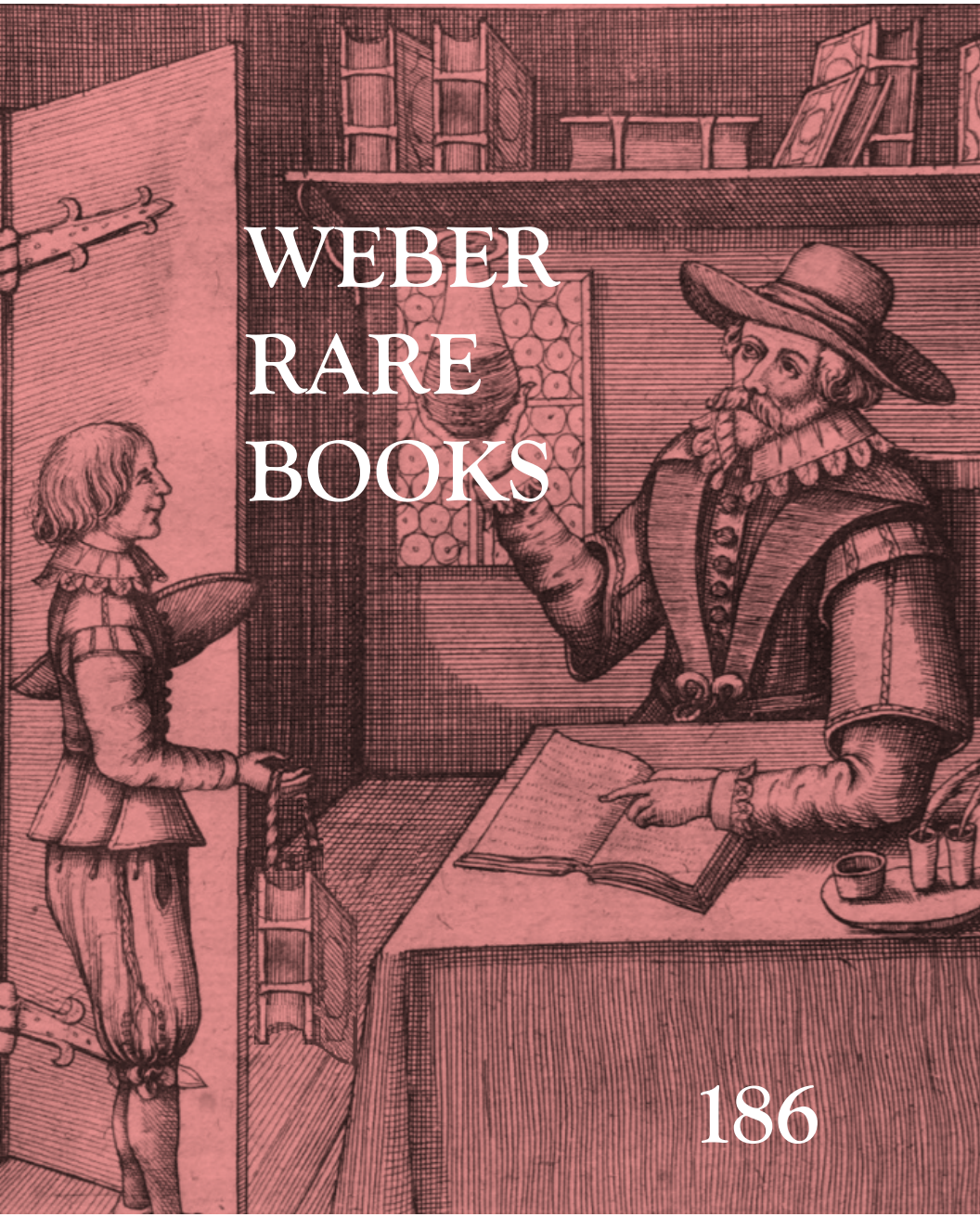

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CABINET OF CURIOSITIES & SCIENCE

CATALOGUE 186

This is the third catalogue to feature material from the OPTICS & MICROSCOPY library offered in the last science catalogues. Featured: Babbage, De Moivre, Desaguliers, Digby, Ercker, Huygens, Joblot, Kirby, Kircher, Lagrange, Newton, Niceron, Quetelet, Schott, Simpson on *Laws of Chance*, Struve, etc. Photos sent on request.

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DISSERTATIO

CENTRO GRAVITATIS

DISCIPULORUM

ANTONIO AMBSCHELL

SUPPORTER OF BOSCOVICH

1. **AMBSCHELL, Anton [Antonio]; Martin JEELL**. *Dissertatio de Centro Gravitatis in Subsidium Suorum Discipulorum*. [With]: *Assertiones ex universa Physica et Mathesi Elememtari [sic] quas in aula Academica archiducalis gymnasii Labacensis ex praelectionibus Martini Jeell ... Antonii Ambschell ... mense Augusto ... anno MDCCLXXIX. propugnabit ...* Wolfgangus Muha Carn. Corgnial. ... auditor. Labaci, typis Egerianis, 1779. 2 works in 1 volume. Sm. 8vo. [ii], 239; 40 pp. 2 large folding engraved plates. Original full mottled blind-ruled calf, spine flat-backed but with elaborate gilt tooling, edges red. EXTREMELY RARE.

$ 1,800

First and only editions. The first work deals with the center of gravity and the second relates to physics and mathematics. Stanislav Juznic & Bruno Besser write of Ambschell's devoted support for Boscovich.

Anton Ambschell (1749/51-1821), Jesuit, a physicist and mathematician, was born December 10, 1749 in Cirknica, and died July 14, 1821 in Bratislava. He was accepted into the Jesuit order in 1768, from 1773 he was professor of physics at the Ljubljana Jesuit Lyceum. He was deposed in 1785 as rector because of improper conduct by a professor of logic and metaphysics, Nowak, then to 1804 prof. physics and mechanics at the University of Vienna from 1809 onwards lector and canon in Bratislava, where he died. His library was left to the Bratislava Academy. He was a member of the Ljubljana Academy. He wrote the following books: in Ljubljana in

1778 in German, translated by Herbert I, "Dissertatio de Aqua aliorumque nonnullorum fluidorum elasticitate"; Dissertatio de centro gravitatis in subsidium suorum discipulorum, Ljubljana 1779 [the present work], which was dedicated to Baron Zois [Wolfgang] Mucha, as a second year student of philosophy at [his] beloved Lyceum August 1779, Ambschel publicly defended his "Assertiones" [the second work here] on general physics and elementary mathematics; Dissertatio de motu, 1780; Predigt an dem Festtage des hl. Antonius von Padua, gehalten zu Laibach and Krain 1782, printed in Vienna; Anfangsgründe auf der Allgemeinen Erscheinung und Versuch gebaute Naturlehre, I-VI. Wien, 1791-93; Matheseos element. Vindobonae, 1807-10; Element physicae e phaenomenis et experimentis deductae. Vindobonae. 1807. - Prim .: Pohlin; Radics, Bl. aus Cr., 1864, 102-4; Oest. Nat. Enz. I 75; Wurzbach 22, 463; Backer-Sommervogel I, 277 Gl. – Joza Glonar.

The Ljubljana Rector and later Viennese Professor Anton Ambschell promoted Boscovich in his textbooks which were famous for Ambschell and his teacher Herbert's very first comparatively exact measurement of the water compressibility. The suppression of the Jesuit order obstructed the development of Boscovich's ideas but in no way removed them from the scientific or students' scene. The Boscovich's followers and their students were able to develop strong high-schools supporting of Boscovich, who kept his great influence in 19th century and paved the way for the modern use of Boscovich's ideas in Faraday-Maxwell's electromagnetism, Kelvin's atomism, and Bohr-Heisenberg's quantum mechanics. – SYMPOSIUM 7: Exact Sciences in Habsburg Monarchy in 18th century (on 300th Anniversary of Boscovich's Birthday) Organizers Stanislav Juznic, University of Oklahoma, Norton, USA & Bruno Besser, Austrian Academy of Sciences, Graz, Austria, [within:] Gianna Katsiampoura, (editor), 5TH INTERNATIONAL CONFERENCE OF THE EUROPEAN SOCIETY FOR THE HISTORY OF SCIENCE Scientific cosmopolitanism and local cultures: religions, ideologies, societies: BOOK OF ABSTRACTS. ATHENS, 1-3 NOVEMBER 2012, p. 45.

The first work is known in only one other copy in the National & University of Slovenia [WorldCat]. The second work, *Assertiones ex universa Physica et Mathesi Elememtari*, is held at two locations: National library information system of Slovenia, Maribor, and National and University Library [Narodna in univerzitetna knjiznica].

See: Južnič, Stanislav: Ambschell, Anton (1751–1821). *Slovenska biografija.* Znanstvenoraziskovalni center SAZU, 2013.

FIRST PRINTED HYPOTHESIS
ON THE WAVE THEORY OF LIGHT

2. **ANGO, Pierre** (1640-1694); **Ignace-Gaston PARDIES** (1636-1673). *L'Optique Divisée en trois livres ou L'on de' montre d'une maniere aisée tout ce qui regarde 1. la Propagation & les proprietez de la Lumiere. 2. La vision. 3. La figure & la disposition des Verres qui servent à la perfefectionner [sic]. Par le P. Pierre Ango, de la Compagnie de Jesus*. Paris: Chez Estienne Michallet, 1682. ¶ 12mo. Collation: a^4, A-P^{12}, Q^2. Pagination: [8], 120, 125-367[*], [1] pp. [* = 363 pages; some pages misnumbered]. Figures. Modern half brown morocco, marbled boards. Very good. RARE.

$ 3,250

First edition of this curious treatise on optics, sound, vision, refraction, color, and 'lumination,' incorporating Ignace Gaston Pardies' previously unpublished treatise on optics and based largely on Aristotelian principles. Divided into three parts: Contains the pt. I: On the properties of light and its movement; pt. II: Comments on vision, including correcting sight with glasses; pt. III: devoted to assisting and improving sight, magnifying glasses, theory of the telescope (p.[vi], 190, 281) and frequently refers to the microscope (pp. 99, 106-7, 180, 186-7, 190-1, 193, 198, 200, 237, 244-8, 251-2, 254, 256-7, 265-6, 280-2, 344-366, etc.).

Olivier Darrigol gives an assessment of the text: It is a work in defense of Aristotle's views against neo-atomism as describe by Gassendi and Maignan. Instead their study of sound and light is based on Aristotelian principles. "Ango/Pardies introduced the notion of undulation by means of the picture of a vibrating body that induced alternating compressions and dilations of the contiguous layer of air, followed by similar periodic deformation of the next layer…" (p. 61). They also "introduced some of the main properties of waves by means of the water-wave illustration." In "the case of sound, which they regarded as paradigmatic for other undulations… They indeed pioneered the concept of sound as a compression wave." (pp. 61-2; see Ango p. 26). They rejected the sine law by Maignan [p.88] relating to refraction of undulations. With light Ango/Pardies take the position of periodic vibrating, 'every luminous body breathes' – also using the beating of a heart as an example. Dealing also with color theory they site Aristotle's, *De sensu.*

They support a curious system of corresponding ratios, comparing color to musical consonance, or a "frequency of the undulations." (pp. 63-4).

"The first author who explicitly and systematically constructed optics on the basis of analogy with sound and water waves was the Jesuit father Ignace Gaston Pardies, in a now lost manuscript written around 1670 and entitled "On the motion of undulations." His treatise on statics, published in 1673, contains a short description of the intent of his work: first to describe the undulation of water, "a matter of game and entertainment for children, which can be the subject of a very deep meditation for the most skilled philosophers"; and then to treat sound by analogy with these undulations, and light by analogy with sound: - In a conjecture on the propagation of light, we examine whether one could not also suppose that the vehicle of light is some similar motion in a subtler air; and we show indeed that under this hypothesis one would explain in a very natural manner all the properties of light and colors, which are otherwise very difficult to explain; and I hope my reader will enjoy the manner in which the measure of refraction is demonstrated.' – A younger Jesuit, Pierre Ango, inherited Pardies' manuscript and exploited it in the first book of the optical treatise he published in 1682 in Paris. In an introductory letter to this treatise, Ango emphasized the analogy with sound and Pardies' importance in this respect: 'You will see that [this first book] contains every beautiful and solid thing that can be said on the propagation and properties of light, on colors, and even on sounds, about which I write at first in order to ease the conception of what I subsequently say on light. – There I have used some of the thoughts of the later Father Pardies which you believe to be still novel and which are in a better shape than this Father left them in the memoirs which you know I long had in my hands."' – Olivier Darrigol, *A History of Optics from Greek Antiquity to the Nineteenth Century*, Oxford University Press, 2012, p. 60.

Ignace-Gaston Pardies was a French scientist born in Pau, the son of an advisor at the local assembly. He was a member of the Society of Jesuits, teaching at the Lycée Louis-le-Grand in Paris. He died at 37 years of fever contracted ministering to the prisoners of Bicêtre Hospital, near Paris.

Father Ango was a professor of mathematics and physics at the College of La Flèche, Rouen.

☼ Adelung I, 579; *Nouveau Biographie Générale*, II, 663. See: Jean Rosmorduc, Vinca Rosmorduc, Françoise Dutour, *Les révolutions de l'optique et l'oeuvre de Fresnel*, Vuibert, (2004), p. 28; Dennis Poupard, James E. Person, Mark W. Scott, *Literature Criticism from 1400 to 1800: Excerpts from ...*, 2000, p. 118; Henry Guerlac, *Newton on the Continent*, Cornell, (1981), p. 44; Laurent Mannoni, Richard Crangle, *The great art of light and shadow: archaeology of the cinema*, (2000), p. 483.

INSCRIBED BY BABBAGE TO
CHARLES VILLIERS, MEMBER OF PARLIAMENT

3. **BABBAGE, Charles**. *Observations on the Temple of Serapis at Pozzuoli Near Naples. With an attempt to explain the causes of the frequent elevation and depression of large portions of the Earth's surface in remote periods ... With a supplement. Conjectures on the physical condition of the Moon.* Privately printed, 1847.

8vo. 222 x 138 mm. 42 [4, advertisements] pp. 2 lithographed plates (1 partly hand-colored) and 6 figures, list of author's works. Original blind and gilt-stamped red cloth, with gilt motif of temple on upper cover, gilt spine title; spine ends worn, some soiling, small paper label on upper cover. Neat bookplate of the Stirling Public Library ("The Thomson Collection"), [Glasgow]. Very good copy. INSCRIBED BY THE AUTHOR on verso of front endpaper: "The Honble Charles Villiers, MP, from the Author."

$ 3,750

FIRST EDITION. This paper reports the author's geological observations on the Temple of Serapis at Pozzuoli, an ancient ruin situated on the seacoast near Naples that Babbage first studied during his European tour in 1828. From the strata in which [the temple] was embedded and encrustation on the marble columns [Babbage] was able to estimate the sea level at various earlier dates. ... [In March 1834]. "In some of the rooms of the macellum Babbage found a dark brownish encrustation of salts, and a thicker encrustation up to a height of about 9 feet (2.7 m) from floor level. These have been interpreted as showing that as the building lowered, a little lake formed and allowed water to enter the building without there being a direct connection to the sea, then at a later stage the land subsided to the point where sea water came in, and the Lithophaga started drilling holes in the masonry up to 19 feet (5.8 m) from floor level." Wikip. [See: Liber, Lucio; Paola Petrosino; Valentina Armiero (2010). "Il Serapeo ed i Granai Imperiali di Pozzuoli = The Serapis Temple

and the Imperial Granaries of Pozzuoli". Italian Journal of Geosciences 129 (2): 237–50.

Babbage read a paper to the Geological Society on his observations together with a theory of the movement of isothermal surfaces within the earth. He sought to prove that large tracts of the earth's surface subside through the ages, whilst other portions rise irregularly at various rates. – Hyman, Charles Babbage, 1982, p. 71.

An abstract of Babbage's paper was privately printed the same year (see Van Sinderen 1980, no. 48). A full treatment was not made until 1847, when the paper was privately printed with some additions. There is also a title listing of his publications. Both Babbage and Charles Lyell prominently illustrated the Temple of Serapis. For Lyell he used it for the frontispiece to the Principles of Geology (1830); Babbage includes two lithographs. John Herschel and Babbage are both credited with making the theory of geosynclines. As the key image for a certain kind of geological movement, the Temple of Serapis was later analyzed in great detail by Eduard Suess (1831-1914) in his theory of global plate tectonics and geopaleography. See: T. Nield, Supercontinent: Ten Billion Years in the Life of Our Planet. Cambridge, MA: Harvard University Press, (2007).

