the British Empire) when it was offered in 1920, and also a Knighthood in 1935." – University College London.

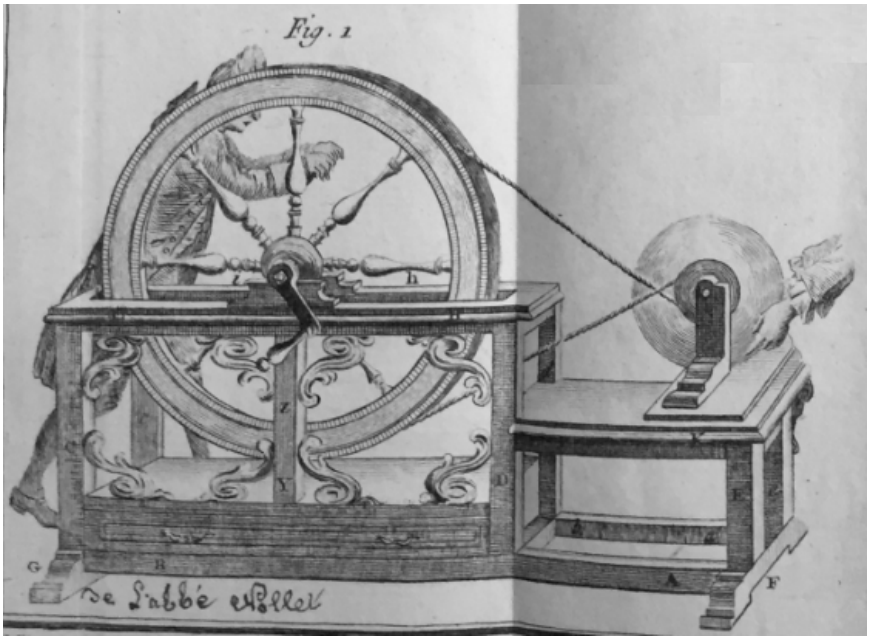
F. Fraunberger, within *DSB*, XV, Supple., I, pp. 480-491; Dodge, Yadolah, *The Concise Encyclopedia of Statistics,* (2008), p. 427; Stigler, *The History of Statistics,* pp. 182-3.

Pearson, E.S., *Karl Pearson: an appreciation of some aspects of his life and work*. Cambridge University Press, (1938).

48. **Reichert, New York**. *Reichert 1876-1926. List E7. Optical Works C. Reichert, Wien (Austria)*. New York: Reichert, 1926. Tall 8vo. 137, [1] pp. Figs., index. Printed wrappers; minor wear to spine ends. Very good.

$ 75

On the cover: "Sole Agents for U.S.A. and Canada: Pfaltz & Bauer Inc., 300 Pearl Street, New York, N.Y.-U.S.A." Contents: Objectives & eyepieces; condensers; mirco-polars; mechanical stages; microscopes for universal purposes; capillary microscope and dermatoscope; binocular stereoscopic microscopies; magnifiers; dissecting microscopes; mineralogical microscopes; micro-polarising apparatus; measuring, drawing and auxiliary apparatus; opaque illuminators; apparatus for the examination of blood; photo-micrography; etc.



Electrical Demonstrations & Instruments

49. **SIGAUD DE LA FOND, Joseph-Aignan** (1730-1810). *Précis Historique et Expérimental des Phénomènes Électriques depuis l'Origine de cette Découverte jusqu'à ce Jour ... Seconde édition, Revue et augmentée*. Paris: Rue et Hotel Serpente, 1785.

200x125 mm. 8vo. xvi, [4], 624 pp. Half-title, 10 folding engraved copperplates (by Sellier), [pl. 3 has a manuscript annotation relating to the electrical machine of the author's design], errata; lacks the 2 privilege leaves at end. Contemporary calf-backed marbled boards; cover corners showing, joints mended with kozo. 19th-century stamp on title and elsewhere of Binet Dufour; inscription "Electrobiologique Traitement Electropathique, Par M. Guérin, Boulevard de Strasbourg…" Occasional neat manuscript ink corrections or marginalia. Very good.

$ 500

Second edition of a work on electricity and magnetism originally published in 1781. The work mentions a number of electrical devices used to make demonstrations and experiments. This period marks a stark contrast in instruments used for experiments and instruments used for demonstrations. See: Thomas L. Hankins, Robert J. Silverman, *Instruments and the Imagination*, 2014, p. 58.

"The final, greatly enlarged edition … of this comprehensive history of electricity and magnetism, and their development and applications, including use for curing diseases. Benjamin Franklin and his experiments are fully discussed as are those of Gilbert, Hauksbee, Ingenhousz, Nollet, [Volta] and others. Extensive accounts are given of atmospheric electricity and lightning

conductors, with some original experiments of the author, who claims to have been the first to use glass plates with electrical machines in 1756. He also described an improved Leyden jar. "A work of merit" (Wheeler Gift). As with his other works on physics, this contains numerous references to chemical experiments and phenomena." – Neville catalog.

Arranged in five sections, the first offers a history of the origins and progress of electricity to the present period (c.1785) and the Leyden jar. Section II relates to "Leyde" (Leyden Jar invented by Pieter van Musschenbroek of Leiden, with Ewald Kleist also achieving the same invention) and the theories of Benjamin Franklin. Sec. III: Analyzing electricity and comparing it to thunder and magnetism. Within this section deals with meteorology as thunder applied to electrical phenomena, and also the means to divert lightning, the relationship between magnetism and electricity. Sec. IV: Applications made using electrical fluid. With electricity in a void, in electrical fish, electrical properties of tourmaline, "The electric stone." Also: using the electrophorus generator [invented by Johan Carl Wilcke in 1762], producing a static charge. Article V in this section offers more on two pocket-sized electric machines that produce 'some strange phenomena of electric commotion.' The volume finishes with four proposed problems. Adding to all this, the half-title bears an advertisement for his nephew* Rouland, a demonstrator of physics at the University of Paris, and also a course for electrical instruments. See: Rouland, *Description des machines électriques à taffetas, de leurs effets et des divers avantages que présentent ces nouveaux appareils*, 1785. * [Mottelay suggests "N." for Rouland's first name, though WorldCat and other sources do not have his first name]. See: Hankins & Silverman, p. 59.

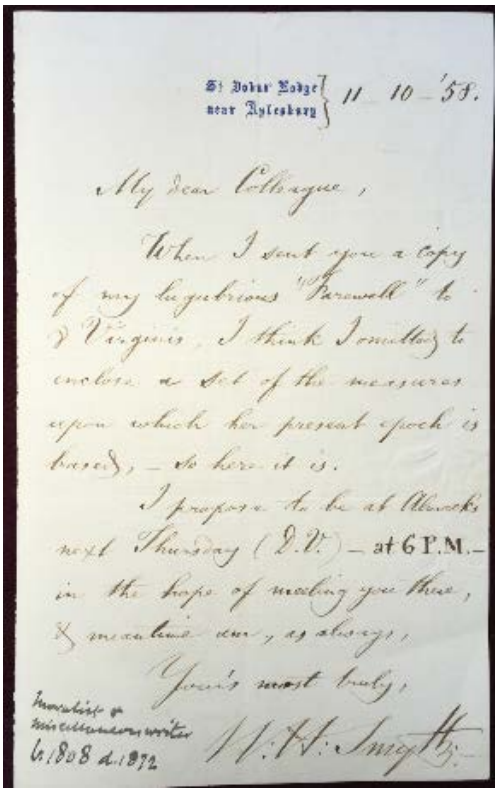
Provenance: "Binet-Dufour á Houdan s soise propriétaire" – a French instrument maker, known for their barometers.

Sigaud de la Fond (1730-1810) was a pupil of Nollet, and taught experimental physics in Paris, succeeding him in 1760 at the Collège Louis-le-Grand, following his mentor. "Sigaud was a prolific writer in the fields of experimental physics, chemistry, medicine, and (apparently as a consequence of his early Jesuit training) theology. Experimental science was a fashionable pursuit among the leisured classes in eighteenth-century France, and Sigaud was one of several illustrious popularizers who satisfied the intellectual appetites and curiosities of an ever-in-creasing number of amateurs of science. Popular interest tended toward the more spectacular examples of natural phenomenon: and lectures accompanied by demonstrations, especially on electricity and on the newly discovered gases, always attracted large and enthusiastic crowds." – Encyclopedia.com

☼ Bakken p.107; Blake p. 418; Ekelöf, 497; Gartrell, 492; Mottelay, p. 280; Roy G. Neville II, pp. 475-76; Poggendorff, II, p. 927; Wellcome Library 48238/B; Wheeler Gift 505a. See: Thomas L. Hankins, Robert J. Silverman, *Instruments and the Imagination*, 2014, p. 59.

See: Isaac Benguigui, Nollet (Jean Antoine, Abbé), Jean Jallabert, *Théories électriques du XVIIIe siècle: Correspondance entre l'Abbé Nollet (1700-1770) et le physicien genevois Jean Jallabert (1712-1768),* Genève, 1984, page 40.