PROVENANCE: Honourable Charles Pelham Villiers, 1802-1866, was a British lawyer and politician who sat in the House of Commons from 1835 to 1898, making him the longest-serving Member of Parliament. He was the son of the Hon. George Villiers and the Hon. Theresa, daughter of John Parker, 1st Baron Boringdon. He was grandson of Thomas Villiers, 1st Earl of Clarendon and brother of George Villiers, 4th Earl of Clarendon. He was educated at East India Company College and St John's College, Cambridge, becoming a barrister at Lincoln's Inn in 1827. He was raised to the rank of an Earl's son in 1839 and thus entitled to be styled the Honourable Charles Pelham Villiers.

Both Babbage and Villiers were buried at Kensal Green Cemetery.

☼ Van Sinderen (1980), no. 57; Norman, *Origins of Cyberspace* 63.

See: Naomi Oreskes, *The Rejection of Continental Drift: Theory and Method in American Earth Science*. Oxford University Press, (1999); Marq de Villiers, *The End: Natural Disasters, Manmade Catastrophes, and the Future of Human Survival*, (2008).

4. **BAKER, Henry** (1698-1774). *The Microscope Made Easy. The fifth edition: with an additional Plate of the Solar Microscope, and some farther Accounts of the Polype.* London: Printed for J. Dodsley, 1769. 8vo. xvi, 324 pp. 15 engraved plates (1 is unnumbered, facing p.22), folding table (p.36), index; some offsetting of plates, occasional foxing. Modern full speckled calf, raised bands, gilt-stamped red spine label, new endleaves. Bookplates of William Strong ["Fortis et Fidelis"] and Alfred M. Hellman, M.D.

$ 1,000

Fifth 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.

PROVENANCE: William Strong ["Fortis et Fidelis"], D.D., Canon and 45 years Archdeacon of Northampton (1842-1886); Alfred Myer Hellman, M.D. (1880-1955), took his medical degree at Columbia University, worked in New York, was a very well-known obstetrician. He was also an "avid" collector of medical books, represented by his

bibliographical work: *A collection of early obstetrical books; an historical essay with bibliographical descriptions of 37 items, including 25 editions of Roesslin's Rosengarten,* 1952. See: Walter Debenham Sweeting, *The New Guide to Peterborough Cathedral Comprising a Brief History of the Monastery*..., (1893), p. 37.

5. **BREWSTER, Sir David** (1781-1868). *A Treatise on Optics. First American edition. With an appendix … [of] reflexion and refraction, by A.D. Bache*. Philadelphia: Carey, Lea, & Blanchard, 1833. ¶ Tall 12mo (in 6s). 323, [1]; viii, [1], 10-95, [1] pp. 176 figures, index; title and following leaf trimmed upper margin, spotting or browned leaves. Modern full brown cloth, gilt title. Very good.

$ 125

First American edition. Important advancement in the study of color and optics, alluding to Isaac Newton's color and light theories, and more directly in response to Charles Lock Eastlake and Goethe's work and the influence of the British artist J.M.W. Turner. The text is arranged in four parts: reflexion and refraction of light, catoptrics, dioptrics (different surfaces, lenses, mirrors, power of magnification); physical optics (color, light, dispersion, achromatic telescope, light spectrum, inflextion of diffraction of light, colors of thin or thick plates, etc., polarization, colors of crystallized plates in polarized light, effects of heat, cold, compression, dilation, and induration); "On the application of optical principles to the explanation of natural phenomena" (rainbow, halos, parhelia, colors of natural bodies, the eye and vision, 'accidental colors and colored shadows'); On Optical Instruments. Here the author details various mirrors, the kaleidoscope, lenses, prisms, multiplying glass, magic lantern, camera lucida, microscopes – single, compound, reflecting, objects, rules for observation, solar microscope – of telescopes, achromatic telescopes, etc.

Brewster questioned Newton's color theory and the seven color spaces in the light spectrum ("On a New Analysis of Solar Light," 1831). Burwick writes, "Now defending Newton against both Goethe's text and his own, Brewster framed his answer with ingenuity: when Newton described seven colors, 'he stated only a fact which was true in reference to the spectrum which he studied.' To put the matter to rest, 'that we may not again refer to the seven colours denounced by Mr. Eastlake,' he provided a summary of his own 'New Analysis,' that 'the *seven* arise from the superposition of *three* spectra of equal length, viz. a *red,* a *yellow,* and a *blue* spectrum.'"

Brewster quotes Eastlake and calls Newton's conclusion a defect rather than an error. – Burwick p.36.

See: Brewster, Sir David, "Goethe's Theory of Colours." *Edinburgh Review* LXXII (October 1840), pp. 99-131; Frederick Burwick, *The Damnation of Newton: Goethe's Color Theory and Romantic Perception*, Berlin & New York: De Gruyter, 1986; Linda M. Shires, "Color Theory—Charles Lock Eastlake's 1840 Translation of Johann Wolfgang von Goethe's Zur Farbenlehre (Theory of Colours)."

6. **BRUGUIERE, Jean-Guillaume** (1749-1798). *Tableau Encyclopédique at Méthodique des Trois Règnes de la Nature Contenant L'helminthologie, ou les Vers Infusoires, les vers Intestins, les vers Mollusques &c. Septième Livraison.* Paris: Chez Panckoucke, 1791. ¶ 4to. [iv], [viii], 83 pp. Half-title, 95 (pls. 61, 69, 76, 86, 92 double-page) engraved plates by Benard Direxit; lightly foxed. Full olive cloth, gilt-stamped spine title, bound for the Royal Microscopical Society [1866], with their logo on the foot of spine. Rubber stamps of the Royal Microscopical Society.

$ 350

First edition of the invertebrates section. This is a part of the systematic illustrated inventory of various infusoria, including Vibrio (bacteria), Paramecium bursaria, cercaria (trematode larva), trichoda, kerona protozoa, Vorticella (protozoa genus), Brachionus (Brachionus calyciflorus), horsehair worms (Gordius), whipworms (trichuris), earthworms (lumbricus), parasitic worms (echynorinchus), tapeworms (Taenia), Hirudo (leeches), Nais (Nayades), Nereis (family Nereididae), Annelids , Aphrodita, Ascidians, hydra (Hydrozoa), coral, sea anemones (Actinia), octopus, squid (Sepiadariidae), cuttlefish, lernaea, sea slugs (Peltodoris), tongue mushroom coral (Herpolitha limax), sea cucumber (Holothuroidea), thalia, beroe (ctenophore), a genus of the Nuda class of comb jellies, mollusks, medusa. In fact the author is credited with naming more than 140 marine genera or species.

The entire set or publication of the *Tableau encyclopédique et méthodique des trois regnes de la nature* was an illustrated encyclopedia of plants, animals and minerals, notable for including the first scientific descriptions of many species, and for its attractive engravings. It was published in Paris by Charles Joseph Panckoucke, from 1788 through 1837. Other sections were authored by Lamarck (plants, taxonomy), Pierre Bonnaterre (cetaceans, mammals, birds, reptiles, amphibians, fish, insects), and Louis Jean Pierre Vieillot (birds).

Note: Plate 78 "Lernée" features a specimen drawn with a human face [fig. 16].

Jean-Guillaume Bruguiere, doctor of medicine, zoologist and diplomat. His work was also connected with the University of Montpellier. He is known to have accompanied Kerguelen-Trémarec on the explorer's first voyage to the Antarctic in 1773. In 1790 he accompanied the entomologist Olivier on an expedition to Persia, but his poor health didn't allow him to continue. In 1792, although he was ill, he visited the Greek archipelago and the Middle East, together with the entomologist Guillaume-Antoine Olivier. He was asked by the French Directoire to try to set up a Franco-Persian alliance, but was unsuccessful, lacking the training of a diplomat. Some years later he started back to France but died on the voyage.

☼ See: Christabel P. Braunrot & Kathleen Hardesty Doig, The Encyclopédie méthodique: an introduction, Studies in Voltaire and the Eighteenth Century, p.327, (1995): 1–152; Lamy, E., "Les conchyliologistes Bruguière et Hwass." Journal de Conchyl., vol. 74, 1930.

THE GREAT-GRANDFATHER OF THE WORLD WIDE WEB

7. **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; creasing. 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.

8. **CONVERSI, Marcello** (1917-1988); **Ettore PANCINI** (1915-1981); **Oreste PICCIONI** (1915-2002). "On the Disintegration of Negative Mesons." In: *Physical Review*, 1947. Second Series, vol. 71, Jan. 1-June 15, 1947, pp. 209-210. ¶ 4to. (10.5 x 8 inches; 263 x 200mm). [whole volume]. ix, 944 pp. Illus., index. Full green gilt-stamped buckram. Library bookplate. Very good.

$ 395

"Meson absorption, the cause of a real crisis. Theoretically, slow positive Yukawa mesons traversing matter should strongly prefer to decay rather than be absorbed by a nucleus, Coulomb repulsion mitigating against the meson reaching the nucleus. Negative Yukawa mesons, on the other hand, should strongly prefer absorption to decay. These predictions were blown to bits by the **Conversi-Pancini-Piccioni** experiment (December 1946): positive cosmic ray mesons behaved the way the theory said, and negative cosmic ray mesons were absorbed in lead, also as expected, but not in carbon!" – Abraham Pais, *Inward Bound*, p. 453.

Marcello Conversi, professor of experimental physics, was a vital contributor to Italian particle physics for more than 40 years. "Conversi acquired world fame in 1946 as the junior member of the team of Ettore Pancini, Oreste Piccioni and Conversi, which established that the cosmic ray 'mesotron' was not, as had been universally assumed until then, the strongly interacting meson hypothesized by Hideki Yukawa, but, rather, a weakly interacting particle, soon to be named the muon. This discovery was the crowning glory of a long chain of successful experiments by Conversi and Piccioni (1942-45) on the lifetime of the 'mesotron.' It is fair to say that the discovery – in its day jocularly called the 'Pinocchio effect' – constituted the birth of lepton physics." – Georgio Salvini, University of Rome, & Valentine L. Telegsi, Zürich, obituary for Conversi, *Physics Today*, November, 1989.

Ettore Pancini, transferred from the Istituto di Fisica of Padua, to Rome, in 1945. Here he participated in the final stage of the famous experiment known as "Conversi-Pancini-Piccioni", which led to the discovery of cosmic rays and the particle later known at muon (as above, the birth of lepton physics).

Oreste Piccioni, who had contributed originally to the design of the experiment that discovered the antiproton in 1955, was slighted by the Nobel Committee, when in 1959, the Prize for physics was awarded to Emilio Segrè and Owen Chamberlain. Remarkably Piccioni sued the two recipients in 1972, but the court threw out the case as being past an unstated limit of just cause.

A KEY WORK BY THE FATHER OF PROBABILITY THEORY

9. **DE MOIVRE, Abraham** (1667–1754). *The Doctrine of Chances: Or, a Method of Calculating Probabilities of Events in Play. The third edition, Fuller, Clearer, and more Correct than the Former.* London: A. Millar, 1756. ¶ Quarto. [4], xi, [1 errata], 348 pp. Portrait medallion vignette on title; mild foxing, but barely noticeable. Original full calf, red gilt-stamped leather spine label; hinges repaired with calf, inner joints strengthened, corners worn, all preserving original spine. Bookseller's ticket: "Sold by Carpenter & Co., 14 Old Bond Street" [London]. Early ownership ink signature of Th. Spencer; penciled initials of F.N.D. [see below]. Very good.

$ 2,500

Third edition. This is a key work by the father of probability theory in which major steps in the measurement of uncertainty were achieved. De Moivre is "best known in statistical circles for his famous large-sample approximation to the binomial distribution, whose generalization is now referred to as the Central Limit Theorem. De Moivre was one of the great pioneers of classical probability theory." [Bellhouse-Genest, p.1]. It is the first systematic treatment of probability in English. Abraham De Moivre became, with Edmund Halley, a founder of English actuarial science. The author's dedicatory letter is address to Lord George Carpenter (1702-1749) (the first edition had been dedicated to Newton), where the author states emphatically "that this *Doctrine* is so far from encouraging Play, that it is rather a Guard against it..." [*DNB*, vol. 38, p.116].

"The first edition of this work contains 175 pages, the second edition 258 pages and the third 348 pages. The following list will indicate the parts which are new in the third edition: the Remark pages 30/33 and pages 48 & 49, the greater part of the second Corollary pages 64/66, the Examples page 88; the Scholium page 95, the Remark page 149 and pages 151/159, the fourth Corollary page 162, the second Corollary pages 176/179, the note at the foot of page 187, the Remark pages 251/254. The part on life annuities is very much

changed. The Introduction is very much fuller than the corresponding part of the first edition. In his third edition De Moivre draws attention to the convenience of approximating to a fraction with a large numerator and denominator by continued fractions, which he calls "the Method proposed by Dr. Wallis, Huygens and others". He gives the rule for the formation of the successive convergents. This third edition contains 74 problems exclusive of those relating to life annuities (in the first edition there were 53 problems). The pages 220/229 contains one of De Moivre's most valuable contributions to mathematics, namely that of Recurring series. Pages 261/328 are devoted to Annuities on lives ; an Appendix finishes the book, occupying pages 329/348 : this also relates principally to annuities, but it contains a few notes on the subject of probability." – (Todhunter). A very full account of the above third edition will be found in Todhunter's *History of the theory of probability*.

"De Moivre's first book on probability was based upon a short memoir entitled *De mensura sortis*, published in the 1711 volume of the *Philosophical Transactions*. The 1718 first edition is essentially a gambler's manual, *giving a systematic presentation of the arithmetic principles upon which are based the solution of problems concerning the advantage of players and size of wager which may be lain in a wide variety of games of chance*. [Walker]. It does not contain De Moivre's work on the normal approximation of the binomial probability distribution, which ranks as the most memorable of his discoveries; this discovery was first printed in its entirety in 1733 in a Latin pamphlet, which was later translated into English and incorporated, in successively expanded versions, in the second (1738) and [posthumous] third (1756) edition of *The doctrine of chances*." [Norman].

In terms of mathematics applied to the human actuarial lifespan, "De Moivre, French Huguenot mathematician and demographer, formulated the hypothesis that among a body of persons over a certain age the successive annual decreases by death are nearly equal." [Garrison & Morton].

"De Moivre's work on the theory of probability surpasses anything done by any other mathematician except Laplace. His principal contributions are his investigations respecting the duration of play, his theory of recurring series and his extension of the value of Bernouilli's theorem by the aid of Sterling's theorem". (Cajori)

De Moivre, born at Vitry, received a varied education and settled in London as a Huguenot refugee in 1688. In England he continued his study of mathematics while working as a tutor. He is said to have acquired (and read) a copy of Newton's *Principia* and even to have carried loose sheets around with him to study at every available moment. This method of study worked so well that not only did he become one of England's foremost mathematicians, but Newton, in old age, was in the habit of referring questions about the *Principia* to De Moivre. De Moivre's *Doctrines of Chance* is in fact a revised and expanded translation of his essay *De Mensura Sortis* which had been published in Latin in the *Philosophical Transactions* in 1711. In its Latin form it thus preceded Jacob Bernoulli's *Ars Conjectandi* (1713) by a full two years.

De Moivre was a French mathematician famous for De Moivre's formula, which links complex numbers and trigonometry, and for his work on the normal distribution and probability theory. He was elected a Fellow of the Royal Society in 1697, and was a friend of Isaac Newton, Edmund Halley, and James Stirling. Among his fellow Huguenot exiles in England, he was a colleague of the editor and translator Pierre des Maizeaux.