50. **SMYTH, Captain William Henry** (1788-1865). *A Cycle of Celestial Objects for the Use of Naval, Military, and Private Astronomers*. Volume 1: *Prolegomena*; Volume II: *The Bedford Catalogue*. London: John W. Parker, 1844. 2 volumes. 8vo. viii, [4], 516; xx, 560 pp. Original half purple calf, gilt-stamped spines, decorative publisher's cloth sides, green floral pattern endleaves; rubbed. Ownership signatures of H.J. Lewis and Rev. J.B. Allison (of Chesterfield, a star-gazer in 1883). Very good. WITH AN AUTOGRAPH LETTER SIGNED BY THE AUTHOR. Very Scarce.


St. John's Lodge near Aylesbury 11 10 '58.

My dear Colleague,

When I sent you a copy of my lugubrious "Farewell" to *e Virginis*, I think I omitted to enclose a set of the measures upon which her present epoch is based, – so here it is.

I propose to be at Almack's next Thursday (D.V.) – at 6 P.M. – in the hope of meeting you there, & meantime am, as always,

Yours most truly,

W.H. Smyth

Annotation: Musician & miscellaneous writer b.1808 d.1872

$ 2,500

The true first edition of William Henry Smyth's classic handbook intended for amateur astronomers. George Lovi calls it "the first true celestial Baedeker and not just another 'cold' catalogue of mere numbers and data."

AN AUTOGRAPH LETTER SIGNED BY THE AUTHOR [to an unknown astronomer]: On his personal stationary "St. John's Lodge, near Aplesbury, [U.K.]. dated 11-10-'58 [October 11, 1858]. "My dear colleague, When I sent you a copy of my lugubrious "Farewell" to *e Virginis*, I think I omitted to enclose a set of the measures upon which her present epoch is based, - so here it is. / I propose to be at Almack's next Thursday (D.V.) – at 6 P.M. – in the hope of meeting you there, & meantime am, as always, Yours most truly, W.H. Smyth"

St. John's Lodge [Cardiff] was the author's home as well as the place where he made many of his astronomical observations and calculations.

"In 1825 Smyth established a private observatory in Bedford, England, equipped with a 5.9-inch refractor telescope. He used this instrument to observe a variety of deep sky objects over the course of the 1830s, including double stars, star clusters and nebulae. He published his observations in 1844 in the Cycle of Celestial Objects, which earned him the Gold Medal of the Royal Astronomical Society in 1845 and also the presidency of the society. The first volume of this work was on general astronomy, but the second volume became known as the *Bedford Catalogue* and contained Smyth's observations of 1,604 double stars and nebulae. It served as a standard reference work for many years afterward; no astronomer had previously made as extensive a catalogue of dim objects such as this. It was reprinted in 1986, and in the Foreword to that edition George Lovi … writes, 'What makes it so special is that it is the first true celestial Baedeker and not

just another 'cold' catalogue of mere numbers and data. Like the original Baedeker travel guidebooks of the last century, this work is full of colorful commentary on the highlights of the heavenly scene and heavily influenced several subsequent works of its type, even to the present day. ... It is in the descriptive material that Smyth is a delight. He not only describes what the user of a small telescope will see, but also includes much fascinating astronomical, mythological, and historical lore. Many of these descriptions are especially valuable for the novice and user of small telescopes of a size similar to Smyth's.'"

See: (2008). William H. Smyth, "The Bedford Catalog from Cycle of Celestial Objects; foreword by George Lovi, 1986."

Admiral William Henry Smyth KFM DCL FRS FRAS FRGS FSA (1788-1865), born in Westminster, England, was an English naval officer, hydrographer, astronomer and numismatist. He is noted for his involvement in the early history of a number of learned societies, for his hydrographic charts, astronomical work, and a wide range of publications and translations. He died at his home in St. John's Lodge, Cardiff, and buried in the little churchyard at Stone near Aylesbury.

"Très curieux à garder" / "Very curious – Keep"

51. **SPALLANZANI, Lazzaro** (1729-1799); **John Tuberville NEEDHAM** (1713-1781). *Nouvelles Recherches Sur Les Découvertes Microscopiques, et La Génération Des Corps Organisés. Ouvrage Traduit de l'Italien de M. L'Abbé Spalanzani … … Et dédié à Son Altesse, Monseigneur le Prince de Marsan, par M. L'Abbé Regley ..…. Avec des Notes, des Recherches physiques & métaphysiques sur la Nature & la Religion, & une nouvelle Théorie de la Terre.* Londres; Paris: Chez Lacombe, 1769. Two parts in one vol. Sm. 8vo. [ii], ii, liv, [ii], 298; [iv], xvi, 293, [3] pp. 9 copper engraved plates (6 folding) by Le François, head and tail-pieces, two errata; manuscript annotation margin of Pt. I, p. 257 [index section] "Bien te veo. plante sensitive, pt. I, p. 243". Contemporary quarter calf, marbled boards; upper cover with large gauges in leather and boards, lower cover is unaffected, corners showing. Early inscription, "très curieux à garder, LS-[?]". Very good.

$ 850

French edition translated by Regley of the Spallanzani's *Saggio di osservazioni microscopiche*, (1765), with notes, in which he reported on spontaneous generation in strongly heated infusions protected from aerial contamination. Needham contended that excessive heat enfeebled or destroyed

the vegetative force of infusions and impaired the essential elasticity of air within sealed flasks. Educated laymen aligned themselves on either side of the spontaneous generation controversy, but the issue was not resolved until Pasteur replied to Needham's contention (in footnotes to this work) that through using a longer boiling period Spallanzani had destroyed something in the air responsible for sustaining life. Other parts of the work relate to nature and religion, a new theory of the earth, and a measure of the height of the Alps [with 2 plates showing the Alps], by Needham.

"Himself a priest, Spallanzani developed an interest in microscopical research during his seminary years, and he stayed in touch with religious colleagues with whom he exchanged information about microscopes. He belonged to a network of north and central Italian lay and religious scholars who worked with the microscope." (p. 95). "Priests and friars working as craftsmen supplied handy microscopes suitable for research, and helped to fill the market with cheap instruments, thus reducing the demand for more expensive microscopes made by professional makers. As a consequence, the professionalization of microscope making was hindered during the eighteenth century in Italy … The importance of those clerical amateur makers should not be underestimated. Indeed, they competed with professional makers, they filled in part the needs of scholars …" (p. 96) – Dr. Marc J Ratcliff, *The Quest for the Invisible: Microscopy in the Enlightenment,* (2013), p. 95.

"An account of these experiments may best be seen in a French translation of a work by Spallanzani entitled, *Nouvelles Recherches Sur Les Découvertes Microscopiques,* 1769, with copious notes by Needham."(p. 87). In "… the middle of the eighteenth century, during the controversy that occurred between the learned Abbé Spallanzani, Professor of Philosophy at Modena, and Tuberville Needham, a Catholic priest, … They often worked together and shared one another's views … In the controversy between him and Spallanzani, what is known as the 'method of Spallanzani' was had recourse to in the most important of their experiments. It was extremely simple and yet perfectly suitable. The infusions with which trial was to be made were introduced into flasks with narrow necks; the necks of the flasks were drawn out and then hermetically sealed in the blow-pipe flame, while the flasks with their contents were subsequently heated in boiling water for different periods – with the view of killing any pre-existing living things, either in the fluids, in the air contained within the flasks, or on the walls of the vessels themselves." (pp. 87-88) – H. Charlton Bastian, James Strick, *Evolution and the Spontaneous Generation Debate*, (2001), vol. I, p. 87.

The second part, with separate title page, has title: *Nouvelles recherches physiques et métaphysiques sur la nature et la religion, avec une nouvelle théorie de la terre, et une mesure de la hauteur des Alpes, par M. de Needham.*

☼ *DNB*, XIV, pp. 157-9; *DSB*, X, pp. 9-11 [and] XII, pp. 553-67. See: Garrison and Morton 100 for the 1765 edition by Spallanzani: "He was one of the first to dispute the doctrine of spontaneous generation."

52. **Dr. Steeg & Reuter**. *Preis-Verzeichniss optischer Instrumente, Apparate, und Präparate besonders zur Polarisation des Lichtes; Dr. Steeg & Reuter.* Homburg vor der Höhe & Vienna: Dr. Steeg & Reuter, 1883/4. 8vo. 56 pp. Figs. Green printed wrappers. Very good. RARE.

$ 275

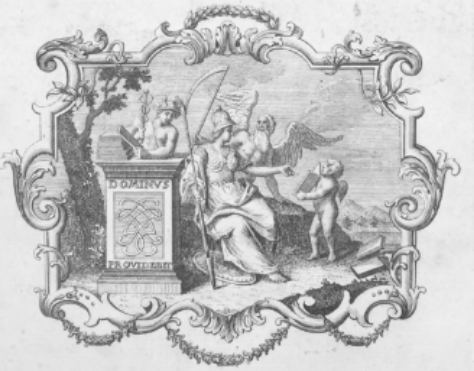
Dr. Wilhelm Steeg (1819-1903) & Peter Reuter (1852-1898) were established in 1855.

EMANUELIS SWEDENBORGII
SACRÆ REGIÆ MAJESTATIS REGNIQUE SVECIÆ
COLLEGII METALLICI ASSESSORIS

REGNUM SUBTERRANEUM
SIVE
MINERALE
DE
CUPRO ET ORICHALCO
DEQUE

MODIS LIQUATIONUM CUPRI PER EUROPAM PASSIM IN USUM RECEPTIS: DE SECRETIONE EJUS AB ARGENTO: DE CONVERSIONE IN ORICHALCUM: INQUE METALLA DIVERSI GENERIS: DE LAPIDE CALAMINARI: DE ZINCO: DE VENA CUPRI ET PROBATIONE EJUS: PARITER DE CHYMICIS PRÆPARATIS, ET CUM CUPRO FACTIS EXPERIMENTIS &c. &c.

CUM FIGURIS ÆNEIS.



DRESDÆ ET LIPSIÆ,
SUMPTIBUS FRIDERICI HEKELII,
BIBLIOPOLÆ REGII M DCC XXXIV.

"Swedenborg's most important scientific work."

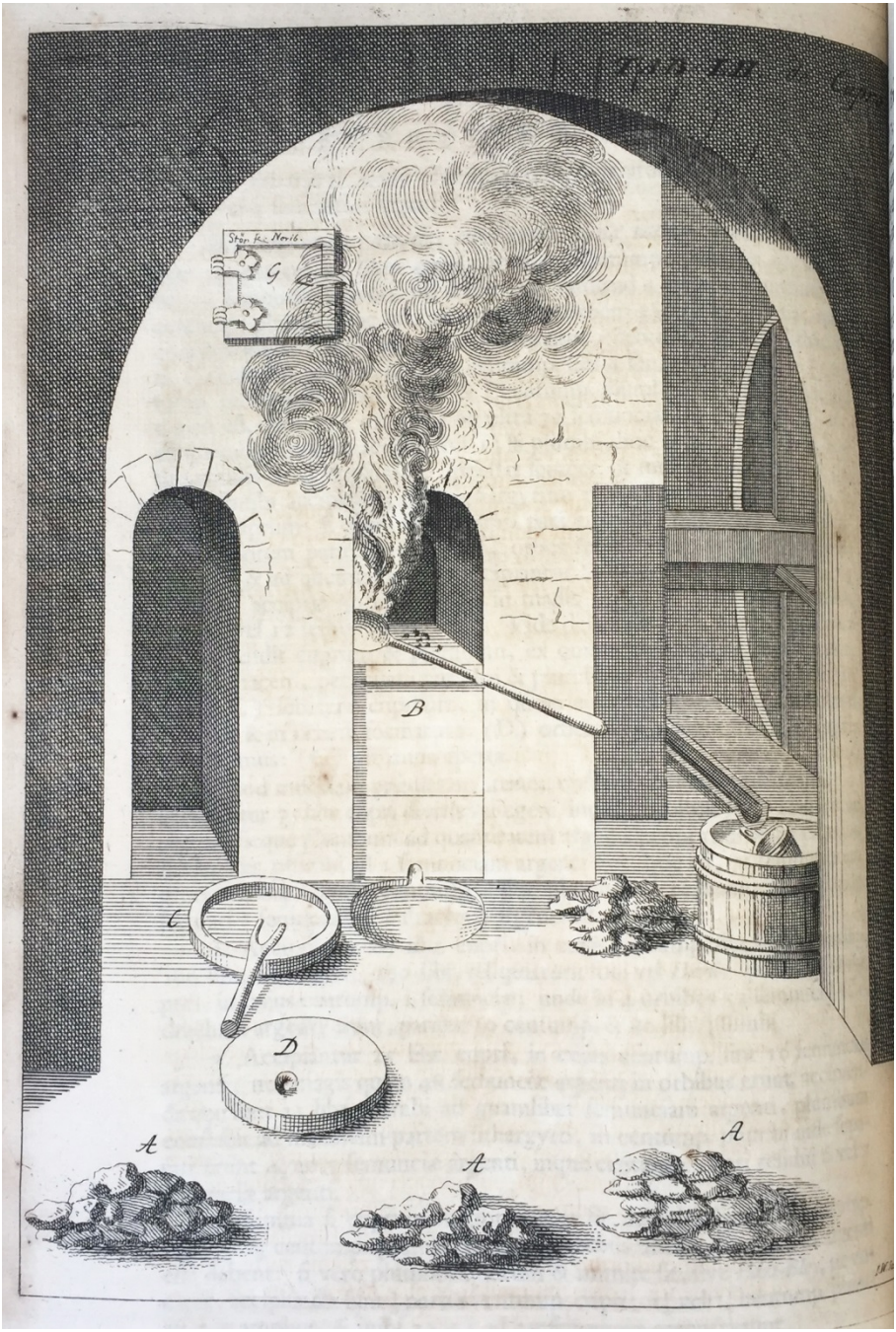
53. **SWEDENBORG, Emanuel**. *[Opera philosophica et mineralia]:* [I]: *Principia Rerum Naturalium sive Novorum Tentaminum Phaenomena Mundi Elementaris Philosophice Explicandi...*[II]: *Regnum Subterraneum sive Minerale De Ferro Deque Modis Liquationum Ferri Per Europam Passim In Usum Receptis: Deque Conversione Ferri Crudi In Chalybem...* [III]: *Regnum Subterraneum sive Minerale de Cupro et Orichalco Deque Modis Liquationum Cupri Per Europam Passim In Usum Receptis: De Secretione Ejus Ab Argento: De Conversione in Orichalcum...* Dresden and Leipzig: Friedrich Hekel, 1734.

Three volumes (3 parts each). Folio. Collation: [vol. I in 3 parts] a^7, A-Z^2, Aa-Zz^2, Aaa-Zzz^2, Aaaa-$Zzzz^2$, Aaaaa-$Uuuuu^2$; [II]: a^6, A-Z^2, Aa-Zz^2, Aaa-Zzz^2, Aaaa-$Zzzz^2$, Aaaaa-$Eeeee^2$; [III in 3 parts]: a^7, A-Z^2, Aa-Zz^2, Aaa-Zzz^2, Aaaa-$Zzzz^2$, Aaaaa-$Zzzzz^2$, Aaaaaa-$Zzzzzz^2$, Aaaaaaa-$Ttttttt^2$. Pagination: [14], 160, 165-452; [12], 386; [14], 534 pp. Each part with a separate title-page. PLATES: With 124 (of 128) engraved plates (some folding), numerous head and tail pieces, title-vignettes, historiated initial letters; professional repairs to folding plates at page 254 in volume II, no affect, and page 200 in volume III, volume III lacks two plates [pls. I & II and III, IV & V and XII & XIII and XXX & XXXI and XXXII & XXXIII and XXXVI & XXXVII on 6 pls. (i.e. combined nos.)], including double-number XXXVIII-1 and XXXVIII-2; folding pl. on v. III facing p. 169 not numbered "tabula 2 … petrificatas … Glücksbrunn"); pl. XLI & XL a double-page plate with 2 nos. (out-of-sequence). Volume one lacking half title and engraved portrait (which is common), pl. XXXIV (double-page & folding) has a MOVABLE FLAP at the gutter ["Delineatio Peris … mineralis Hercyniae" [folds repaired with kozo], skips XXXXV, XXXXVI, XXXVII, pls. LV & LVI & LVII combined, LVIII & LIX also combined, LX, LXI, LXII combined, LXIII, LXIV, LXV combined, pl. LIX (facing p. 311) is a duplicated number, but in reality misnumbered and should be "LXIX", LXXIX and LXXX combined, lacks LXXXII.
TOTAL PLATES: 152 illus. on 124 engraved plates [lacking 3 pls. in vol. III only]. Modern three-quarter calf over marbled boards, in period style, gilt decorated spine, gilt titles on red and green labels. From the library of Eivind Hassler, Uppsala, with his bookplate. Early bookplate of the Manchester Library. Few pages with slight chipping to outer margins, no effect, some foxing, few plates are browned, few pages with light smudge stains, else a clean, very good copy.

$ 3,950

First edition. Emmanuel Swedenborg led one of the most remarkable careers in the history of science and philosophy. He mastered natural science and mathematics in his youth, writing some 150 works on scientific subjects. He rigorously sought a comprehensive physical explanation of the world based on mathematical and mechanical principles. Gradually his inquiries turned toward philosophical matters and after a profound mystical experience in 1745 he devoted his reasoning almost entirely to the interpretation of religion. His great work of philosophical studies appeared in 1734. It contained three volumes. In volume one, The Principia, he presented his primary cosmological conclusions. The second volume dealt with iron and steel, and the third volume with copper and brass.

"In April, 1733, Swedenborg obtained leave of absence from his assessorial duties, for nine months, in order to see the above work through the press at Leipsic, where it was printed by Andreas Barthel, and published by Frederick Hekel (whose motto, Dominus providebit, with Hekel's monogram, is on the


Tab. III.
Step. sc. Norib.
G
B
C
D
A
A
A

work). At the expiration of the nine months an extension of leave was granted, to allow the author to see to the completion of his work, which it was estimated would be concluded by April, 1734. Since he returned to Sweden in July, after some further travels in Germany, it appears that the work was completed at the expected time. But we learn from his journal that he reached Halle on March 1, having left Leipsic most probably on the same day. Thus the work must have been finished on or before that date. It had, therefore, been in the press five months, since it was begun on October 5, 1733, and within the same time *De Infinito* was also printed..." - Hyde, 228-230.