Shafer points out that De Moivre, one of Jacob Bernoulli's successors, was among those who were applying Huygens' theories to both games and economies (p. 11). He points out that the 1718 first edition was influenced by Bermoulli in that he used the word "probability" which was a word he did not use in his *De mensura sortis*. He continues: "We should not exaggerate De Moivre's importance in the eighteenth century. In retrospect, he represents the pat that mathematical probability followed, but he was hardly a philosopher of Jacob's caliber, and Jacob retained a strong influence throughout the century among those who wanted to understand probability philosophically. Jacob's and Hooper's rules survived the whole course of that century in the works of philosophically sophisticated writers such as Lambert and Diderot. They disappeared only after Bayesian alternatives were developed by Laplace." (pp. 13-14). Steve Stigler and Lorraine Daston expand on the use of the word "probability" in the eighteenth century.

Theodore Porter (UCLA) writes that De Moivre introduced the astronomer's law error to probability theory (p. 93). "Like most early probability mathematics, it first arose in the context of games of chance; it appeared as the limit of the binomial distribution. Because

of its usefulness in combination and permutation problems, the binomial had become the heart of the doctrine of chances…. De Moivre then showed in a paper of 1733, reprinted in 1738 in the second edition of his *Doctrine of Chances*, that the exponential error function gave a very good approximation to the distribution of possible outcomes for problems like the result of 1,000 coin tosses Now, for the first time, it was practicable to apply probability theory to indefinitely large numbers of independent events."

PROVENANCE: [I] Thomas Spencer [undetermined]. [II] F.N.D. – Florence Nightingale David (1909-1993), also known as F. N. David was an English statistician, born in Ivington, Herefordshire, England. She was named after Florence Nightingale, who was a friend of her parents. David did not like her forenames and thus always referred to herself as "F. N. David". She attended the Bedford College for Women in London, earning her degree in mathematics in 1931. She then joined University College, London to work with Karl Pearson who obtained a scholarship for her, working as his research assistant, resulting in a doctorate received in 1938 (Pearson died in 1934). In 1938 her first book was published, *Tables of the Correlation Coefficient.* During that period she was working with Jerzy Neyman. "During World War II she served as Experimental Officer in the Ordnance Board for the Ministry of Supply, Senior Statistician for the Research and Experiments Department for the Ministry of Home Security, Member of the Land Mines Committee of the Scientific Advisory Council, and as Scientific Advisor on Mines to the Military Experimental Establishment. Her work during this time ranged from the study of bombing patterns and damage to the problem of discovering the placement of enemy land mines and a methodology for randomly placing land mines so as to avoid the semblance of any pattern in their placement." [Garber et.al.] After WWII she came back to University College, London, and was appointed professor in 1962. Five or six years later she took a position at the University of California, Riverside, becoming head of the Department of Statistics in 1970. Retiring in 1977 she came to Berkeley and continued her research. this book bears her initials on the Francis Galton Laboratory bookplate; she gave her books to Margaret Stein of Stanford University. See: M. J. Garber D. V. Gokhale J. M. Utts R. J. Beaver, Chair, "Florence Nightingale David, Statistics: Riverside." [Obituary]; "A conversation with F.N. David," Statistical Science, Vol. 4, No. 3,235-246 by Nan Laird; J. Utts, "Florence Nightingale David 1909-1993: Obituary," *Biometrics*, (1993) 49, 1289-1291; Norman L.

Johnson & Samuel Kotz (eds.), *Leading Personalities in Statistical Sciences from the Seventeenth Century to the Present*, Wiley, 1997 (pp. 91-92).

☼ Babson 181 (1st ed.); Ball, *A short account of the history of mathematics*, pp. 383-4; BM Readex Vol. 17, p. 751; Cajori, *History of Mathematics*, pp. 229-30; *DNB*, vol. 38, p.116; Kress S.2793; Institute of Actuaries (1935) p. 39; Mansutti 504; Norman 1529 (1st ed.); Pearson, *The History of Statistics in the 17th & 18th Centuries*…, pp. 155-60, 165-66; Smith, *Source book in mathematics*, pp. 440-54; Stigler, *The History of Statistics: The Measurement of Uncertainty before 1900* (1986), p. 70; Todhunter, *History of the theory of probability;* Walker pp. 12-13; Wellcome IV, p. 149; Westergaard pp. 104-5. Not in Goldsmiths or Hanson.

See: Raymond Clare Archibald, "Abraham de Moivre"; David, F.N., *Games, Gods and Gambling; The origins and history of probability and statistical ideas* … (1962), pp. 161-178.

SPURIOUS EDITION OF DESAGULIERS' FAMOUS PRIVATE LECTURES CONTAINING NOTES ON BOYLE'S AIR PUMP AND NEWTON ON COLOR THEORY

10. **DESAGULIERS, John Theophilus** (1683-1744); **Isaac NEWTON** (1643-1727). *A System of Experimental Philosophy Prov'd by Mechanicks, wherein the principles and laws of Physicks, Mechanicks, Hydrostaticks, and Opticks, are demonstrated and explained at large, by a great number of curious experiments. . . To which is added, Sir Isaac Newton's colours: the description of the condensing engine, with its apparatus: and Rowley's Horary; a machine representing the motion of the Moon about the Earth; Venus and Mercury about the Sun, according to the Copernican System*. London: Printed for B. Creake, … J. Sackfield …; And sold by W. Mears, … 1719. ¶ Sm. 4to. [xxii], 201, [5] pp. 10 folding engraved copperplates, 5 figs. (pp. 24, 54, 75, 112), half-title is a publisher's ad for Boerhaave, rear publisher's ads [2 ff.], head and tail-pieces; title edges chipped. With errata. Title (+ p.101) perforated stamp and with a rubber stamp on verso, of the John Crerar Library, eight plates with the ex-library rubber stamp on versos; waterstained throughout. WITH FREQUENT EARLY INK CORRECTIONAL NOTES. Modern half blind-stamped dark calf, gilt spine title, raised bands, marbled paper over boards, new endleaves, bindery ticket at rear: Pat M. Bruno. Inscription on recto of front blank (verso is ad for Boerhaave book), "W. --- 1720 Power."

$ 5,000

FIRST ENLARGED EDITION, early issue, without "All carefully Examined and Corrected by Mr. Desaguliers" on title [which otherwise is re-titled, "Lectures of Experimental Philosophy"]. Includes: *Sir Isaac Newton's Colours. Proposition. Lights which differ in Colour, differ also in Degrees of Refrangibility*. Initially published without the author's permission and then, by evidence of the printed Preface, agreed to issue the book with an erratum.

There are multiple forms of this edition as different copies collate differently (Andrade, Kenney, Honeyman copies). The Honeyman copy, called a second edition, has two title-pages, and the Preface by Desaguliers, with an imprint of 1719. There are also differences in the title-pages. The fiasco of the unauthorized edition is the cause of the various issue differences. "Perhaps Dawson hoped … to ingratiate himself with his patron, but instead he incurred the wrath of the lecturer. Immediately Desaguliers became aware of the book, which he called 'ill put together, sadly transcrib'd and worse corrected', he approached the booksellers. He found that two-thirds of the imprint had already been sold by Messrs Mears, Creake and Sackfield, but they paid him ten guineas 'to pacifie me'. They also promised to insert into all remaining copies a preface that Desaguliers would write, together with a substantial errata. The preface follows the Dawson dedication in some copies of the book entitled, A System of Experimental Philosophy, but precedes it in another version called Lectures in Experimental Philosophy." See: Carpenter, pp. 34-5, 119.

Contents: Mechanical experiments, Mechanical powers & definitions; How to make a heavy Body seem to rise it self; gravity, balance, leaver, pulley, wheel axle, wedge, screw, laws of nature, hydrostatics; Description of Robert Boyle's Air-Pump (uses & experiments); How to make an air vacuum; Barometers, Thermometers, Hydrometers; Catoptrichs; Dioptrichs; Sir Isaac Newton's Colours; Condensing Engine; "Rowley's Horary being a machine to represent the Motion of the Moon about the Earth, and the Earth, Venus and Mercury about the Sun."

The preface, written by Desaguliers himself, explains that this volume of lectures was released "before I designed to publish them." He then retells how Paul Dawson "took a copy of the lectures … that they may be service to him when he went thro' my courses, and they were afterwards sold and published without my knowledge." He obtained a copy of the text and made numerous corrections – thus

the micro-print 1 ½ page errata. The he invites the owner to annotate the book throughout "before he begins to read the lectures." And indeed, the owner named Powers did annotate this copy – clear evidence he read that Preface. (A2-3).

The *DNB* asserts that Desaguliers, "held in great esteem by Sir Isaac Newton," "is said to have been the first to deliver learned lectures to general audiences. Lectures by him, at his London house were widely attended and were made attractive by experiments." In addition it mentions that Paul Dawson was responsible for the work and that Desaguliers himself "disavowed" himself of the edition. – *DNB* (pp. 850-1).

Nicholas A Hans describes the types of persons attending Desaguliers' lectures: "merchants, craftsmen and clerks, and his private audiences consisted of gentlemen and courtiers and included ladies as well." – Nicholas A Hans, *New Trends in Education in the Eighteenth Century*, (1951), p. 141.

Westfall says of Desaguliers, he "became a fixture at the meetings [of the Royal Society], where he carried out sets of experiments intimately related to various aspects of Newtonian natural philosophy. Some of his experiments, such as the transmission of heat through a vacuum, influenced Newton's views, and other found their way into the third edition of the *Principia*." – *Never at Rest*, pp. 685-6.

Writing for the *DSB*, A. Rupert Hall, points out that Desaguliers did not produce his own version of these lectures until 1734, "when he took occasion to denounce this unauthorized version…" – *DSB*, IV, pp. 43-6.

John Theophilus Desaguliers (1683-1744), born at La Rochelle, emigrated to England in 1685 [as a Huguenot refugee, hidden in a tub at 2-years of age], studied at Oxford, he became a Fellow of the Royal Society in 1714. As the Society's experimenter and a close friend of Newton he often verified Newton's theories through experimentation. "In 1717 he published *Physico-Mechanical Lectures*, an eighty-page abstract of the twenty-two lectures of his course. Although not authorized by Desaguliers, the present work is the first full account of his lectures, edited by his student Paul Dawson. Primarily of interest as a textbook of Newtonian physics, many

chemical topics are included. The first issue appeared with the title *A System of Experimental Philosophy*."

☼ Bakken [title: "*Lectures of experimental philosophy* … 1719"] pp. 52-3; Goodison, *English Barometers 1680-1860,* p. 369; Keynes, *Boyle*, 366, pp. 122-9; Roy G. Neville, I, p. 354 [second issue]; Poggendorff, I, 554; Wellcome II, p. 451; Wheeler 249. Not in Babson, Barchas, Gray, or Verne L. Roberts catalogues. See: *DSB*, IV, p. 45; Taylor, *Mathematical Practitioners 1714-1840*, 35; Audrey T. Carpenter, *John Theophilus Desaguliers: A Natural Philosopher, Engineer and Freemason in Newtonian England,* Bloomsbury Academic, 2011.

11. **DIGBY, Kenelm**, 1603-1665. *Choice and experimented receipts in physick and chirurgery, as also cordial and distilled waters and spirits, perfumes, and other curiosities / Collected by ... Sir K. Digby ... Translated out of several languages by G[eorge] H[artman].* London: Printed for the author, and ... sold by H. Brome, 1668. ¶ Small 8vo. [8], 308, [12] pp. Frontispiece portrait engraved by Cross; margins worn. Modern full speckled calf, brown gilt-stamped spine label, raised bands, blind and gilt-tooling, endleaves renewed. Very good.

$ 2,000

First edition, second issue, issued posthumously. After Digby's death, his assistant ["steward"], George Hartman, issued "three major collections of his medical, culinary and chemical recipes." (Huston-Rubin p. 46). The first edition was issued in two states with "Printed for the Author" on the title. The second state, adds the bookseller, "H. Brome." This copy does not include the longitudinal half-title associated with the first issue. "The volume deals mainly with receipts and prescriptions for different ailments, but incidentally there is a little practical chemistry in the preparation of the compounds employed. Among them the product of the destructive distillation of tobacco, which was used for the cure of ulcers, and which even by external application caused sickness, is described." – Ferguson.

The example of his mad-dog bit recipe was to take ale, treacle, rue, tin shavings, boil together, etc., take two spoonfuls [as needed], "It is excellent for Man or Beast." (pp. 114-5).

This book contains a plethora of medicinal recipes including rose water (p. 296), oxymel for fevers, cochinile for "purple fever" ["After twice or thrice doing this, and keeping the patient very warm, the disease will break out in spots, and they will escape..." – p. 11]. In another case, treacle [molasses] stewed with white wine for half an

hour, is recommended against fever ["ague"] while also being put to bed, cover warm to sweat, the cure will come after two or three applications (p. 13).

Dugan, in her history of perfumes, makes point of the "widespread belief in – and access to – herbs and objects used as aphrodisiacs in the period." Holly Dugan, *The Ephemeral History of Perfume: Scent and Sense in Early Modern England*, (p. 220).

Another section offers remedies for pregnant women, "To cause a good delivery in a woman with child" (p. 62) [fry onions in oil till tender, add water, boil, strain, and drink every day for 3 weeks prior to delivery ["women that have had the most dangerous labours till they took this, have no difficulty afterwards"]. A more remarkable recipe is recommended "To bring away the After-burthen, or any Foulness of a Dead-child, and to Cure the After-throws and Griping, after a Woman is delivered." For this one needs wrinkled inner skins of hen gizzards that are laying eggs, wipe clean, dry, beat to a powder, give with a bit of white wine ... repeat as needed. The poor woman who endured this application "For the breast and belly of women lying in" – take Sperma Caete, pure white virgin-wax, melt together, add wine, heat, and dip in a linen cloth, large enough to cover her torso, a hole for each breast "for the nipples to come out" – then after delivery, "she must put on these" add flax pickled loose to cover, some flax under the arm-holes, etc., all over the belly, etc., and apply every day for eight days, "this shall so preserve, that there is not the least wrinkle or crack in the breast or belly after bearing children" (p. 69). According to Laura Lunger Knoppers, this book contains but one recipe "approved by a woman." – *The Oxford Handbook of Literature and the English Revolution*, (p. 518).

Potable gold is an ingredient for a patient suffering from "shaking of hands or feet" while soaking them in a solution including salt, etc. (p. 195-6). Other remedies are for treating the bite of a mad dog, snake bit, burns, mint-water for cooling the stomach, cinnamon water, treatment for deafness, dropsy, "dizziness and swimming in the head", against bloodshot eyes, extract of poppy flowers, "for the falling-sickness", gout, gonorrhea, hemorrhoids, king's evil [scrofula], ointments for wounds or sores, numerous applications against fever, oil of pearl for the face, against the plague, against the retention of urine, treatments for spitting of blood, small-pox, toothaches, tobacco aroma influenced with "perfumes" (p. 305), worms in children, removal of warts, and how to convert water into ice in

summer (put boiled water in an earthen jug, place in a deep well till it becomes ice, "so that you must break the pitcher to get it out" (p. 307).

A manuscript found at the rear of the volume describes "Walnut water" and gives a recipe to be applied "an [ounce] at a time morning & evening, expels vapours, keeps out infections [promotes] good digestion ... [for] pains in the stomach."

☼ ESTC R232747; Wing D1424; John Ferguson, *Bibliographical Notes on Histories of Inventions and Books;* K. Garth Huston; Davida Rubin, *Sir Kenelm Digby*, (Norman, 1991).

Locations: Wellcome b13249277 [has [5] ff. as prelims.].

See: Katharine E. Harbury, *Colonial Virginia's Cooking Dynasty*, (2004), p. 177; Longueville, Thomas, *The Life of Sir Kenelm Digby*, 1896.

12. **DU HAMEL, Jean Baptiste** (1624-1706). *De consensu veteris et novæ philosophiæ libri duo. In priori libro Platonis, Aristotelis, Epicuri, Cartesii, & aliorum de Principiis rerum naturalium placita excutiuntur, ac Physica generalis penè tota pertractatur. In posteriori agitur de Elementis, & Chymicorum Principiis, necnon de mixtione, & dissolutione corporum, ubi Chymia ferè universa explicatur.* Paris: apud Carolum Savreux, 1663. ¶ 4to. [28], 280 pp. Woodcut printer's device on title, with full-page engraved arms of Archbishop Hardouin de [Beaumont] Péréfixe, the dedicatee, and a full-page engr. of the Cartesian system (p. 157), errata. Contemporary mottled calf, gilt spine compartments; rubbed, extremities worn. Bookplate of the Prince of Liechtenstein Library. RARE.

$ 800

First edition of this treatise, one of his most famous, on "natural philosophy in which the Greek and scholastic theories are compared with those of Descartes." He was influenced by the contemporary advances in astronomical discovery and chemical theory, and in this work he presents the new and old views of these sciences. The first book deals with metaphysics, the second with the elements of the physical world.

Jean-Baptiste Du Hamel [or Duhamel], born in Vire, Normandy, studied at Caen, was a French cleric and natural philosopher of the late seventeenth century. At the time of this work, he was appointed chancellor of the church of Bayeux. He authored several scientific

works. He was appointed the first secretary of the Académie Royale des Sciences.

Duveen, p. 184 ("a rare work"); Lynn Thorndyke, *A History of Magic and Experimental Science*, VIII, pp. 204 ff.

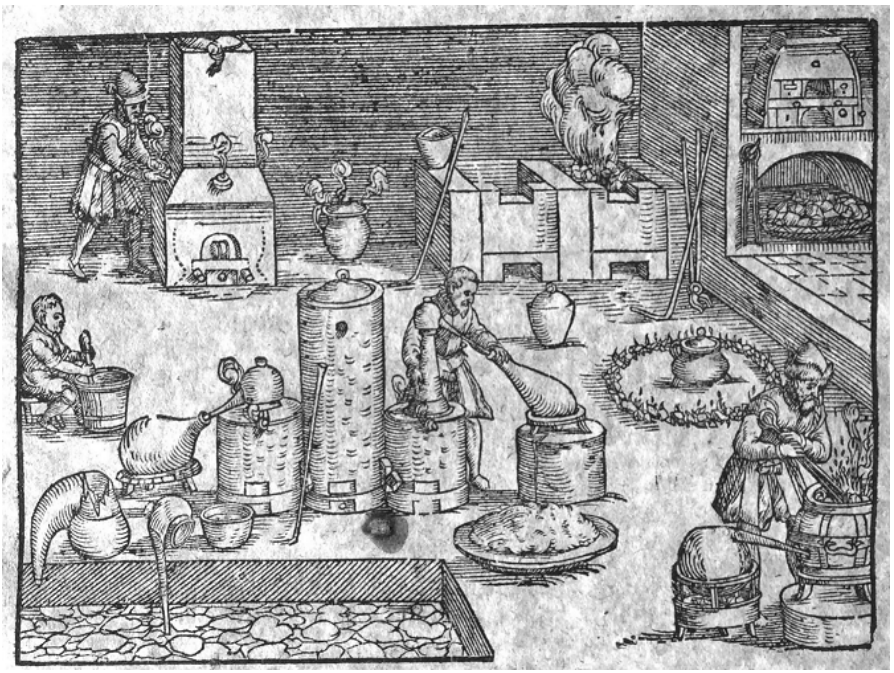
ERCKER ON ORES AND ASSAYING

13. **ERCKER, Lazarus** (c.1530-1594). *Aula Subterranea domina Dominantium subdita subditorum. Das ist: Untererdische Hofhaltung Ohne welche weder die Herren regieren/ noch die Unterthanen gehorchen können.*

Oder: Gründliche Beschreibung dererjenigen Sachen/ So in der Tieffe der Erden wachsen, als aller Ertzen der Königlichen und gemeinen Metallen, auch fürnehmsten Mineralien etc. ANGEBUNDEN: Interpres Pharaseologiae metallurgicae, Oder Erklärung derer fürnehmsten Terminorum und Redens-Arten/ welche bey denen Bergleuten/ Puchern, Schmeltzern, Probierern und Müntzmeister etc. in Benennung ihrer Professions-Sachen, etc gebräuchlich sind. Frankfurt am Mayn: Verlegt von Johann David Jung, 1736. ¶ Two parts in 1. Small folio. (12), 208, (4), 36 pp. Engraved half-title (signed Badollet fe[cit].), title printed in red & black, 44 woodcuts (see 1672 printing); some browning, lower margins waterstained, occasional minor marginalia, pp. 97-98 torn at lower gutter (some minor loss), ink stain pp. 15, 31-32. Original full vellum, manuscript spine title; some tearing or damage to spine. From the library of John Stuart, the Third Earl of Bute (1713-1792), George III's tutor and his first Prime Minister (1762-3) [no markings].

$ 2,000

Eighth edition, the final German edition and the most complete. "Designation as the fifth edition is erroneous. This edition contains the annotations, etc., as in the 1672 edition, and [Christian] Berward's *Interpes Phraseologiae*, with separate pagination (36 pp.). There is a new section, designated as Second Appendix to the Fifth Book, describing



saltpeter plantations and the manufacture of gunpowder. This is illustrated with three new woodcuts showing recrystallization of saltpeter and the milling and graining of gunpowder." – Sisco & Smith, p. 334.

"Although the title-page credit one 'J.E.C.' with editing and enlarging it, this is essentially a reprint of the 1703 edition, with an added section on gunpowder, illustrated by engravings of powder mills and graining shops. 'J.E.C.' may stand for Johann Hiskias Cardilucius, who wrote the Foreword to the 1672 edition ... the illustrations in this 1736 edition are identical with the ones in the 1580 edition and with a few exceptions were obviously printed from the same blocks." – Sisco & Smith

Considering the importance of Ercker's treatise it is remarkable how little is on record about him. He was inspector-general of the mines in Hungary, Transylvania, and the Tyrol, which position he held under three consecutive emperors in the 16th century, and he calls himself of St. Annen Bergk. This town is in the Saxon Erzgebirge, close to the Bohemian border.

His book was highly prized at the time, for it was a record of practical experiences, and was not burdened with theories and hypotheses. Ercker's work should prove of interest to the economic historian for throughout it one can catch glimpses of the relation between scientist and plant operator and see the utilization of scientific knowledge and techniques for the control of mill operations for an increase of profit.

"The only one of Ercker's works to contain many drawings, it presents a systematic review of the methods of testing alloys and minerals of silver, gold, copper, antimony, mercury, bismuth, and lead; of obtaining and refining these metals, as well as of obtaining acids, salts, and other compounds. The last chapter is devoted to saltpeter." – *DSB*, IV, pp. 393-394.

Lazarus Ercker, (born c. 1530, Annaberg, Saxony [Germany]—died c. 1594, Prague, Bohemia [now in Czech Republic]) important German writer on early metallurgy. He studied at the University of Wittenberg (1547–48) and in 1554 was appointed assayer at Dresden, the first of many such positions he held in the state bureaucracy of Saxony. After 1567 he became control tester of coins at Kutná Hora, near Prague. In his great work, *Beschreibung allerfürnemisten mineralischen Ertzt und*

Berckwercksarten (1574; "Description of Leading Ore Processing and Mining Methods"), he presented a systematic review of the techniques then in use for testing alloys and minerals of silver, gold, copper, antimony, mercury, bismuth, and lead; of obtaining and refining such metals; and of extracting acids, salts, and other compounds. It may be regarded as the first manual of analytic and metallurgical chemistry. – Britannica

☼ DSB, IV, p. 394; Ferguson I, 244-5; Duveen 195; Neu 1317; Neville Chemical Library, I, p. 422; Partington, II, p. 104; Wellcome II, p. 527. See: Hoover 280-284 (editions from 1574 to 1684).

NOBEL PRIZE WINNING PAPER

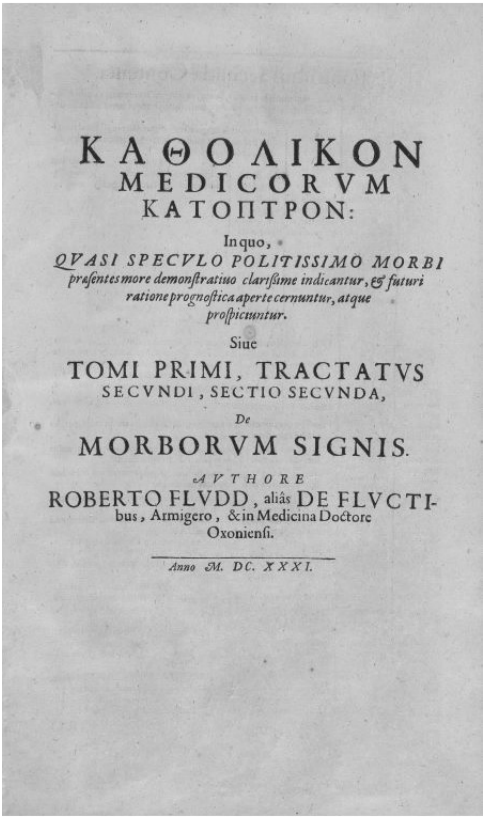
14. **FEYNMAN, Richard Phillips** (1918-1988). "The theory of positrons." [with:] "Space-time approach to quantum electrodynamics." Contained in: *The Physical Review,* Second Series, Vol. 76, No. 6, pp. 749-59, 769-89, (September 15, 1949). (Lancaster, PA): American Physical Society, 1949. ¶ Sm. 4to. xv, 1,934 pp. [whole volume]. Green library buckram, gilt-stamped spine title. Library bookplate. Very good.

$ 1,875

FIRST EDITION; THE BEGINNINGS OF QUANTUM ELECTRODYNAMICS FOR WHICH FEYNMAN WON THE NOBEL PRIZE. In 1965 Feynman shared the Nobel Prize for Physics with Tomonaga and Schwinger, "For their fundamental work in quantum electrodynamics, with deep-ploughing consequences for the physics of elementary particles." [Nobel Foundation]. "There exists a set of notes, with the title *Theory of Positrons* and probably written in late 1947, which outlines Feynman's formulation of the theory as of that time… Although the paper was delivered in January 1949, its content reflects Feynman's thinking of one year earlier. The manuscript is of great interest because it contains, besides the famous 'bombardier' metaphor of his *Theory of Positrons* paper, other metaphors (including the one about the letter N) to illustrate his notions of positrons as electrons moving backward in time. It also gives us a glimpse of Feynman in a more philosophical vein." [Schweber]. Both papers discuss the creation of the covariant quantum electrodynamic theory, and present the Feynman method. "Feynman's paper on *The theory of positrons* was received by the *Physical Review* on 8 April 1949. This was the last version of the paper on this topic on which Feynman had worked for several years." [Mehra]. This issue of *The Physical Review* includes Julian Schwinger's "Quantum

electrodynamics. III. The electromagnetic properties of the electron – radiative corrections to scattering."

☼ Ezhela, et al, *Particle Physics One Hundred Years of Discoveries*, pp. 107-8; Mehra, *Beat of a Different Drum*, pp. 272, 78; Schweber, *QED and the Men Who Made It*, pp. 428-31.


ΚΑΘΟΛΙΚΟΝ
MEDICORVM
ΚΑΤΟΠΤΡΟΝ:

In quo,
QVASI SPECVLO POLITISSIMO MORBI praesentes more demonstrativo clarissime indicantur, & futuri ratione prognostica aperte cernuntur, atque prospiciuntur.

Siue

TOMI PRIMI, TRACTATVS SECVNDI, SECTIO SECVNDA,

De

MORBORVM SIGNIS.

AVTHORE

ROBERTO FLVDD, aliâs DE FLVCTIbus, Armigero, & in Medicina Doctore Oxoniensi.

Anno M. DC. XXXI.

ROBERT FLUDD'S TREATISE ON "CATHOLIC MEDICINE" WITH SECTIONS ON METEOROLOGY & STUDY OF PROPHECY AND URINE

15. **FLUDD, Robert.** *[Katholicon] Medicorum [Katoptron]: In quo, Quasi Speculo Politissimo Morbi praesentes more demonstrativo clarissme indicantur, & futuri ratione prognostica aperte cernuntur, atque prospiciuntur. Sive Tomi Primi, Tractatus Secundi, Sectio Secunda, De Morborum Signis.* [Frankfurt: Wolfgang Hofmann for Officina Wilhelm Fitzer,] 1631. ¶ Folio. Collation: [¶]^{2}, a-3e^{4}. Pagination: [4], 413, [1] pp. 1 folding table, 1

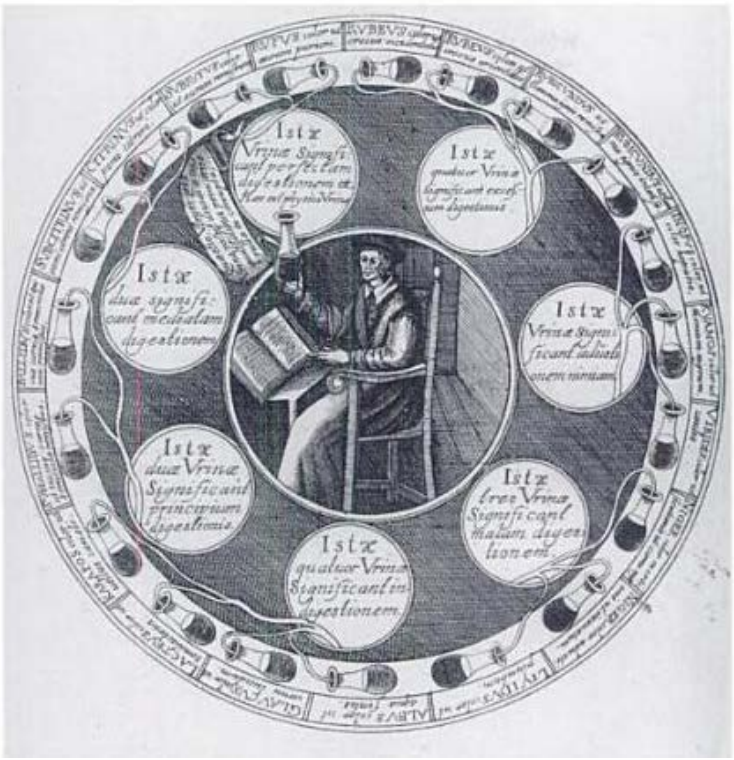
foldout plate [facing p. 58] (part of the collation with text), numerous engravings, charts, tables, etc. Nineteenth century quarter vellum with corner tips over paper covered boards, manuscript spine title, edges red; light toning. Formerly from the Harry Levinson bookshop and sold by him to Dr. E.E. Coleman (of Long Beach, 1966). Very good copy.

$ 4,500

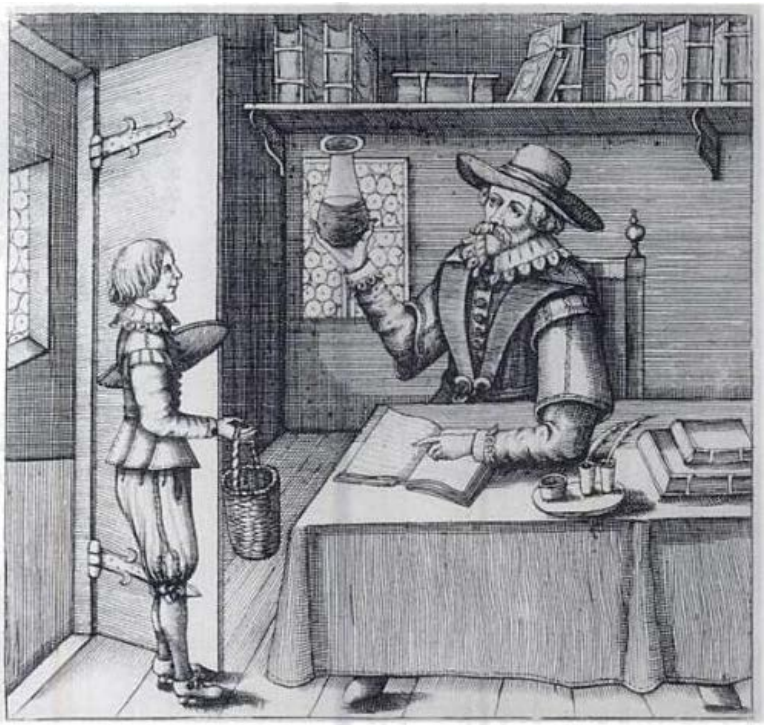
First Edition of the "Medicina Catholica." "Apparently he was fond of lecturing his patients on his metaphysics, a habit which gave him the reputation of using 'chants' to work psychological cures. It would seem that it was a Hermetic philosophy which involved him in ceaseless controversy and, in the end, overshadowed his contemporary reputation as a successful physician and practical experimenter." – William Huffman, *Robert Fludd and the End of the Renaissance,* 1988.