"Swedenborg (1688-1772) philosopher, scientist, mystic, and founder of a sect that bears his name. This collected works is called by Partington, "...his most important scientific work." The first work here is the *Principia rerum naturalium* which was probably conceived as a counterpart to Newton's Principia. "...he sought a comprehensive physical explanation of the world based on mathematical and mechanical principles. While remaining faithful to the general principles of Cartesian natural philosophy... Swedenborg elaborated upon them." – *DSB.*

Provenance: Dr. Eivind Hassler (1939-2009), was a lecturer in chemistry at the, Institute of Chemistry, University of Uppsala. See: *World Directory of Crystallographers: And of Other Scientists Employing Crystallographic Methods,* edited by Y. Epelboin, (1997), p. 1978. Early (eighteenth century) bookplate of the Manchester Library, United Kingdom.

☼ Ludwig Darmstaedter, *Handbuch zur Geschichte der Naturwissenschaften und der Technik,* (1908), p. 177; *DSB* XIII: 179; Ferchl 524f; Hoover Collection 773-775; Hyde 228-230; OCLC 644267264; Claire Parkinson
Breakthroughs: A Chronology of Great Achievements in Science and Mathematics, (1985), p. 151 (for Principia vol.); J.C. Poggendorf, *Biographisch-Literarisches Handworterbuch Zur Geschichte Der Exacten Wissenschaften*, II: 1056; Waller 11018; Ward and Carozzi 2140; Wheeler Gift 283; Ziegenf/J II: 667ff.

54. **TAISNIER, Jean** [**Taisnierio, Joanne**] (1508/9-1562). *Opus Mathematicum, octo libros complectens, innumeris propemodum figuris idealibus manuum et physiognomiae, aliisque adornatum; quorum sex priores libri absolutissimae cheiromantiae theoricam, praxim, doctrinam, artem, & experientiam verissimam continent, septimus physiognomiae dispositionem, hominumque omnium qualitates & complexiones, octavus periaxiomata de faciebus signorum, & quid sol in unaquaque domo existens, natis polliceatur ... et naturalem astrologiam atque effectus lunae quoad diversas aegritudines. Item Isagogen Astrologiae Iudiciariae, & totius divinatricis artis Encomia.* Cologne: Theodore Baum, 1583.

Folio. Collation: †⁶, A-4K⁴ [lacks 4K4 blank]. Pagination: [12], 624, [5] pp. xylographic device on title in an ornate frame, Adam and Eve with serpent and the tree of knowledge, 2 portraits of the author [with heading initials I.T.H. ae[tas] sue A[nno] 53], below portrait is the date 1562, numerous plates of chiromantic hands, physiognomic portraits, astrological charts, and zodiacal emblematic woodcuts, extensive index; small puncture affecting pp. 607-8. Original full vellum, title in manuscript on spine, edges blue; browned (as usual), lower margin worming from 4C3-4G4 (touching a few letters), ink stain at top edge (no text affected), leaves from 4H to end are supplied from other smaller copies, still a nice copy in very good condition. Armorial bookplate with manuscript initials T CA. Very good.


OPVS MATHEMATICVM
OCTO LIBROS
COMPLECTENS, INNVMERIS
PROPEMODVM FIGVRIS IDEALIBVS MANVVM
ET PHYSIOGNOMIAE, ALIISQVE ADORNATVM, QVORVM SEX
PRIORES LIBRI ABSOLVTISSIMAE CHEIROMANTIAE THEORICAM,
Praxim, doctrinam, artem, & experientiam verissimam continent. Septi-
mus Physiognomiæ dispositionem, hominumque omnium qualitates &
complexiones. Octauus Periaxiomata de faciebus Signorum, & quid
Sol in vnaquaque domo existens, natis polliceatur. Remedia quo-
que omnium aegritudinum complectitur. Et naturalem Astro-
logiam atq; effectus Lunæ quoad diuersas ægritudines.
Item Isagogen Astrologiæ Iudiciariæ, &
totius diuinatricis artis
Encomia.
Omnibus Matheseos, Cheiromantiæ, Philosophiæ, &
Medicinæ studiosis vtiles ac necessary.
Authore D. IOANNE TAISNIERIO Hannonio, Mathematico
experitissimo, Iuris V. Doctore peritissimo, Poeta Lau-
reato celeberrimo, Musico excellentissimo.
Cum Indice copioso.
COLONIAE AGRIPPINAE
Apud Theodorum Baumium sub signo Arboris.
Anno cIↃ. IↃ. LXXXIII.
1583

\$ 1,500

Second edition, originally issued in 1562. Jean Taisnier (1508/9-62) was tutor to the pages of Charles V whom he accompanied to Tunis in 1535 and later to Italy. He taught at several Italian schools and he retired to Cologne after Charles' death in 1558. "... his combination of interest in occult arts or pseudo-sciences with technology, measurement, something of mathematical method, and a yearning for new discovery through physical experiment represents his own choice and selection and makes him of some significance in the history of magic and experimental science." – Thorndike V, p. 581.

"Taisnier posed as a distinguished specialist in the art of chiromancy. He asserted, like Cocles, that his judgement had never gone astray in the examination of human hands,

and he gives many instances of his successful past readings of palms. After consulting many painters, he found it advisable to draw his own figures of hands in order to have them exact." – Thorndike V, p. 587.

Selected contents: about color (p.21); about touch; relating to the characterization of planets of the solar system (p.29); Moon, etc.; 'bestiales homines' = humans with bestial tendencies (p.323); of lunatics (reading the palm of the hand) pp. 364-5; 'mors extra patriam'= death outside the country (p.377); 'homicidae uxorum' = murdering of wives (p.379); 'interpretes somniorum' = interpreters of dreams (p.379); intoxicants (p.381); about hair (p.454); 'de dentibus' = teeth (p.465); etc., etc.

"Book 8 contains excerpts from Luca Gaurico, Hermes Trismegistus, Abraham ben Meïr Ibn Ezra and Joannes ab Indagine." – WorldCat.

Owen Davies of the University of Hertfordshire, describes the influence of the 1559 papal *Indexes of Prohibited Books* produced from 1559 onwards. Instead of forcing a ban the list fueled interest in these very books, including among them works of "geomancy, hydromancy, pyromancy, and necromancy… chiromancy, physiognomy, and other branches of divination." – Owen Davies, *Grimoires: A History of Magic Books,* Oxford University Press, 2010, p. 74.

Johannes Taisnier (ca. 1508 - 1562), born in Ath, Belgium, he studied law, philosophy, mathematics and music before working as tutor at the court of Charles V between 1530 and 1550. "He travelled to Italy with the Royal Court where he had the opportunity to study in the Italian academies in Rome, Bologna and Padua, where it seems he picked up most of his chiromancy." – [johnnyfincham.com]. Then, on the death of the king, he retired to private life to write this compilation on palmistry, astrology and physiognomy. Six sections of the book are devoted to the study of the hand and include hundreds of diagrams with palm lines and their significance. Taisnier deals with the interpretation of many traditional signs, such as those of wealth, manner of death, gives steps for the reading of palm lines according to a the astrological perspective and taking into consideration the influences of the planets. "After informing himself about the Moors and the Arabs he travelled to Asia, teaching mathematics." He later taught at Malta, Sicily, Rome and Ferrara. While some have accused him of being both a capable scholar, they also accuse him of plagiarism, especially for this text. Nonetheless it was a common practice to compile all known knowledge of the day and reissue it, even if uncited. Taisnier worked variously as a scientist, physician, lawyer, mathematician, musician and philosopher. His travels took him to Europe, Asia, Africa and even America.

☼ VD 16 T73; Adams T-70 (also lacking blank 4K4); Caillet 10524; Leandro Cantamessa, *Astrologia*, 4398; Gardner, *Astrologia*, 1213; Johann Graesse, *Bibliotheca Magica et Pneumatica*,100; Houzeau-Lancaster 4885; Poggendorf II,1066; Sabattini 513 "*Edizione divenuta rara*"; Wellcome 6214 (inc.); Zinner 3115.

55. **TELEKI, Franz**. *Die Spiegel-Scheibe. Ein neues Catoptrisches Instrument zur Messung Terrestrischer, Winkel und Bestimmung der Sonnenhöhen. Ersunden im Jahre 1812*. Vienna: Anton Strauss, 1817. Sm. 8vo. 14 pp. 1 folding copper-engraved plate. Modern plain boards, red leather spine label. Fine. RARE.

$ 250

On a reflecting telescope used for measuring angles and heights of solar flares, invented in 1812. The folding copperplates depicts the instrument in two forms,

showing the micrometer adjusted telescope with its mirror and leveling-base, intended for geodetic use.

Locations [3]: Imperial College London; University of Cincinnati; Universitätsbibliothek Johann Christian Senckenberg, Zentralbibliothek.