This work is part of the series of works (in four parts) that Fludd styled his "Medicinae Catholicae" and is sometimes found with the "Integrum Morborum." Contained are: "Prognosticon Supercoeleste" on the prophecies (pp. 1-96). This dealt specifically with meteorology and cosmology. See Fludd's "Prognosticon Meteorologicum." (pp.93-97, 98-165, including the Borealis). Iatromathematica (pp. 166-254). Signs of prophecy (pp. 154-183). … (pp. 184-203). Geomancy (pp. 204-212). Physiognomy (pp. 213-220). Chiromancy (pp. 221-232). His work on the study of urine (pp. 255-413) – including some sample of nativities or birth charts. Page 336 [misnumbered "334"] shows Fludd's drawing of the "kidneys with the aorta and vena cava, showing the drainage through the urinary vessels to the bladder. Also shown is the male anatomy of the testes, vas deferens, seminal vesicles and penis." – Adam McLean (p.466). Fludd's own anatomical work is heavily influenced by Vesalius and his great *Fabrica* of 1543 (just 88 years earlier).

"Fludd was a successful London physician with good connections, but his prolific writings were much more concerned with neoplatonism and the occult than traditional medicine. His books were all printed on the Continent, as he did not have to pay towards the production costs which he would have done in London, with the result that they were little read in England."



Circle of urinary colors. This plate depicts the Paracelsian physician in his chair, book open to the appropriate passages, with the figure surrounded by vials of different colored urine, which revolve heliocentrically around his seated body like planets in the Copernican system (here, the physician himself, his heart animated by the Holy Spirit, takes the place of the sun, the light of which resides in his heart. Only the alchemical golden color indicated a state of perfect inner health. "Here in the 'sun' (or central) position on Winthrop's chair sits a physician in his chair, expounding knowledge of urinary colors from a medical book proper open on a small table. Orbiting around this central figure are seven spheres filled with text poured into them from urine vials, which read, in a circular pattern beginning from the … right: 'Reds, ranging from a crocus-colour to that of intense fire, signify excesses in the digestion'; with the final sphere of gold and of course perfect health at top left: 'Golden colours alone are the sign of a perfect digestion.' This engraving is the vignette on the title-page of the section called 'Physiological Urinomancy' where Fludd devotes five books to diagnosis by examination of urine. – paraphrased or quoted from Kamil, p. 253.



The physician is examining a specimen. "Color is determined by holding a specimen up to light traveling between the sun and the physician's heart. The pontil glass window forms circles … perhaps the window alludes to the light of grace opening the book of nature." – Kamil.

☼ VD17 12:167434F; Matthias A. Shaaber, *Sixteenth-Century Imprints in the Libraries of the University of Pennsylvania,* F147; Krivatsy/NLM 4139; Wellcome I, 2330; Newberry 115; Osler 2627; James Brown Craven, *The Life and Mystical Writings of Dr. Robert Fludd*; James Brown Craven, *Doctor Fludd (Robertus de Fluctibus), the English Rosicrucian: Life and Writings*, 1902, pp. 248-249; Frederic Adolphus Ebert, *A general bibliographical dictionary from the German*, 7701:14; Joscelyn Godwin, *Robert Fludd: Hermetic Philosopher and Surveyor of Two Worlds*, (1979), 94 (MC II,b); BL 17th German F545; Leandro Cantamessa, *Astrologia. Opere a stampa (1472-1900),* I, 1538.

See: Adam McLean, *Study Course on the Robert Fludd Engravings*. pp. 368+.

William Huffman, *Robert Fludd and the End of the Renaissance,* 1988.

Lauren Kassell, "Secrets Revealed: alchemical books in early-modern England." *History Science Pub*., xlix, (2011), pp. 61-87, A1-A37.

Neil Kamil, *Fortress of the Soul: Violence, Metaphysics, and Material Life in the Huguenots' New World, 1517-1751,* Johns Hopkins University Press, (2005), pp. 252-55.

Sara Martin, John Anthony West, *The Case for Astrology*, Arkana, (1992), p. 273.

Locations: Staatsbibliothek Bamberg; Bavarian State Library.

WINNER OF 1955 NOBEL PRIZE FOR PHYSICS

16. **FOLEY Henry M.** (1917-1982); **Polykarp KUSCH** (1911-1993), "On the Intrinsic Moment of the Electron." In: *The Physical Review*, Second Series, Volume 73, Jan. 1, – June 15, 1948. ¶ page 412. 4to. (10.5 x 8 inches; 263 x 200mm). [whole volume]. xii, 1,514 pp. Illus., index. Full green gilt-stamped buckram. Library bookplate. Very good.

$ 400

Kusch was jointly awarded the 1955 Nobel Prize in physics, with Willis Eugene Lamb, for their contributions to knowledge of the atom: "The Nobel Prize in Physics 1955 was divided equally between Willis Eugene Lamb "for his discoveries concerning the fine structure of the hydrogen spectrum" and Polykarp Kusch "for his precision determination of the magnetic moment of the electron." Polykarp Kusch (1911 – 1993) was a German-American physicist, graduated from Case Western Reserve and the University of Illinois. He spent most of his academic career at Columbia University.

☼ See: Abraham Pais, *Inward Bound*, p.451; Silvan S. Schweber, *QED and the Men who Made it: Dyson, Feynman, Schwinger, and Tomonaga*, 1994, p.700. H. Henry Stroke (ed.), *The Physical Review – the first hundred years, a selection of seminal papers and commentaries*, NY, (1995), p. 169-182.

17. **GALTON, Francis** (1822-1911). [2 papers] "Regression Towards Mediocrity in Hereditary Stature." London: Harrison and Sons, 1885. [with:] "The Geometric Mean, in Vital and Social Statistics." See: *Proceedings of the Royal Society* October 21 1879, pp. 365-7. 8vo. (246)-263; (336)-351; (75)-82; 281-471, [1]; xxxiv; [2], 190, [ii]; 12 pp. Early brick-red cloth, gilt stamped spine title "GALTON" with some

original printed wrappers bound in; first wrapper suffered a tear from the gutter toward the middle. Very good.

$ 125

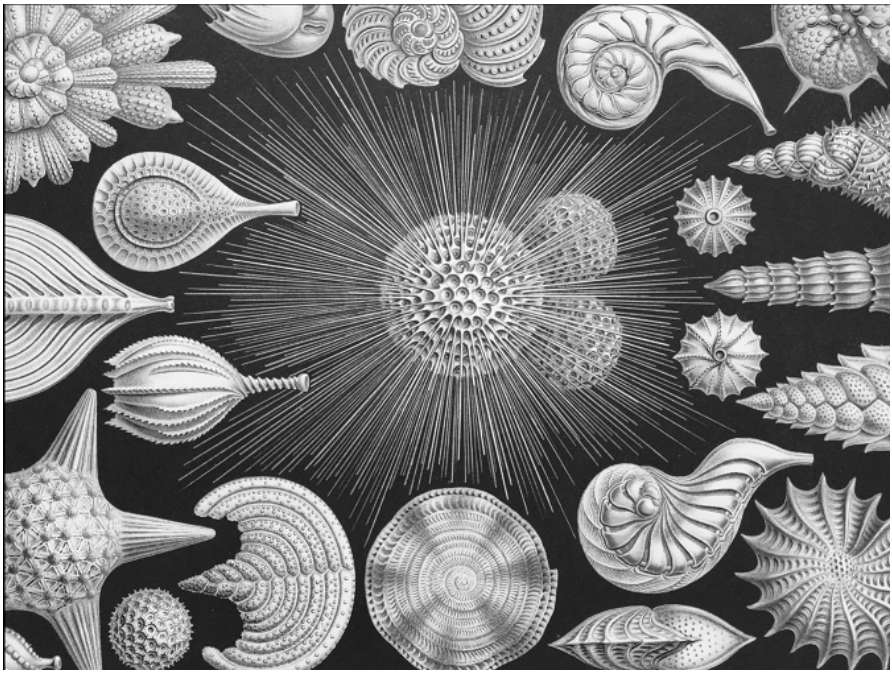
“Sir Francis Galton first observed the phenomenon in the context of simple linear regression of data points. .... The concept of regression comes from genetics and was popularized by Francis Galton during the late 19th century with the publication of Regression towards mediocrity in hereditary stature. Galton observed that extreme characteristics (e.g., height) in parents are not passed on completely to their offspring. Rather, the characteristics in the offspring regress towards a mediocre point (a point which has since been identified as the mean). By measuring the heights of hundreds of people, he was able to quantify regression to the mean, and estimate the size of the effect. Galton wrote that, “the average regression of the offspring is a constant fraction of their respective mid-parental deviations”. This means that the difference between a child and its parents for some characteristic is proportional to its parents' deviation from typical people in the population. If its parents are each two inches taller than the averages for men and women, on average, it will be shorter than its parents by some factor (which, today, we would call one minus the regression coefficient) times two inches. For height, Galton estimated this coefficient to be about 2/3: the height of an individual will measure around a midpoint that is two thirds of the parents’ deviation from the population average.”

Galton coined the term regression to describe an observable fact in the inheritance of multi-factorial quantitative genetic traits: namely that the offspring of parents who lie at the tails of the distribution will tend to lie closer to the centre, the mean, of the distribution. He quantified this trend, and in doing so invented linear regression analysis, thus laying the groundwork for much of modern statistical modelling. Since then, the term "regression" has taken on a variety of meanings, and it may be used by modern statisticians to describe phenomena of sampling bias which have little to do with Galton's original observations in the field of genetics.”

“Galton's explanation for the regression phenomenon he observed is now known to be incorrect. He stated: “A child inherits partly from his parents, partly from his ancestors. Speaking generally, the further his genealogy goes back, the more numerous and varied will his ancestry become, until they cease to differ from any equally numerous sample taken at haphazard from the race at large.”[9] This is incorrect, since a child receives its genetic makeup exclusively from

its parents. There is no generation-skipping in genetic material: any genetic material from earlier ancestors than the parents must have passed through the parents, but it may not have been expressed in them. The phenomenon is better understood if we assume that the inherited trait (e.g., height) is controlled by a large number of recessive genes. Exceptionally tall individuals must be homozygous for increased height mutations on a large proportion of these loci. But the loci which carry these mutations are not necessarily shared between two tall individuals, and if these individuals mate, their offspring will be on average homozygous for "tall" mutations on fewer loci than either of their parents. In addition, height is not entirely genetically determined, but also subject to environmental influences during development, which make offspring of exceptional parents even more likely to be closer to the average than their parents."

"In sharp contrast to this population genetic phenomenon of regression to the mean, which is best thought of as a combination of a binomially distributed process of inheritance (plus normally distributed environmental influences), the term "regression to the mean" is now often used to describe completely different phenomena in which an initial sampling bias may disappear as new, repeated, or larger samples display sample means that are closer to the true underlying population mean." – Wikip.



Haeckel

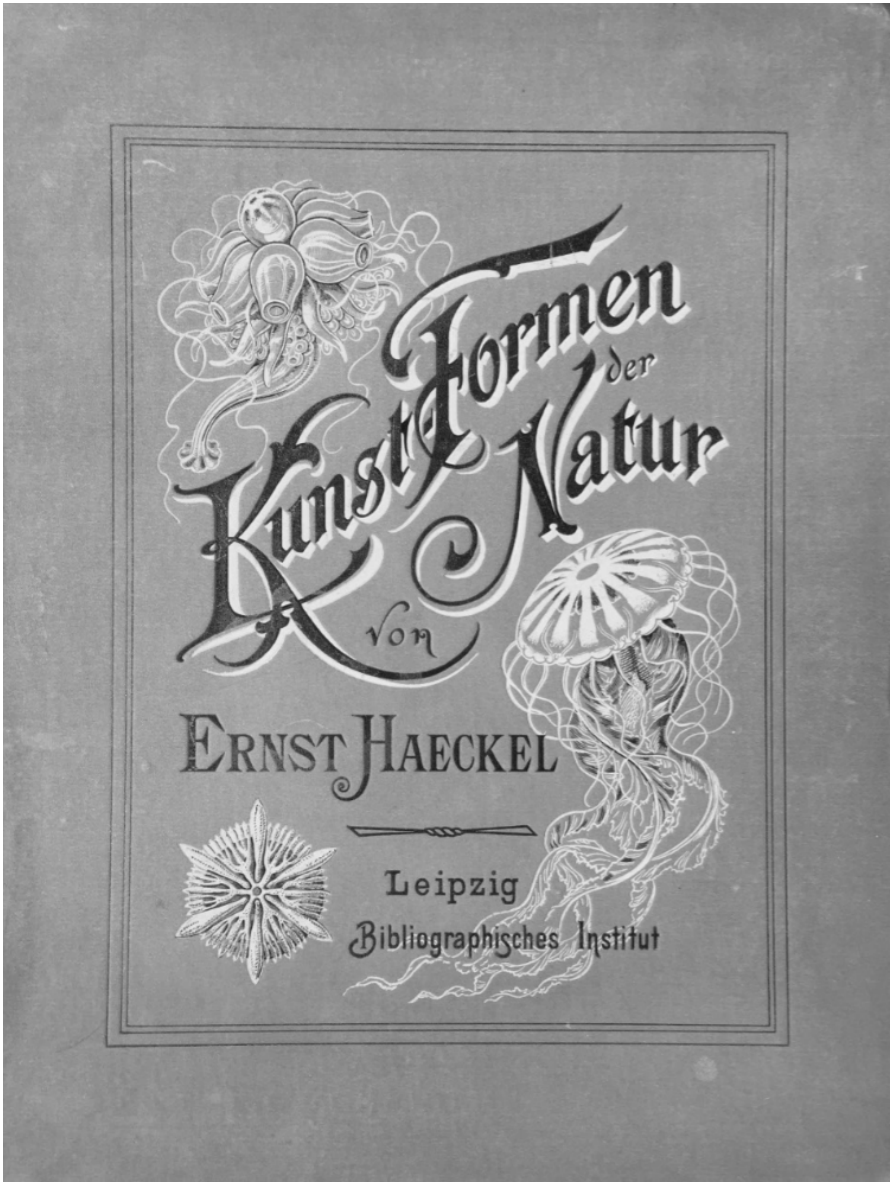
As Issued in the Original Parts; Publisher's Custom Book-Form Case
WITH AUTHOR'S SIGNED & INSCRIBED NOTE LAID-IN

18. **HAECKEL, Ernst** (1834-1919). *Kunstformen der Natur*. Leipzig: Bibliographisches Institut, [1899-1904]. ¶ Large 4to. 5 (of 10) fascicules, including parts I, II, III, IV, V. [2] ff., 100 pp. Title-pages and text within borders. 50 (of 100) lithographic plates (glassine tissues preceding the plates), mostly in colors. Original parts with original printed wrappers; some joints split, one mended with modern paper. VERY RARE IN ORIGINAL PARTS. WITH: Autograph note signed by the author: "Mrs. J.O. Oertel, Newick, Sussex – Kind regards! Ernst Haeckel, Jena 7.6.1911." Haeckel both studied and taught (1862-1909) at the University of Jena. "He sold his "Villa Medusa" in Jena in 1918 to the Carl Zeiss foundation, and it presently contains a historic library."

$ 1,150

The work of Ernst Haeckel, his milestone work, the "luxuriously illustrated volume depicting the shape and structures of living organisms" (Moore, p.90) *Kunstformen der Natur,* or *Art Forms in Nature,* had a considerable influence on the decorative design of its period, i.e., Art Nouveau or Jugendstil movement. The plates depict the fantastic forms and structures found in marine animal and plant life. According to Nissen, the artist was Adolf Giltsch, after Haeckel, and the lithographs by E. Giltsch. – Nissen. See: Gregory Moore, *Nietzsche, Biology and Metaphor*, Cambridge : Cambridge University Press, 2002. Michael Hann, *Structure and Form in Design: Critical Ideas for Creative Practice*, London; New York: Berg, (2014) – p. 123.

Haeckel, notes German biologist and zoologist, considered a great morphologist, studied medicine and science under some of the greatest teachers of the era – Johannes Müller, Virchow and Kölliker – became professor of comparative anatomy and director of the Zoological Institute of the University of Jena. He later was appointed to the first chair of zoology there, Haeckel was the first German biologist to give a whole-hearted adherence to the doctrine of organic evolution and to treat it as the cardinal conception of modern biology, it was he who first brought Darwin's doctrine prominently before the German scientists – *Encyclopaedia Britannica.*



"Haeckel's historical importance consists principally in his suggestions that stimulated further work. His spirited advocacy of Darwin's ideas – not all of which he agreed with – contributed to the breakthrough of evolutionary thinking in the construction of biological theories. Moreover, concepts that Haeckel was the first to

formulate, such as ontogeny, phylogeny, ecology, and chorology, have been adopted." – *DSB*.

Christoph Kockerbeck's work [1986] studies the lithographs from zoologist Haeckel's *Kunstformen der Natur* and gives its importance as an aesthetic theory of turn of the century monists, giving the primacy of *nature* ahead of the beauty of art and justifying the art *biologically*. Kockerbeck examines this in the context of the history of science, philosophical and cultural environments of these aesthetics and contributions to the elucidation of the evolutionary nature of monism.

Haeckel's *Kunstformen der Natur,* "capped a career of visual innovation" (p. 53) and "celebrated the beauty and symmetry of organic structures, delighting families and serving as patterns for art nouveau design…" (p. 148). – Nick Hopwood, *Haeckel's Embryos: Images, Evolution, and Fraud*. University of Chicago Press, 2015.

The plates, mostly of invertebrates (some others include vertebrates and plants), depict: Radiolaria, Foraminifera, Ciliata, diatoms, calcareous sponges, Siphonophora, star corals, starfishes, Protozoa, flagellates, brown seaweed, jellyfishes, sea-lilies, moss animals, sea-urchins, etc. "According to Haeckel scholar Olaf Breidbach, the work was "not just a book of illustrations but also the summation of his view of the world." The over-riding themes of the Kunstformen plates are symmetry and organization. The subjects were selected to embody organization, from the scale patterns of boxfishes to the spirals of ammonites to the perfect symmetries of jellies and microorganisms, while images composing each plate are arranged for maximum visual impact." – Wikip. & Olaf Breidbach, *Visions of Nature*, pp. 229-231.

☼ *DSB* VI, pp. 6-11; Nissen, ZBI 1783; Nordenskiöld, *History of Biology*, pp. 50-59. See: Christoph Kockerbeck, *Ernst Haeckel's "Kunstformen der Natur" und ihr Einfluss auf die deutsche bildende Kunst der Jahrhundertwende : Studie zum Verhältnis von Kunst und Naturwissenschaften im Wilhelminischen Zeitalter*. Frankfurt am Main; NY: P. Lang, 1986.

19. **HEAVISIDE, Oliver** (1850-1925). *Electromagnetic theory*. New York: D. Van Nostrand, 1893-[1899]. ¶ Two volumes. 8vo. xxi, 466; xvi, 542 pp. Illus. with figures and diagrams, appendices. Original blind doubled and gilt-stamped plum cloth, all edges speckled; faded spine, chipped, inner hinges repaired with Japanese Kozo paper. Ex-library

copy [Dominion Astronomical Observatory, Ottawa, Canada] as evidenced by stamps and glue remains on endpapers. Internally a clean set. Very good. Rare.

$ 650

FIRST EDITION, American issue. Heavside's "Electrical papers"[1], quite controversial at first, were initially published in *The Electrician*. These volumes contain some papers originally printed 1891-93, but there are also many that appear here for the first time (based on the author's method of dating on the contents page). "Even after the papers began appearing in *The Electrician*, understanding dawned slowly, for Heaviside's genius led him to make free and original use of mathematical tools not appreciated by even the most sophisticated contemporary—they were sometimes decades ahead of their rigorous elaboration and application to practical problems." – *DSB*.

His papers written for *The Electrician* were collected in 3 volumes entitled *Electromagnetic Theory* (London, 1893–1912; repr. 1922–1925). A new edition of *Electromagnetic Theory* (New York, 1950) contains a critical and historical introduction by Ernst Weber. The third volume was issued in 1912. Yavetz reported that a fourth volume was also found in manuscript, but never published. All original printings are rare on the market.

In the pre-Einstein world of physics, Heaviside seemed represent electromagnetic theory "as the art of talking about things without knowing what they really are." (Yavetz, p. 134). He viewed electromagnetism as a field that would be eventually reduced to "matter and motion." He said, "We are set down in space, to march with time, and have matter in motion everywhere around us."

Oliver Heaviside (1850 – 1925), F.R.S., born in London, left school at 16, lacking a university education and started his career as a telegraph operator. He suffered from scarlet fever until he became partially deaf and thus could not continue in the field. He began to teach himself electrical engineering and eventually became a renowned mathematician and one of the world's premiere authorities on electromagnetic theory. "Working alone, Heaviside developed much of the mathematics behind the theory of telegraphy and electric

1 "His *Electrical Papers* were published in 2 vols. at London in 1892. His papers in *Electrician* were collected in 3 vols. entitled *Electromagnetic Theory* (London, 1893-1912; repr. 1922-1925)." This is the American issue of the *Electromagnetic Theory*.

circuits, formulating the now familiar concepts of impedance, self-inductance and conductance and using complex numbers in the analysis of alternating current networks many years before others did so" [Cambridge University Press]. "He adapted complex numbers to the study of electrical circuits, invented mathematical techniques to the solution of differential equations (later found to be equivalent to Laplace transforms), reformulated Maxwell's field equations in terms of electric and magnetic forces and energy flux, and independently co-formulated vector analysis. Although at odds with the scientific establishment for most of his life, Heaviside changed the face of mathematics and science for years to come" – [Wikipedia]. He was awarded the first Faraday Medal, a bronze medal established in 1922 to commemorate the 50th Anniversary of the first Ordinary Meeting of the Society of Telegraph Engineers (now the Institution of Engineering and Technology).

☼ *DSB*, VI, pp. 211-212; see also: Rollo Appleyard, *Pioneers of Electrical Communication,* London, 1930; William Bulloch, *Bulloch's Roll*; *DNB*, 1922-1930, pp. 412-414; *DSB* VI, pp. 211-212, Heaviside article by Charles Süsskind (UCB); *Landmark Writings in Western Mathematics 1640-1940*, edited by I. Grattan-Guinness, Roger Cooke, Leo Corry, Pierre Crépel and Niccolo Guicciardini, pp. 639-652; Nahin, Paul J., *Oliver Heaviside. Sage in Solitude. The Life, Work, and Times of an Electrical Genius of the Victorian Age*, 1987, 1988; Yavetz, Ido, *From Obscurity to Enigma: The Work of Oliver Heaviside, 1872-1889. The Work of Oliver Heaviside, 1872-1891* (Science Networks. Historical Studies). Birkhäuser Verlag, 1995.

20. [**HUXLEY, Thomas Henry** (1825-1895)]. **Thomas Hamilton CRAWFORD**. Portrait of Thomas Henry Huxley, by Thomas Hamilton Crawford, published by Museum Galleries, after John Collier, published 1922 (1883). ¶ 10 in. x 7 5/8 in. (255 mm x 194 mm) plate size; 19 3/8 in. x 13 1/2 in. (491 mm x 344 mm) paper size. Mezzotint printed in colors, published 1922 (1883), FRAMED. Embossed JPPX. SIGNED BY CRAWFORD.

$ 100

Limitation of only 400 copies, after which the plates were destroyed.

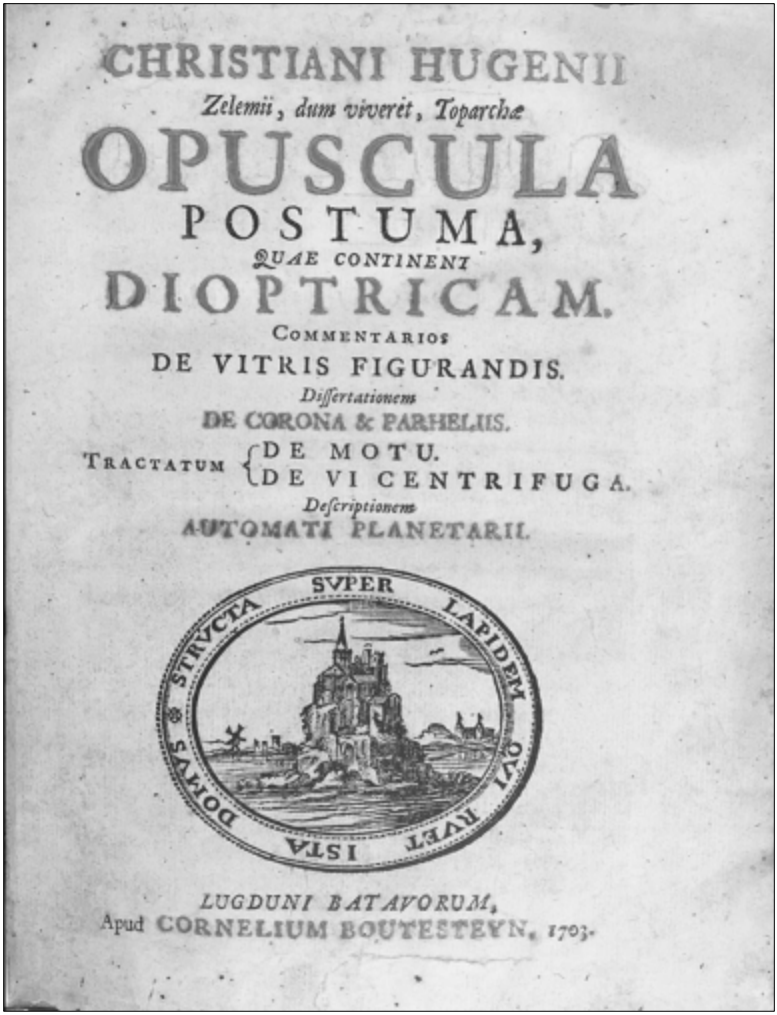
Thomas Hamilton Crawford (1860-1948), engraver, painter of architectural, urban settings and mezzotint portrait engraver.

John Maler Collier (1850-1934), famous portrait painter and author on art. Among his famous paintings is the iconic one of *Lady Godiva.*

John Collier married two of the daughters of Thomas Henry Huxley. His first wife was Marian Huxley, "Mady, in 1879. Unfortunately at the birth of their first child she suffered from post-natal depression, and was then taken by pneumonia wherein she died in 1887. In 1889 Collier married Mady's younger sister Ethel Huxley. The Collie portrait of Huxley dates from 1883. This mezzotint, after the original painting, was made in 1922 by Thomas Hamilton Crawford and issued by Museum Galleries.

Location: Harvey Cushing/John Hay Whitney Medical Library. Historical Library, Yale University.

See also: *Darwin's Century – The Jeremy Norman Collection*, Sotheby-London, December 11, 1992, lot 251 [2], includes this print.



HUYGENS' TREATISE ON OPTICS, LENSES, TELESCOPES, MICROSCOPES AND HIS FAMOUS COPERNICAN ORRERY [ETC.].

21. **HUYGENS, Christian** (1629-1695). *Opuscula Postuma, quae continent Dioptricam. Commentarios de Vitris Figurandis, dissertationem de corona & parheliis, tractatum de motu, de vicentrifuga, descriptionem automati planetarii.* Lugduni Batavorum [Leiden]: Cornelius Boutesteyn, 1703. ¶ Sm. 4to.

[20], 460 pp. Title printed in red & black, title-vignette. 24 plates[2] [plate "TAB. 2" (figs. 5-6-7) supplied in fine facsimile] (incl. 7 folding); paper brittle at p. 397 and thus cracked at lower margin, also pp. 401-404, 409-412, 417-418 margins torn (entering into textblock), final plate 3 (construction of the planisphere) heavily repaired, some loss noted. Original full vellum. Bookplate of the University of Chicago, Berlin Collection [deaccessioned], rubber stamps of "Eckhart [Library of mathematics]" [on bookplate], verso of title with three ex-library rubber stamps, accession number applied to dedication leaf. Early mathematical ink notations (miniscule) to front and rear endsheets, Tab. I "Parheilis" – a mathematical marginal note, p. 300, even lengthier to margin p. 323. Good. RARE.

$ 6500

First edition. This is the very rare first edition of Huygens' posthumous work on astronomy and optics, and especially the manufacture and polishing of glass lenses, including the main treatise, "Dioptrica," as one of 6 separate parts. The other parts offer assessment of the telescope, the grinding of lenses, the collision of elastic bodies[3], his studies on centrifugal force (first written in 1659), and the planisphere automaton, which was the first Copernican Orrery, executed by Johannes van Ceulen, 1682.[4] Huygens describes Telescopes (pp.163-220, 245-248, 265+) and Microscopes in the first section (pp. 221-263). The work was jointly edited by Burcherus de Volder (1643-1709), and Bernhardus Fullenius the Younger (1640-1707), named in the preface.

Huygens' Dioptrica, includes "the law of refraction, the determination of the focuses of lenses and spheres and of refraction indices, the structure of the eye, the shape of lenses for spectacles, the theory of magnification, and the construction of telescopes." – *DSB*, VI, p. 603.

Contents: Dioptrica; Commentarii de Formandis Poliendisque Vitris ad Telescopia; Dissertatio de Coronis et Parheliis; De Motu

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[2] 24 plates: Following p. 263: I, II, III, following p. 290: I, II, III, IV, V, VI, VII, VIII (folding), following p. 366: 1, 2, 3 (folding), 4 (folding), 5, following p. 398: 1, 2, 3, 4, following p. 428: 1, 2, 3, 4 (all folding, some heavy repairs to pl. 3, some loss noted).

[3] H.J.M. Bos in the *DSB* calls this treatise, De Motu Corporum ex Percussione, "a fundamental work in the theory of impact and exhibits his style at its best..." – p. 602.

[4] Henk Kubbinga, "Christiaan Huygens," within Thomas Hockey (ed.), *Biographical Encyclopedia of Astronomers*, p. 544.

Corporum ex Percussione; De Vi Centrifuga; Descriptio Automati Planetarii.

PROVENANCE: This volume was purchased by William Rainey Harper in Berlin in 1891 as part of the core collection of nearly 100,000 volumes. "While vacationing in Berlin with his family some fifteen months before the new University of Chicago was scheduled to open in 1892, William Rainey Harper came across a once-in-a-lifetime opportunity. G. Heinrich Simon of S. Calvary and Company [*this book is still marked "Calvary," in pencil*], a world renowned bookselling firm that was going to close its doors, wanted to sell off his massive stock en bloc. After some negotiating, the two men agreed upon a final price of $45,000."[5] – 'An Acquisition of Inestimable Value': The Men Who Funded the Berlin Collection. 2016 by Michael L. Cardoza with Catherine Mardikes.

Daumas, *Les instruments scientifiques aux XVII° et XVIII° siècles*, p.46; Honeyman IV, 1734 [1728 edition]; Houzeau & Lancaster 3427.

See: The Berlin Collection: Being a History and Exhibition of the Books and Manuscripts Purchased in Berlin in 1891 for the University of Chicago by William Rainey Harper with the Support of Nine Citizens of Chicago.

22. **JOBLOT, Louis** (1645-1723). *Observations D'Histoire Naturelle, Faites Avec Le Microscope, Sur un grand nombre d'Insectes, & sur les Animalcules qui se trouvent dans les liqueurs préparées, & dans celles qui ne le sont pas, &c. avec la Description & les Usages des différens Microscopes, &c. ...* Paris: Chez Briasson, 1754-55. ¶ 2 volumes in 1 (containing 4 parts). 4to. xx, 38, 124; vi, 78, 27, [1] pp. 53 folding engraved plates, with half-title (1), second part title (2), volume two title (3), second part title (4), head and tail pieces, initial letters. Original full mottled calf, elaborate gilt

[5] "When his first attempts to find funding fell flat, Harper placed the matter before the Board of Trustees, which recommended that the Board itself purchase the Berlin Collection. According to Thomas W. Goodspeed, Secretary of the Board of Trustees, "Rust began the subscription with $12,000. Kohlsaat followed with $6,000, and Ryerson and Hutchinson assured the rest." Along with Harper, Martin A. Ryerson, H. H. Kohlsaat, C. L. Hutchinson, Byron L. Smith, A. A. Sprague, C. H. McCormick, C. R. Crane, H. A. Rust, and C. J. Singer subscribed the entirety of the $45,000 needed to complete the purchase. All the donors with the exception of Harper are commemorated on the bookplate for the Berlin Collection." – Op. cit.

tooled spine, dark red gilt-stamped spine label; joints starting at extremities, corners worn. Book-label of J.-J. Blaise, Librairie, Paris. Very good copy.