56. **[Telescopes] William Mogey & Sons, Inc., Plainfield, New Jersey**. *1882 – 1929 Illustrated Catalogue of Astronomical and Terrestrial Telescopes*. Plainfield, NJ: William Mogey & Sons, Inc., 1929. 8vo. 28 pp. 23 illus. Printed wrappers. Fine. $ 95

57. **Tempère, J., France**. *Memento du Catalogue de Préparations Microscopiques dans toutes les branches de l'Histoire Naturelle*. Grez-sur-Loing, (S.M.): Tempère, 1907. 15 cm. 10 pp. Self-wraps; gutter torn, first leaf torn. Good. [with]: Supplément du Catalogue General de Préparations Microscopiques de J. Tempère. Grez-sur-Loing, (S.M.): Tempère, [1907?]. Fragmented, but complete. 4 pp. RARE. $ 35

"A Comprehensive History of Alchemy"

58. **Thurneisser, Leonhart [Thurneysser] zum Thurn.** [Hebrew:] *Melitsath* [Greek:] *kai Hermēneia. Das ist ein Onomasticum und Interpretatio oder auszfuhrliche Erklerung ... uber etliche frembde unnd ... unbekante Nomina, Verba, Proverbia, Dicta, Sylben, Caracter, und sonst Reden. Deren nicht allein in ... Paracelsi von Hohenheim, sondern auch in anderer Authorum Schrifften, hin und wider weitleufftig gedacht, welche hie zusammen, nach dem Alphabet verzeichnet. Das ander Theil. In welchem fast jedes Wort, mit seiner eigenen Schrifft, nach der Völcker Etymologia oder eigenen Art und Weis zureden, beschrieben worden ist.*
SELECTED LOCATIONS: Bibliothèque nationale de France; British Library, St. Pancras; Thüringer Universitäts- und Landesbibliothek; University of Basel; University of London Research Library Services, Warburg Institute

[bound with:] [Greek title: *Megalē chymia*], *vel Magna alchymia. Das ist ein Lehr und unterweisung von den offenbaren und verborgenlichen Naturen, Arten und eigenschafften, allerhandt wunderlicher erdtgewechssen ... Und was der dingen zum theil hoch in den lufften, zum theil in der tieffe der erden, und zum theil in den wassern ... zu einer wesentlichen materia digerirt, coagulirt, oder præparirt ... und wie, oder welcher gestalt, oder auff was weiss vñ wege, deren ein jedes, mit zusatz des andern, durch menschlichen handgriff, oder den usum (dieser sehr alten kunst) eintweders in ein liquorem, oehl, saltz, stein, wasser, schwefel, mercurium oder andere mineren und metall verwandelt, oder sonst zum nutz, gebrauch und wolstandt, menschlichs zeitlichs lebens zugericht und bereitet wird.*
Berlin: Nikolaus Voltz, 1583.
SELECTED LOCATIONS: Chemical Heritage Foundation; Harvard University; Smithsonian Institution Libraries; University of Kansas Spenser Library; University of St Andrews; University of Wisconsin – Madison; Washington University in St. Louis; Yale University Library

Two volumes in one. Folio. 368 x 238 millimeters. **Melitsah**: [*]^{2},)(^{2}, *^{2}, A-Zz^{2}, a^{2}. **Megale**: [*]^{2},)(^{2}, ()^{2}, A-Nn^{2}. [Lacks index at the end, as usual (six leaves).] Pagination:

[12], 188; [12], 144 pp. Both titles in red and black in fine woodcut borders, two woodcut portraits of Thurneysser, and numerous woodcuts, figures and tables, typesetting in numerous languages. *The Melitsah* has the two folding woodcut plates "Tabula Quarundam Syllabarum" & Tafel etlicher Sylben" which are symbolic illustrations of the four continents but lacks, as usual, the six plates of scripture tables, which Sudoff conjectures were available separately and thus often lacking.

Contemporary vellum, old ink manuscript spine title, edges red; soiled, tears in spine at cords, and head of spine, lacks ties. On first title page, small repaired pieces at bottom of title pages (removing previous owner's stamp?), red eagle stamp at ends and on folding plates (some obscured), light marginal dampstaining on a few leaves, plates reinforced at folds, minor worming in blank inner margin at end, good margins, some marginalia in an old hand. PROVENANCE: Early signature on first title of Andrae Mülleri Greiffen, 1677; previous owner's stamp "Ex Bibl. Germ. Sem." Very good.

$ 7,500

First editions. Thurneisser (1530-1596) '...began life by learning the trade of his father, who was a goldsmith, but he also picked up some knowledge of botany, medicine, and, possibly, anatomy under Vesalius. In 1548 he left Basel, and went to England, France, and Germany, where he became a soldier. Afterwards he worked as a metallurgist, and again as a goldsmith... From 1560 to 1570 he was in the service of the Archduke Ferdinand, and travelled far and near, from the Orkney islands down to Africa, and to the East, everywhere learning medicine and metallurgy... From 1570 to 1584 he was physician to John Georg, Churfürst of Brandenburg, and had a laboratory and printing press in the so-called "Grey monastery" at Berlin. By various means he amassed a large fortune, and at one time employed between two and three hundred people. He collected a library, a museum, and a herbarium, kept a menagerie, and encouraged the fine and practical arts, such as the manufacture of saltpetre, alum, glass, paper, and also coloured glass... in 1579, he was accused by Joel of magic and of having a devil in a bottle which taught him to write languages he did not know...In 1584 he finally left Berlin, went to Italy, where he tried to practice medicine and alchemy; he was at Rome in 1591, and died in a monastery at Cologne 9 July, 1596, and was buried beside Albertus Magnus, according to his own request.' – Ferguson.

"The works that Thurneysser published at this time were impressive examples of the printer's art, illustrated with woodcuts and etchings, and incorporating Greek, Arabic, Syrian, Hebrew, and Chaldean typefaces... His chief alchemical works, *Megaln chymia* and *Melisath,* were both published in Berlin in 1583." – DSB.

'*The Magna Alchymia* is of a more practical character than [Thurneisser's] other works and contains descriptions of preparations of sulphur, salts including sal urinae, mercury and its compounds, and metals, [as well as] a long section on astrology and horoscopes.' – Partington II p. 155.

The Magna alchymia is in fact a comprehensive history of alchemy. It is divided into 9 chapters which are dealing with its substances: sulphur, salts, ammonium chloride, aluminum, saltpeter, and mercury. The seventh book refers to the planets and the sun, chapters eight and nine describe the origin of minerals and metals.

The Melitsah is "...a kind of dictionary directed to clarifying the works and ideas of Paracelsus, whose follower Thurneisser purported to be. But although he frequently quoted from Paracelsus, Thurneysser often invented the passages cited himself; and *the Melisath* contains citations of some eighty tracts by Paracelsus that never existed outside Thurneysser's own mind."[DSB.]
For linguistic problems Thurneisser turned to the orientalist Elias Hutter (1553-c.1609), and the two Hebraists Valentin Schindler (d.1604) and Jakob Ebert (1549-1614).

"A huge pseudo-epigraphic literature of alchemical books was composed in Arabic, attributed to mostly Greek authors, historical or apocryphal (Plato, Aristotle, Hermes Trismegistus, Apollonios of Tyana, Zosimus). The names of Persian authors also appear (Jāmāsb, Ostanes, Mani; cf. Sezgin, pp. 51-54, 59-60; Ullmann, pp. 183-86), testifying that alchemy-like operations on metals and other substances were also practiced in Iran. The great number of Persian technical names (*ẓaybaq* = mercury, *nošāder* = sal-ammoniac) also corroborates the idea of an important Iranian influence. We are still unable however to ascertain precisely whether all these texts are translations or texts written directly in Arabic from a Greek model in the Islamic area, which certainly occurred in several cases (Vereno, 1992, pp. 134-339); nor can we really reconstruct the historical evolution of the rise and development of alchemy in the Islamic world. Several Muslim authors also started writing on alchemy, but we do not know exactly who and when. Even if the texts attributed to ʿAli b. Abi Ṭāleb (Corbin, 1986, Pt. I), the Umayyad Prince K̲āled b. Walid or Jaʿfar al-Ṣādeq (Ruska, 1924, I and II) are apocryphal, there is no doubt that alchemy was widely practiced from the 8th century (2nd century A.H.) onwards. It was not only translated from Greek into Arabic, but also Islamicized, re-thought within the frame of Islamic conceptions, references, and symbols. This science was generally called *al-ṣanʿa al-elahiyya*, the divine art. The name *kimia* (Gr. *khēmeía,* the art of alloying the metals) seems to have been used at first in a rather pejorative way (meaning something like 'trickery'; cf. Sezgin, pp. 3-7)." – Pierre Lory for the *Encyclopedia Iranica.*

The multi-language typesetting is used because there are Arab and Persian contributions to alchemy that are included. "Traditional symbolism, mentioned above, is meant to include ancient and Arab sources which are of greatest interest here. First of all the colours and their correspondences must be mentioned, as crucial to heraldry and also very important in hermetic theory and art. The basic arrangement of planetary colours is most probably of Babilonian origin and was developed as a part of the system of astrological correspondences. It was later adapted by the Hellenistic astrologers of Ptolemaic Egypt and inherited by the Islamic scholars of the 8th-10th centuries. There cannot be any doubt that the latter new it, as the whole scheme is clearly set out in the treatise on The Perfect Man (Insan-ul-Kamil) by the Sufi mystic Jili. In theoretical texts on European heraldry, the earliest of which are quite late, this system also appears, most notably in *Le blason des armoiries* by Hyerome de Bara (Lyon, 1581)." Rafal T. Prinke, Hermetic Heraldry, *The Hermetic Journal*, 1989, 62-78.