$ 4250

Second Edition, but considerably enlarged over the first edition *Descriptions et Usages de Plusieurs Nouveaux Microscopes*, 1718. This new edition contains more plates and added entomological notes. The remarkable plates show several views of microscopes and related instrumentation and the life forms observed by them, including insects (fly, flea, lice, butterflies, etc.) and marine life, salt crystals, etc. The chief appeal of this edition is the remarkable assortment of beautiful plates featuring the microscopes themselves. Joblot records his observations of many sorts of things including herb soup, rhubarb, mushrooms, grains (rye, oats, Turkish wheat), red worms as found in wells, the water-bug (grasshopper-like).

This is 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. The 1718 edition was 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 publication of *Descriptions* established Joblot as the first French microscopist. The first part of the book described several microscopes and their construction and introduced some improvement... Leeuwenhoek had observed the Protozoa previously but Joblot's is the earliest treatise on them." – *DSB* VII, p. 110.

The large engraved vignette to each of the volumes and their sections (of which there are 4 vignettes), 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! "Bemused infusorian gentleman observed in water sample." – See: Nicholas P. Money, *The Amoeba in the Room: Lives of the Microbes*, p. 42.

☼ [Referencing the first edition]: 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, 2114; Waller 10856; Wellcome, III, p. 356.

See: Hubert Lechevalier, "Louis Joblot and His Microscopes," *Bacteriological Reviews*, Mar. 1976, pp. 241-258; David M. Damkaer, *The Copepodologist's Cabinet: A Biographical and Bibliographical History*, Part 1, p.31; Dieter Gerlach, *Geschichte der Mikroskopie*, 2009, p. 59.

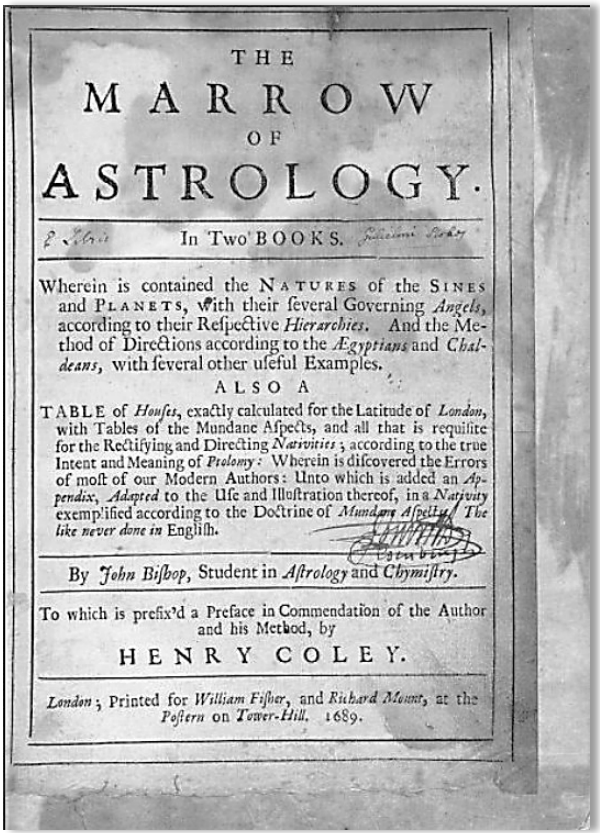
PTOLEMAIC ACCOUNT OF THE ZODIACAL SIGNS AND THE PLANETS

23. **KIRBY, Richard** (b. 1649)**; John BISHOP; Henry Coley** (1633-1695?). *The Marrow of Astrology. In Two Books. Wherein is contained the Natures of the Sines and Planets, with their several Governing Angels, according to their Respective Hierarchies. And the Method of Directions according to the AEgyptians and Chaldeans, with several other useful Examples. Also A Table of Houses, exactly calculated for the Latitude of London, with Tables of the Mundane Aspects, and all that is requisite for the Rectifying and Directing Nativities; according to the true Intent and Meaning of Ptolomy: Wherein is discovered the Errors of most of our Modern Authors: Unto which is added an Appendix, Adapted to the Use and Illustration thereof, in a Nativity exemplified according to the Doctrine of Mundane Aspects. The like never done in English. By John Bishop, student in Astrology and Chymistry. To which is prefix'd a Preface in Commendation of the Author and his Method, by Henry Coley*. London: [Joseph Streater] for William Fisher & Richard Mount, 1689-1688. ¶ Dedicated to Robert Boyle. Two parts in one volume. Small quarto. Collation: [a]-b^4, B-Q^4, [A]-B^4, C-D^2, E-O^4, 2A^4 (bound out-of-order), 2B^4. Pagination: [16], 121, [1]; [6], 81, [15], 16 pp. WITH: 4 additional leaves of contemporary annotations and charts including "A Table of the Declination for every degree of the Ecliptique." Separate dated title page for the second part; "an 'appendix' to the Marrow of astrology" has separate dated title page and pagination. Various nativities [of Charles the 5th of Austria, Emperour of Germany; Phillip the 3d King of Spain; Henry the 4th King of France; Sebastian, King of Portugal; Gustavus Adolphus, King of Sweedland; The Duke of Parma; The Lord Mollins Senator of Venice; Cardinal Aldobrandini; John Columnia; A Childs Nativity; Antonii Cardinal Fachinetii; Mr. William Lilly; John G. Prince of Aldobrand; Mr. Henry Dutton; Saffold Lee; John Blanchard; James Gale; John Bishop; Deborah Daniel, Her Nativity], tables, errata; title

re-margined, first leaves darkened and stained at edges, soiling, 2A1+4 torn on blank lower edge, numerous contemporary annotations. Modern paneled navy blue blind-stamped morocco, six raised bands, gilt title; title page re-margined with 2 early owner's names (someone in Edinburgh and another - "E Libris – Gulielimi Sloky[?]"), first leaves darkened and stained at edges; soiling; 2A1 and 4 torn on blank lower edge; numerous contemporary annotations; 4 leaves of manuscript astrological notes at the end. ALL ISSUES RARE.

$ 1,800

Second edition (first issued in 1687), being a reissue of the 1687 edition, with cancel title pages and preliminaries to each part, and added appendix. R1 of part 1 and quire A of part 2 are cancelled by a single unsigned quire. All mention of Richard Kirby is omitted in this reissue. Part 1 written by Richard Kirby, whose name appeared in the 1687 edition; the 1688 issue omits the name of Kirby on the title. Bishop wrote part 2 and the appendix. Both Kirby and Bishop were students of Dr. Francis Wright. "Richard Kirby was author of the first part, and his name appeared on the title-page of the first edition; Bishop wrote the second ... The second part, and "An appendix to the marrow of astrology" each has special title-page and separate paging." – Marshall, George J., *Angels: An Indexed and Partially Annotated Bibliography of Over 4300 Scholarly Books and Articles Since the*



THE

MARROW

OF

ASTROLOGY.

In Two BOOKS.

Wherein is contained the NATURES of the SINES and PLANETS, with their several Governing *Angels*, according to their Respective *Hierarchies*. And the Method of Directions according to the *Ægyptians* and *Chaldeans*, with several other useful Examples.

ALSO A

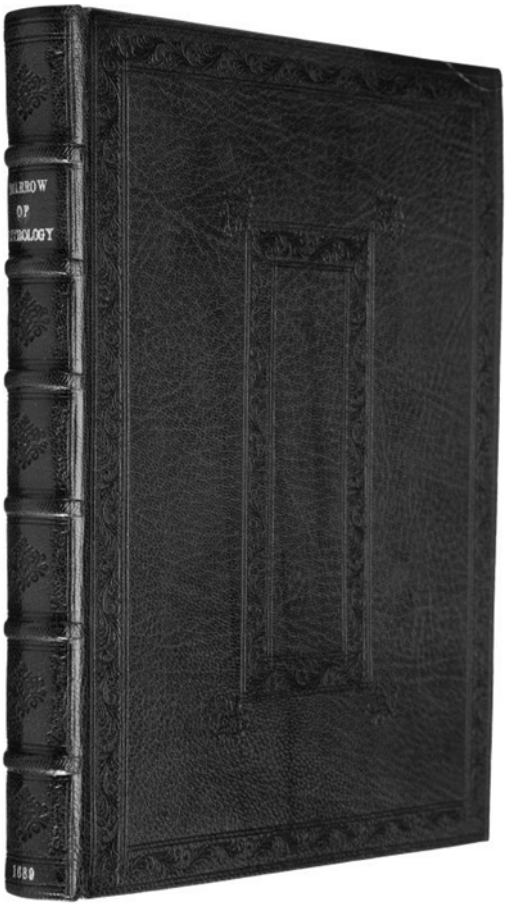
TABLE of *Houses*, exactly calculated for the Latitude of *London*, with Tables of the Mundane Aspects, and all that is requisite for the Rectifying and Directing *Nativities*; according to the true Intent and Meaning of *Ptolomy*: Wherein is discovered the Errors of most of our Modern Authors: Unto which is added an *Appendix*, *Adapted* to the Use and Illustration thereof, in a *Nativity* exemplified according to the Doctrine of *Mundane Aspects*. The like never done in English.

By *John Bishop*, Student in *Astrology* and *Chymistry*.

To which is prefix'd a Preface in Commendation of the Author and his Method, by

HENRY COLEY.

London; Printed for *William Fisher*, and *Richard Mount*, at the *Postern* on *Tower-Hill*. 1689.



7th Century B.C., 1999, no. 2176, p. 218.

Kirby, Richard (1649-1693?), astrologer and medical practitioner, was born on July 13, 1649 of unknown parentage. In an early work he apologized for his mean education. Henry Coley (1633-1704), a close friend, was probably his astrological teacher. His early works, ephemerides for 1681 and 1682 and an almanac for 1684, were uncontroversial but Kirby became notorious in the mid-1680s when he responded to the threat from popery and absolutism at home and the French and Ottomans abroad by predicting sensational changes throughout Europe. His *Vates astrologicus* (1683), promised the death of Louis XIV, the devastation of France, Italy, and Spain and the overthrow of the papacy, before the rise of a great conqueror in 1699 who would bring peace to the whole world. Many of these prophecies were drawn from John Holwell's *Catastrophe mundi*, or from the astrological works of Richard Edlin and William Lilly. Kirby found it expedient to withdraw from London in 1687-8, and was denounced by the tory astrologer John Gadbury in 1688. He was able to speak out freely once more after the revolution of 1688, and published *Catastrophe Galliae* in 1690, in which he promised the conquest of France and Ireland and a golden age of freedom for Britain, and mocked Gadbury for predicting that the year 1688 would pass uneventfully. In 1681 Kirby was living in Fulham, but he worked from an address in London, advertising his services as teacher and consultant at the sign of the Iron-Jack, a

smith's shop in Fetter Lane. Kirby attended from Monday to Wednesday, his partner Philip Mayle on the other days. Like several whig astrologers, Kirby wished to reform astrology by restoring its original purity, a cause championed by the Italian Ptolemaist, Placidus de Titis.

In 1687 he and his friend John Bishop published *The Marrow of Astrology*, offering a Ptolemaic account of the zodiacal signs and the planets based on Placidus's work. Kirby's section was dedicated to Elias Ashmole and Bishop's section to Robert Boyle. Their partnership floundered when Bishop tried to claim sole credit for the work. By this date Kirby had moved to King Street, Soho, at the sign of the Figura Mundi, complaining that the Fulham rabble had abused him as a witch or atheist. It is possible but unproven that he was the Mr. Richard Kirby tried for murder at the Old Bailey in 1687 after a brawl at a gambling house in St Bride's, and acquitted on a plea of self-defense. He was still lodging in King Street when he published his last work in 1693, an account of a fourteen-year-old hysteric or epileptic, Sarah Bower of Wapping. She claimed to be possessed by the devil and the case attracted widespread interest. Kirby saw her on 19 November 1693 and used his account to advertise his success in curing bewitched patients in Norfolk and Suffolk (possibly during his retreat from London in 1687-8). He promised further details in a book then almost complete; as no such work is known, he probably did not live to finish it. The exact date of his death is unknown, but nothing is heard of him after 1693. – Oxford *DNB*.

"[John] Partridge [1644-1715] was by no means the only English astrologer of his day to take the Placidean teachings to heart. Others included Richard Kirby and John Bishop, who a few years before had published The Marrow of Astrology – an unacknowledged and somewhat abbreviated translation of Placidus' own work with very little original content added. [The work plagiarized was Placidus' Tabulae Primi Mobilis (1657), which about a century later was again rendered into English by an unknown translator engaged by a Dr. J. Browne of Islington. The manuscript of this translation was lent out, clandestinely copied by a third party, and published by Manoah Sibly in 1789 as his own under the title Astronomy and elementary philosophy. A supposedly improved version was published 25 years later by John Cooper as Primum Mobile, giving the name of the original author as Didacus Placidus de Titus [sic]. The Marrow of Astrology was reissued only a year after its first publication, this time under the sole name of John Bishop and with a preface by Henry

Coley, who does name Placidus as the originator of the method taught, if not of large portions of the text itself. Coley mentions 'Dr. Wright, Thomas Moor Esq. Mr. Worral and […] Mr. John Partridge' as other contemporary English adherents of Placidus, and feels that their endeavours 'ought to be encouraged, and assisted, as Aiming at Truth itself, and not rejected and rediculed, (as some are too forward to do)'." – Martin Gansten, "Placidean teachings in early nineteenth-century Britain: John Worsdale and Thomas Oxley," 2011. p. 3.

☼ Wing (2nd ed., 1994) B3021B & B3020A.

See: F. Leigh Gardner, *A Catalogue Raisonné of Works on the Occult Sciences,* 2011, (no. 128) page 16.

FIRST EDITION OF KIRCHER'S
"GREAT ART OF LIGHT AND SHADOW"
& FIRST APPEARANCE OF THE AUTHOR'S MAGIC LANTERN INVENTION

24. **KIRCHER, Athanasius** (1602-1680). *Ars Magna Lucis et Umbrae; In decem Libros digesta.* Rome: Hermann Scheus (printed by Lodovico Grignani), 1646. ¶ Two volumes bound in one. 4to. [xl], 494; [ii], 495-935, [xv] pp. †3 silked (both sides). Large engraved half-title by Pierre Miotte,[6] 38 plates [1 plate (facing p.562 = four small charts of the constellations) supplied in facsimile] (including 6 folding pls., 1 large double-page folding pl., 2 folding tables),[7] numerous woodcuts

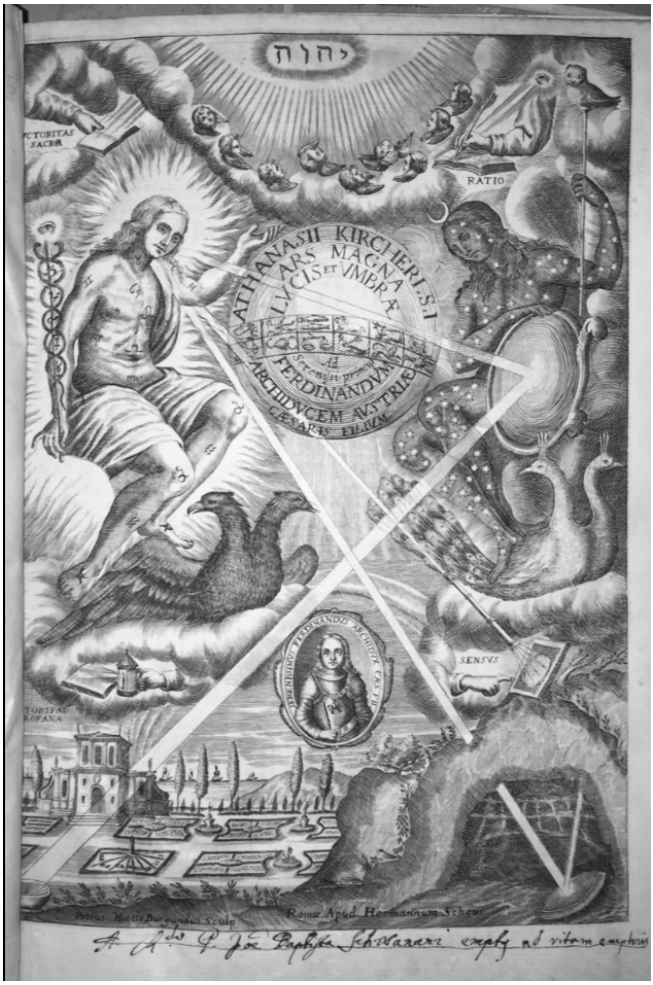
[6] "The (single-headed) eagle and peacock were traditional symbols of the discipline of optics. Here, a two-headed eagle, emblem of the Habsburgs, is joined by a two-headed peacock, Kircher's invention … (1646 ed.), frontispiece." David Stolzenberg writes, "Kircher, like Galileo, was an emblem maker, skilled at employing word and image to link his scholarly projects to the agendas of his patrons. The frontispieces to a number of his works deftly married the iconography of aristocratic dedicatees to symbols of his scientific studies, implying an intrinsic relationship between patron and client." (p.9) – *The Great Art of Knowing.* "Apart from obvious imagery of Apollo (sun) and Diana (moon), the plate defines four sources of knowledge, Sacred Authority, embodied in the Bible, is shown as a ray direct from God. Reason is close to God, but filtered through the inner-eye. Knowledge of the Sensible is supplied not by God's intellectual light but by that of the sun, here shown enhanced as best is can by a telescope. Worldly Authority, by comparison with the others, is a mere candle shining among clouds of unknowing." – – Joscelyn Godwin, Athanasius Kircher, (1979), p. 78.