The owner of this text seems to know Farsi, based on the reading of some of the marginalia. For this period of the late seventeenth century, there is no understanding of the full language of Arabic or Farsi by western writers, yet in this case the entire first books is full of Arabic, Aramaic, Hebrew, Syrian, Turkish and Farsi words from alchemy, written in a phonetic-style of each language, but not writing the words in a correct structure [Farsi and Arabic words are not written as separate sets of characters, instead they are linked together …]. Thus this text is trying to make Middle Eastern terms understandable to a western audience. The words are all legible and yet they are

not correctly written. The writer gives the language of origin and then gives a description in German.

[Example] A black falcon is referred to on p. 137: see "Chamata" … Est colure nigra, Ein geschlecht der schwartzen Falcken Niger genant/deren Volataranus und Albertus gedencten." Albertus Magnus wrote a book about falcons, "De falconibus", in which all aspects of falcons are described.

Megale: VD 16 T1178; Bolton p. 873; BM STC, German, 862; Bruning 555; Duveen 579, "very rare"; Ferguson II, 452 [no index]; Ferchl 536; Schmieder 286, 2; Sudhoff 21(1587?); Wellcome I, 6302.

Melitsah: VD 16 T1170; Bruning 554; Duveen 579 (lacking all 8 tables); Ferguson II, p.454 (Not in Young Coll.); Sudhoff 194; BM STC, German 862; Ackermann IV, 184 (no tables); Durling/NLM 4355(lacking tables); Kopp I, 107; Graesse (Bibl. mag.) 113; Neville II, 553; Wellcome I, 6301.

See also: S. H. Nasr, *Science and Civilization in Islam*, Cambridge, Mass., 1968; Pierre Lory, *Alchimie et mystique en terre d'Islam*, Paris, 1989, rev. ed. 2003; Rashed, ed., *Encyclopaedia of the History of Arabic Sciences*, London, 1996.

59. **VÉRICK, Constant; Stiassnie Frères, Paris**. *Microscopes Stiassnie*; microscopes de recherches, binoculaires, droits et inclines monoculaires. [II:] *Microscopes Portatifs*. [III:] *Microscopes pour travaux pratiques*. [IV:] Microtome Minot, Microtome Lelong. [V:] Chambre Claire a Angle Variable du Dr. Malassez. [VI:] Lampes d'éclairage Appareils accessoires, loupes achromatiques, microscope monoculaire redresseur appareil de photomicrographie. Paris: Stiassnie Freres, n.d. [1930s]. 6 parts in one volume. [With separate sheet dated Octobre 1936]. 8vo. 24, 7, 7, 4, 4, 15, [1] pp. Figs. Original printed wrappers. Very good.

$ 275

Maurice Stiassnie started the firm in 1882. His father-in-law Constant Vérick, an optician learned the making of microscopes under Edmund Hartnack (1826–1891), a Prussian manufacturer of microscopes. In 1870 Vérick left Hartnack and bought out the microscope maker L'atelier Depenne, which lasted till 1885. From that point Maurice Stiassnie took over the firm, running the shop in Paris. In 1922 Maurice's brother joined the business, becoming what the present catalogue shows, Stiassnie Frères. World War II brought an end to their business and the rise of German instruments also contributed to their eventual bankruptcy.

Autograph Letter from Written by Nobel Prize Winner

60. **WILKINS, Maurice Hugh Frederick** (1916-2004). AUTOGRAPH LETTER SIGNED, addressed "Dear Stacey", on University of London King's College, Department of Biophysics, Head of Dept., stationary, London, "Dec. 1, 001".

$ 750

Written toward the end of his life and just two weeks before his eighty-fifth birthday, his handwriting showing age with an unsteady hand.

Text: "Dear Stacey, This is antique note paper – the lab was moved to Guys Hospital. Notebooks of Laureates disappear into archive. Best wishes, Maurice Wilkins."

I have not been able to verify who "Stacey" is though there is a British sociologist Margaret Stacey (1922-2004) who published many books. However this name bears no

known association to Wilkins based on a brief search. More work needs to be done! Another possible is Ralph Stacey, a co-founder of the British Biophysics Society.

Wilkins (1916 – 2004), CBE FRS, was a New Zealand-born English physicist and molecular biologist, and Nobel Laureate whose research contributed to the scientific understanding of phosphorescence, isotope separation, optical microscopy and X-ray diffraction, and to the development of radar. He is best known for his work at King's College London on the structure of DNA. In recognition of this work, he, Francis Crick and James Watson were awarded the 1962 Nobel Prize for Physiology or Medicine, "for their discoveries concerning the molecular structure of nucleic acids and its significance for information transfer in living material." In 1960 he was presented with the American Public Health Association's Albert Lasker Award, and in 1962 he was made a Commander of the British Empire (CBE).

See: Wilkins, *The Third Man of the Double Helix*, 2003.

Profusely Illustrated With 166 Engraved Plates

61. **WOLFF, Christian [Wolfius, Christiani; Christiani Wolfii]** (1679-1754). *Elementa Matheseos Universae. Editio novissima…* Genevae: Apud Henricum-Alberum Gosse & Socios., 1743, 1746, 1747, 1749, 1752.

5 volumes. 4to. xxii, 518; [iii]-viii, 396; viii, 581; viii, 374; [viii], [2], 3-501 pp. Head and tail-pieces, engr. frontispiece portrait of the author (sl. loss to outer margin, lower corner), and 165 ENGRAVED PLATES (on 163 sheets): [I]: 31 folding engraved plates (facing p.94 [I], p.210 [I-XI], p.232 [I-II], p.518 [I-IV, I-XIII]); [II]: [31] folding engraved plates = 1-14a+b, 15-18, [1], 3, 8; [III]: [51] folding engraved plates = 7, 6, 7, 12, 4, 15; [IV]: [48] folding engraved plates 5, 5, 5, 11, 22 [on 20 sheets, nos. X+XI, XVII+XVI are the combined pls.]; [V]: 4 folding engraved plates; foxed and/or with related stains, water-damage heavily affecting preliminaries of vols. I, II, IV, V, as well as the final plate section, each margin both stained and with paper damage. Original full mottled calf, elaborated gilt-stamped decorative spine. Provenance: verso of title inscribed with the ownership name of "J.C.H. Gebauer, Dr., Hamburg, 1826"; front free endleaves signed "Schmidt". Good.

$ 600

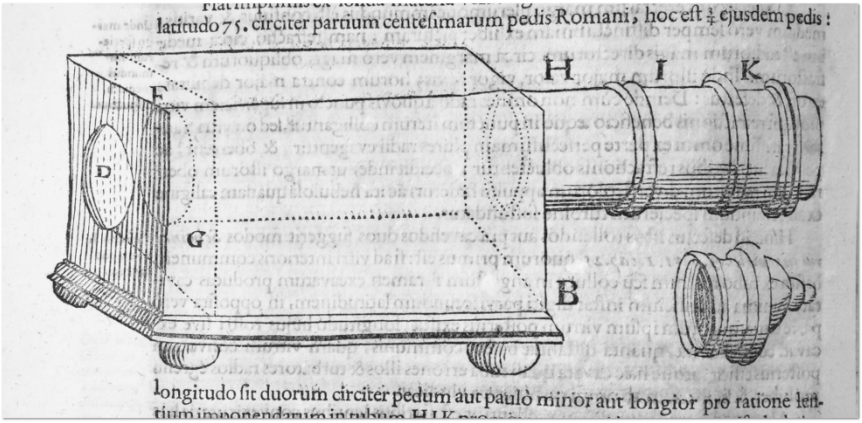
Early edition of the author's principle work on the mathematical philosophy of all science. The work is divided into sections offering material on the principles of mathematics, including: proportion, logarithms, fractions, the elements of geometry, triangles, circles, solids, trigonometry, "irrational" mathematics, determinants, algebra, tangents, quadratures, curves; elements of mechanics and statics, gravity, motion of the pendulum, oscillations, simple machines, application to machinery, aerometry, hydraulics; fundamentals of optics, color theory, vision, perspective, conics, dioptric (light refraction), telescopes, microscopes (pls. IX & X show microscopes), circumference, astronomy (including the Sun & Moon), planetary system, eclipse (lunar & solar), comets; elements of geography and hydrography, nautical or marine applications, chronology, calendars, civil architecture, sun dials, lunar and star clocks, gnomonics, pyrotechnics, fire as used for war (canons), military architecture (fortresses), ichnographic applications (architectural drawing). The fifth volume is really an addenda to the first four volumes. It was first issued in the Halle in 1715 and again in 1730-33. Wolff, eminent German philosopher, "His main achievement was a complete oeuvre on almost every scholarly subject of his time, displayed and unfolded according to his demonstrative-deductive, mathematical method, which perhaps represents the peak of Enlightenment rationality in Germany." – Wikip. It was during the writing of this book

that Wolff was in frequent contact with Leibniz, who helped considerably to advance his career.

Christian Wolff (1679–1754) [aka Christian von Wolfius], a native of A native of Breslau (Bratislava), a professor at Leipzig and Halle, "was a Rationalist philosopher of the German Enlightenment. His corpus includes over 26 titles, spanning more than 42 quarto volumes, with contributions primarily in the areas of mathematics and philosophy. He is often regarded as the central historical figure who links the philosophical systems of Leibniz and Kant. Although Wolff's influence was largely isolated to German schools and universities during and shortly after his lifetime, he did receive some international acclaim. He was a nonresident member of all four major European scientific academies: the Royal Society of London in 1709; the Berlin Academy in 1711; the St Petersburg Academy in 1725; and the Paris Academy in 1733. To his credit, he is the first philosopher recognized to furnish Germans with a complete system of philosophy in their own language (Beck 1969, 274)." – SEP.

PROVENANCE: Dr. J.C.H. Gebauer of Hamburg, was author/contributor with J. Lohser, *Ikonograph: ein neuerfundenes Zeichman-Instrument, in seinen Zwecte dem Pantographen ahnlich; Dr. J. C. W. Gebauer's Auflösungsmethode biquadratischer Gleichungen*, Hamburg: in Commission in der Herold'schen Buchhandlung, 1832. See: Christian Daniel Beck, *Allgemeines Repertorium der neuesten in- und ausländischen Literatur für 1827*, Volume 1827, Issue 2, p. 433.

See: "Wolff" by Matt Hettche in the Stanford Encyclopedia of Philosophy [SEP].



Key Source for the History of Early Microscopes & Telescopes

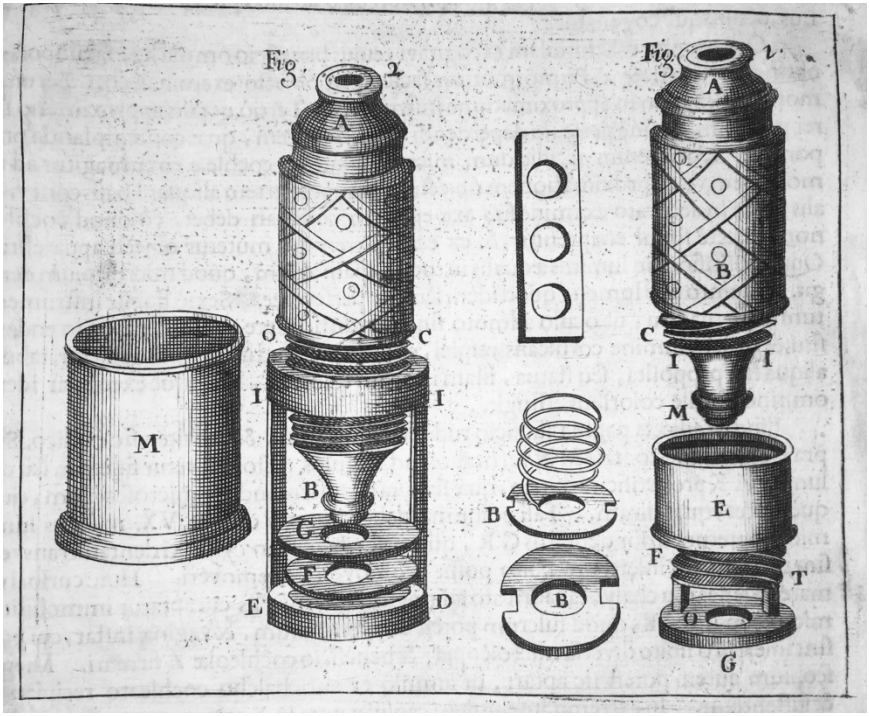
62. **ZAHN, Johann** (1641-1707). *Oculus artificialis teledioptricus sive Telescopium. Ex abditis rerum naturalium & artificialium principiis protractum novâ methodo, eâque solidâ explicatum ac comprimis è triplici fundamento; physico seu naturali, mathematico dioptrico et mechanico, seu practico stabilitum* ... Norimbergae, Johannis Christophori Lochneri, Typis Johannis Ernesti Adelbulneri, 1702.

Three parts in one volume. Large 4to. [xl], 797 [i.e. 823], [xvii] pp. Collation:)(⁴,)( )(⁴,)( )( )(², a-b⁴, c², A-Z⁴, Aa-Cc⁴, Dd², Ee-Zz⁴, Aaa-Zzz⁴, Aaaa-Zzzz⁴, Aaaaa-Nnnnn⁴, Oooooo² [Complete, includes 11 added leaves (folding)]. Beautiful allegorical

frontispiece copperplate engraving ["Occulus Artificialis Teledioptricus Ioannis Zahn"], title printed in red & black, 34 full-page engravings (5 folding), 273 woodcuts, 7 folding tables, 137 diagrams, index; heavily browned, small marginal tear repaired p. 739. Original full vellum, manuscript spine title. Very good copy in a fine binding.

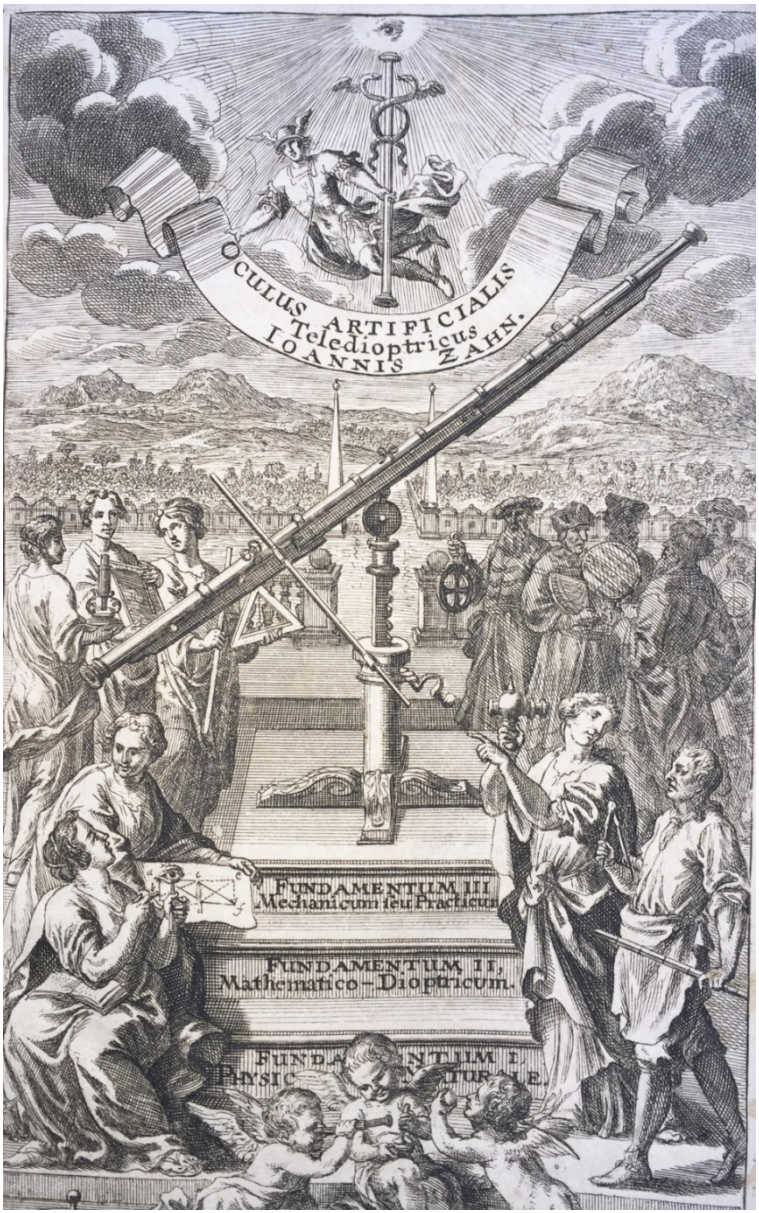
$ 6,500

Second edition, first issued in 1685. Zahn's treatise contains both the complete history of the telescope and the microscope as well as binoculars, often giving illustrations of the devices, including camera obscura, a magic lantern [probably invented by Christiaan Huygens (1629-1695), noted in his correspondence in 1659] and various machinery. He also covers anatomy of the eye, the mechanics of optics, etc. The text is also known for its handsome illustrations, including reproductions of Kircher's Moon and Sun images and a planispheric folding plate or chart. Additional illustrations depict a telescope-sight for a musket and a cannon. The Jordan sunshine recorder is also noted, a device used to study the amount of sunshine at any location. [Noted in the *Journal of Royal Microscopical Society,* London, 1898, pp. 381-2.



Clay & Court names the early microscopes, including those of Hooke, Leeuwenhoek, Musschenbroek and Grindl, appearing in Zahn's great work: "In Zahn's "*Oculus Artificialis*," 1702, pp. 783 and 796, are shown several interesting forms of the simple microscope …" (p. 33) "Johan van Musschenbroek devised two forms of simple microscopes. In the simpler and probably earlier form, which is illustrated in Zahn (… p. 783), the objective was mounted in a turned circular cell, which was pushed tightly on one end of an arm which was held in the hand." (p. 37). "A number of interesting illustrations of microscopes which are said to be English are given in Zahn's … 1702, p. 537 … One of them, i.e. the figure on page 538 of Zahn, is a modification of the Hooke microscope. [The others] may be looked upon as developments of the

Chérubin instrument … there are six microscopes shown on the one page, namely the four of [Zahn] page 537, and extra one, "fig. 5," and the Hooke of page 538." (p. 82). Clay & Court also show a picture of Grindl's microscope that appears on the same plate with the English pieces shown in Zahn.



62 ZAHN (allegorical frontispiece)

OCULUS ARTIFICIALIS TELEDIOPTRICUS SIVE TELESCOPIUM,

EX

Abditis rerum Naturalium & Artificialium principiis protractum novâ methodo, eâque solidâ explicatum ac comprimis è triplici

FUNDAMENTO

PHYSICO seu NATURALI, MATHEMATICO DIOPTRICO

Et

MECHANICO, seu PRACTICO

stabilitum.

Opus curiosum Theorico-Practicum magna rerum varietate adornatum, omnibus Artium novarum studiosis perquàm utile: Quo Philosophiæ atque Matheſi præsertim mixtæ, nec non universo penè hominum statui ampliſſimis adjumentis consulitur; nova plurima abstrusa curiosa Technasmata recluduntur, ipsaque Ars Telescopiaria facillimè addiscenda, ac sumptibus non adeò magnis in praxin adducenda proponitur, adeoque

TELESCOPIUM

ex tenebris in lucem asseritur.

AUTHORE

JOANNE ZAHN

FRANCO-CAROLOPOLITANO

Sacri & Candidi Ordinis Præmonstratensis Canonico Regulari nec non Parthenonis Cellæ inferioris ejusdem Ordinis propè Herbipolim

PRÆPOSITO.

Editio Secunda Auctior.

Cum Facultate Superiorum.

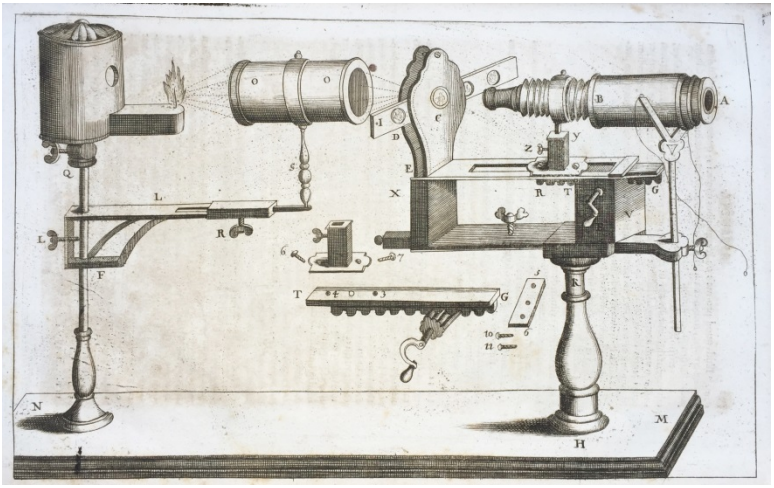
NORIMBERGÆ,

Sumptibus JOHANNIS CHRISTOPHORI LOCHNERI Bibliopolæ.

Typis JOHANNIS ERNESTI ADELBULNERI.

Anno MDCCII.

The book is also important for the early history of cinematography. "Zahn published in Wurzburg 'Oculus Artificialis Teledioptricus Sive Telescopium' (Zahn, J., Wurzburg, 1685-6). In this wondrous book, we find many descriptions and illustrations of both the camera obscura and magic lantern. Zahn used the lantern for anatomical lectures, illustrated a large workshop camera obscura for solar observations using the telescope and scioptric ball, demonstrated the use of mirrors and lenses to erect the image, enlarge and focus it. Zahn also designed several portable camera obscuras for drawing using the 45 degree mirror, and used side flaps to shield unwanted light. Zahn's camera obscuras were the closest thing to what 19th century cameras were. Zahn gave credit for the magic lantern to Kircher and mentions Schott and De Chales in his references. Zahn also suggested the presentation of images under water and proceeded to explain, and stressed the importance of hiding the magic lantern out of sight of the audience. This book also goes on to show how time (a clock) can be projected onto a larger screen, and how wind direction can be seen by having a connection from the lantern to a wind vane on the roof of the building. Zahn even foresaw the use of the lantern to project the image on glass which allowed several to view at one time, as opposed to the camera obscura which was limited largely to one observer at a time [excepting the room camera] (as the kinetoscope surpassed the mutoscope for the same reason)." ¶ The page to the above right (from Zahn's 'Oculus Artificialis Teledioptricus Sive Telescopium' of 1685) shows a drawing by Johannes Zahn in the bottom frame, of a portable camera obscura with side flaps in order to shield unwanted light from the viewer's vision. It was considered portable not only because of its size but also its ability to be moved easily from room to room. Notice its roller-wheels. Zahn was a visionary in many ways. He suggested the camera could be used underwater, projected on glass for multiple use and, as a clock. ¶ Zahn's camera obscuras were the closest



thing to what 19th century cameras were. Zahn gave credit for the magic lantern to Kircher and mentions Schott and De Chales in his references. Zahn also suggested the presentation of images under water and proceeded to explain, and stressed the importance of hiding the magic lantern out of sight of the audience. ¶ This book also goes on to show how time (a clock) can be projected onto a large screen, and how wind direction can be seen by having a connection from the lantern to a wind vane on the roof of the building. Zahn even foresaw the use of the lantern to project the image on glass, which allowed several to view at a time, as opposed to the camera obscura, which was limited pretty well to one observer at a time (as the Kinetoscope surpassed the

Mutoscope for the same reason)." – Paul Burns, *The History of the Discovery of Cinematography*.

"Johann Zahn (1641, Karlstadt am Main – 1707) was the seventeenth-century German author of *Oculus Artificialis Teledioptricus Sive Telescopium* (Würzburg, 1685). This work contains many descriptions and diagrams, illustrations and sketches of both the camera obscura and magic lantern, along with various other lanterns, slides, projection types, peepshow boxes, microscopes, telescopes, reflectors, and lenses. As a student of light, Zahn is considered the most prolific writer and illustrator of the camera obscura… The first camera that was small and portable enough to be practical for photography (that is, actually capturing the image on some sort of medium) was envisioned by Zahn in 1685, though it would be almost 150 years before technology caught up to the point where this was possible to actually build... ¶ In *Oculus Artificialis*, Zahn's comprehensive description of the magic lantern (along with twelve other different lanterns) includes some of these lanterns showing for the first time lens covers. This was a very important evolution in the history of the camera, because it meant that the screen could be kept dark while the operator changed the slide. ¶ Zahn used the magic lantern, whose invention he credited to Athanasius Kircher, for anatomical lectures. ¶ He also illustrated a large workshop camera obscura for solar observations using the telescope and scioptric ball. Zahn also includes an illustration of a camera obscura in the shape of a goblet, based on a design described (but not illustrated) by Pierre Hérigone. Zahn also designed several portable camera obscuras, and made one that was 23 inches long. He demonstrated the use of mirrors and lenses to erect the image, enlarge and focus it." – Wikip.

☼ Clay & Court, *The History of the Microscope*, pp. 23, 33 (etc.); Norman 2278; Moe, *The Story of the Microscope,* p.29. See: Garrison and Morton 263.

63. **ZEISS, Carl, Jena**. Zeiss Tomato Refractometer. London: Carl Zeiss, n.d. 21x14.7 cm. 4 pp. Cover printed in red & black. Self-wraps. Ink initials up upper cover. Very good.
$ 25

"The Tomato Refractometer is designed for the easy and rapid determination of the ripeness of fresh tomato juice and of the quality of tomato pulp." Includes method of working and adjusting.

64. **ZEISS, Carl, Jena**. *Zeiss Microscopes and Accessories. 1934 edition*. New York & Los Angeles: Carl Zeiss, 1934. 8vo. 157, [1] pp. Illus., 7 folding plates; some silverfish damage. Yellow cloth-backed dark gray boards, printed dust-jacket; jacket chipped and torn. With 7-page price list laid-in (bottom margin eaten). Book is very good; jacket: poor. Save for jacket: very good. Jacket is scarce! Ownership signature [Theo R. Kelmhold?]. $ 60

65. **Zeiss; Horst PILLER**. "Durchlicht-Interferenzmikroskopie nach dem Jamin-Lebedeff-Prinzip." [with]: J. Flügge, "Die Schärfentiefe in Übersichtsbildern mit dem Einfachen Mikroskop." Stuttgart: Gustav Fischer, 1962. Series: Zeiss Mitteilungen über Fortschritte der Technischen Optik, 2 band, 8 heft, Mai 1962. Sm. 8vo. pp. 281-336. Figs. Yellow printed wrappers. Fine. Sticker on upper cover: Distributor: Max Erb Instrument Co., Burbank, California.
$ 12

Three articles in this issue. "Jamin–Lebedeff polarizing interference microscopy is a classical method for determining the refractive index and thickness of transparent tissues."

66. **WEBER, Jeff.** *An Annotated Dictionary of Fore-edge Painting Artists & Binders (Mostly English & American). The Fore-edge Paintings of Miss C. B. Currie; with a Catalogue Raisonné.* Los Angeles: Weber Rare Books 2010.

10 x 7 inches. approx. 432 pages. Illustrated throughout, indexes. Cloth, dust-jacket. SIGNED by the author. New.

$ 400

THE MOST IMPORTANT CONTRIBUTION TO FORE-EDGE PAINTING HISTORY IN OVER 40 YEARS, BEING THE FIRST COMPREHENSIVE ANNOTATED DICTIONARY TO CONTAIN THE IDENTIFICATION OF ALL KNOWN FORE-EDGE PAINTERS AND BINDERS. With this book one can identify many artists or binders who are involved with making fore-edge painted books.

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