[7] Includes the "Universal horoscope of the Society of Jesuits," p.553.

throughout, initial letters. Original full blind-stamped pigskin, two brass clasps, manuscript title, recent endleaves; ink stain (p. 142), minor stain lower margin p.851 affecting adjacent leaves, ink correction of single letter on pp. 864, 865, written in margins, pl. facing p. 550 remargined at top, closed tears to plates facing pp. 552, 785, paper-flaw hole at p. 564 (minor effect to table) and p. 681 (effecting two lines), tear 1 inch from gutter due to natural shape of paper (p. 701), occasional foxing. Some early ownership annotations to half-title ["A.Rdo. P. Joe Baptista Schwanari … vitam emptoris"?] and title ["Ad Cubiculum Collegii Viennae 1654 / Prof[essor]: Matheseos, Soc[ieta]. tis Jesu, Catalogo inscriptus / Bibliotheca Ducumburgensis"?]. Near fine.

$ 9,500

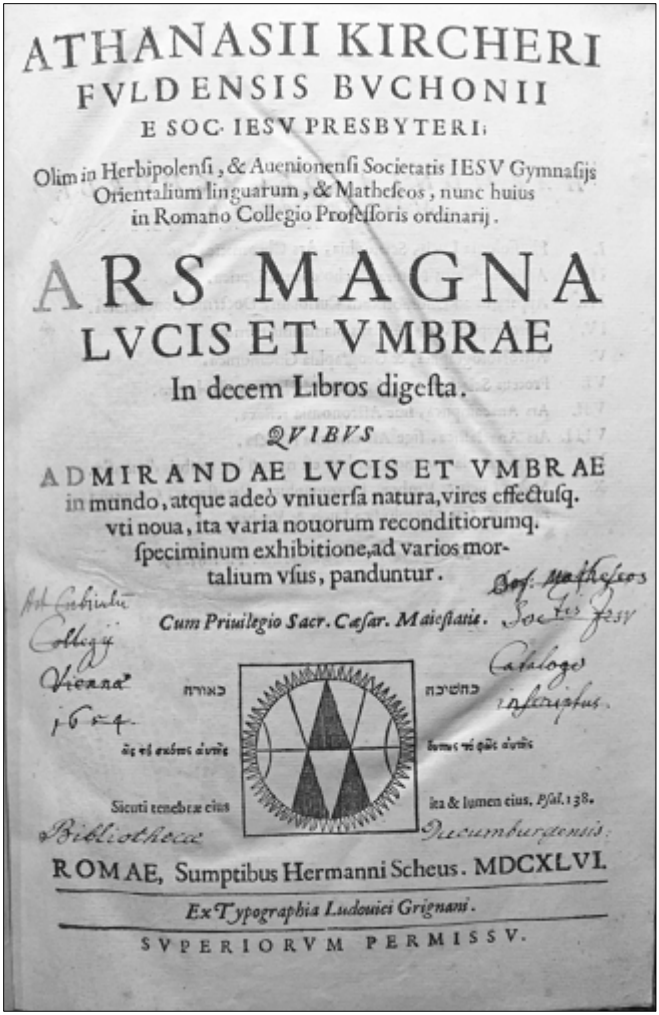
First Edition of one of the most important of Kircher's



encyclopedic scientific works, and some say his rarest. The book contains the first description of the Camera Obscura; deals with astronomy and astrology, gnomics, optics, catoptrics, etc. It also contains a very interesting chapter entitled: "De mira rerum naturalium constitutione per microscopium investiganda." He notes that vinegar and milk abound with an innumerable multitude of worms and that there are innumerable creeping animalcules in putrid material, which can be seen only by the microscope, and that blood in febrile patients contains worms. "He concludes with the description a rude sketch of his microscope, which was presented to him by Giovanni Carlo Cardinal Medici. These observations of Kircher antedate those of Hooke by nearly 20 years, those of Leeuwenhoek by 28 years." – Clendening Medical Library, *Kircher Exhibit Catalogue*, Kansas City, Kansas, 1958, pp. 5-6.

"Natural magic was not exclusively an applied art. It encompassed the study and explanation of occult natural powers, as well as their manipulation. In the *Ars Magna Lucis et Umbrae* of 1646, Kircher distinguished two parts of natural magic, effective and contemplative. Contemplative natural magic he defined as "a certain secret and abstruse wisdom about those things inwardly concealed in the arcane majesty of Nature, parts of which have been touched on by Aristotle and Theophrastus … and by many others who have contemplated the occult miracles of Nature." - David Stolzenberg, "The Connoisseur of Magic," *The Great Art of Knowing*, p. 54.

"The *Ars Magna Lucis et Umbrae* ('The great art of light and shadow', 1646 and 1671) … treats of eclipses, comets, and astrological influences, also of phosphorescence, colour, optics, sundials and magic lanterns. Although Kircher does speak towards the end of the metaphorical light of knowledge and the uncreated light of God, his major concern is with the heavenly bodies, and especially with their relation to timekeeping. He gives the first printed picture of Saturn, whose rings he seems to have perceived as two small ellipses flanking the planet, and of Jupiter with two versions of its markings as he saw them through a telescope in Bologna in 1643. From these he deduces that the planets are not perfectly spherical, nor self-luminous. Long before that he had seen sunspots, which he explained as clouds of smoke-like matter, and had even detected similar exhalations from the moon…" – Joscelyn Godwin, Athanasius Kircher, (1979), p. 73.


ATHANASII KIRCHERI
FVLDENSIS BVCHONII
E SOC. IESV PRESBYTERI:
Olim in Herbipolensi, & Auenionensi Societatis IESV Gymnasijs Orientalium linguarum, & Matheseos, nunc huius in Romano Collegio Professoris ordinarij.
ARS MAGNA
LVCIS ET VMBRAE
In decem Libros digesta.
QVIBVS
ADMIRANDAE LVCIS ET VMBRAE
in mundo, atque adeò vniuersa natura, vires effectusq.
vti noua, ita varia nouorum reconditiorumq.
speciminum exhibitione, ad varios mortalium vsus, panduntur.
Cum Priuilegio Sacr. Cæsar. Maiestatis.
Sicuti tenebræ eius
ita & lumen eius. Psal. 138.
ROMAE, Sumptibus Hermanni Scheus. MDCXLVI.
Ex Typographia Ludouici Grignani.
SVPERIORVM PERMISSV.

Martin Quigley, in his *Magic Shadows*, devotes most of his introduction and chapter VI to "Kircher's 100th Art." The *Ars Magna*, 1646, and Kircher's great contributions to science and learning are discussed in detail.

PROVENANCE: Joannes Baptista Schwanari; … professor of mathematics of the Vienna Jesuit College, ca.1654; Bibliotheca Ducumburgensis. Three persons seem possible: Paulus Guldin (1577-1643), professor in Vienna 1627 until 1629?. [or] -- Laurentius Kintoff (b. 1597, d. ?), professor of mathematics in Vienna 1629 until 1635? [or] -- Carolus Sinnich (1608-1680), professor of

mathematics 1635 until 1662. Of these, Sinnich seems the favorite. The other inscription, "A R[everen]do P[atre] Jo[ann]e Baptista Sch" has not been identified (nor read properly!).

☼ Brunet III, 666; Caillet, *Manuel bibliographique des Sciences …* II, 360.5770; Clendening Medical Library, *Kircher Exhibit Catalogue*, Kansas City, Kansas, (1958), 5.4; De Backer, *Bibliothèque des écrivains de la compagnie de Jésus*, (1853-61), I, 423-24.7; Graesse IV, 21; Linda Hall Library, *Jesuit Science in the Age of Galileo*, 10; Haskell F. Norman 1216; Sommervogel, *Bibliothèque de la Compagnie de Jésus*, IV, col. l 1048, no. 6; BYU; Brian L. Merrill, *Athanasius Kircher (1602-1680) Jesuit Scholar; an exhibition…* (1989), no. 7; Wellcome, III, p. 394. See: E. Newton Harvey, *A History of Luminescence*, pp. 103-6; Stanford University, *The Great Art of Knowing*, p.150.

25. **LAGRANGE, Joseph Louis** (1736-1813). *Mécanique Analytique. Nouvelle edition, revue et augmentée par l'auteur.* Paris: Mme. Ve. Courcier, 1811-15. ¶ 2 volumes. in 1. 4to. x, 422; viii, 378 pp. Half-title; lightly foxed. Original full blind and gilt-stamped calf, marbled edges - neatly rebacked preserving original spine and endleaves; extremities rubbed. Bookplate of E.N. da C. Andrade. Well-preserved copy.

$ 1250

Second, revised and augmented edition of the author's celebrated work, first published in 1788 in one volume. In 1810 Lagrange commenced a thorough revision of this work, but was unable to complete it before his death. The contributors to the publication of volume two, working from the author's manuscripts, were Prony, Garnier, J. Binet and Lacroix. This edition is also valuable for the chronological list of the author's works (pp. 371-78).

"With the appearance of the *Mécanique Analytique* in 1788, Lagrange proposed to reduce the theory of mechanics and the art of solving problems in that field to general formulas, the mere development of which would yield all the equations necessary for the solution of every problem. ¶ The *Traité* united and presented from a single point of view the various principles of mechanics, demonstrated their connection and mutual dependence, and made it possible to judge their validity and scope. It is divided into two parts, statics and dynamics, each of which treats solid bodies and fluids separately. There are no diagrams. The methods presented require only analytic operations, subordinated to a regular and uniform development. Each of the four sections begins with a historical account which is a model of the kind." – DBS. pp. 569-70.

Lagrange (1736-1813), considered the greatest mathematician of the 18th century, was born at Torino. Most of his early writings are found in the transactions of the *Miscellanea Taurinensia.* He made his greatest contributions in the analytical method. "It was reserved for Lagrange to mould theoretical mechanics into a system, and, by combining the principle of virtual velocities with D'Alembert's Principle, to derive fundamental mechanical equations which describe the motions of any system of bodies. These important results were set forth in Lagrange's masterpiece, the *Mécanique Analytique,* which laid the foundation of modern mechanics, and which occupies a place in the history of the subject only to that of Newton's Principia ... Lagrange's work has been described by Mach as one of the greatest contributions to the economy of thought." – Wolf, *History of Science*, II, pp. 69-70.

PROVENANCE: Edward Neville da Costa Andrade, FRS, (1887–1971) was an English physicist, writer, and poet. He was Quain Professor of Physics at University College, London from 1928 to 1950, and then Fullerian Professor of Chemistry at the Royal Institution for three years, until opposition to his attempts to reform the RI led to a vote of no confidence in him by members of the RI, following which he resigned. In 1943 Andrade was invited to deliver the Royal Institution Christmas Lectures on Vibrations and Waves, then in 1950 he developed the lectures further and presented the series on Waves and Vibrations. In an interview with John Heilbron, Andrade offered this story of his beginning collecting in the history of science, "Oh, in [1921] '21 I think I began collecting old books, anyhow. I remember going to Edinburgh — in '21 the British Association was meeting there — and I went into Thin's bookshop and asked if they had any old scientific books. They said they didn't think so, and then a youngster said, "Oh, yes, in the cellar we've got the remnants of Professor Crystal's collection." I went down and I spent a hell of a lot of money, I think about 14 pounds, and I was buying Robert Boyle at about ten bob each. I bought Huyghens' *Horologium Oscillatorium* for 18 schillings. As far as I remember Crystal had given two bob for it. That's a sport that's gone now." Andrade's book collection was sold at Sotheby's July 12-13, 1965.

☼ *DSB*, VII, pp. 559-73; Horblit, Grolier Club, *One Hundred Books Famous in Science*, 61 (1st ed.); Dibner, Heralds of Science, 112 (1st); Riccardi, II, 3; Ball, *A Short History of Mathematics*, pp. 411-22. See: Andrade, E. N. C., & Sotheby & Co. (London, England). (1965).

Catalogue of the fine collection of scientific books: The property of Professor E.N. da C. Andrade, which will be sold by auction by Sotheby & Co. ... Days of sale: first day, Monday, 12th July, 1965; second day, Tuesday, 13th July, 1965. London: Sotheby.

See: Grattan-Guinness, *Convolutions in French Mathematics, 1800-1840: From the Calculus and Mechanics to Mathematical Analysis and Mathematical Physics*. Birkhauser, 1990. 3 vols.

ANNOUNCEMENT OF THE FAMOUS "LAMB SHIFT" AND EARNED LAMB THE NOBEL PRIZE FOR PHYSICS IN 1955

26. **LAMB, Willis E., Jr.** (1913–2008); **Robert Curtis RETHERFORD** (1912–1981). "Fine Structure of the Hydrogen Atom by a Microwave Method." ¶ [pp. 241-232]. Lancaster PA: American Institute of Physics, 1947. In: *Physical Review*, Second Series, July 1 – December 15, 1947. [Whole number 72, nos. 1-12]. 4to. xii, 1,304 pp. Illus., index. Full green gilt-stamped buckram. Library bookplate. Very good.

$ 500

Lamb won the Nobel Prize in Physics in 1955 for his discoveries related to the famous "Lamb shift," "concerning the fine structure of the hydrogen spectrum."

"The Lamb shift experiment was a landmark in 20th-century physics. Lamb devised an experiment that would be a crucial test of and provide the stimulus for renormalized quantum field theory. The experiments of Lamb and his students grounded quantum field theory in experimental reality and was instrumental in the emergence of quantum electrodynamics as the most accurate theory we have today. Willis Lamb received a Nobel Prize for this achievement and continued to make fundamental contributions in many fields. In the words of Schweber2, "[Lamb] is one of the last physicists who could master the whole of physics." Moreover, his contributions were both in experiment and theory and laid the foundation for new fields of research from nuclear physics (the Lamb-Mössbauer effect) to laser physics (the quantum theory of the laser) and laser spectroscopy (the Lamb dip)." – Leon Cohen, Marlan Scully, and Robert Scully, Willis E. Lamb, Jr. 1913—2008. *Biographical Memoirs of the National Academy of Sciences*, 2009 [17 pages].

Robert Curtis Retherford (1912 – 1981), American physicist, graduate student of Willis Lamb at Columbia Radiation Laboratory. He

worked with Lamb on the famous experiment revealing the Lamb shift in the fine structure of hydrogen, a decisive experimental step toward a new understanding of quantum electrodynamics. – Schweber, Silvan, *QED and the Men Who Did it: Dyson, Feynman, Schwinger, and Tomonaga*, Princeton University Press, 1994, p. 215. See chapter 5.

EARLY WORK ON CONSTRUCTING FORTIFICATIONS

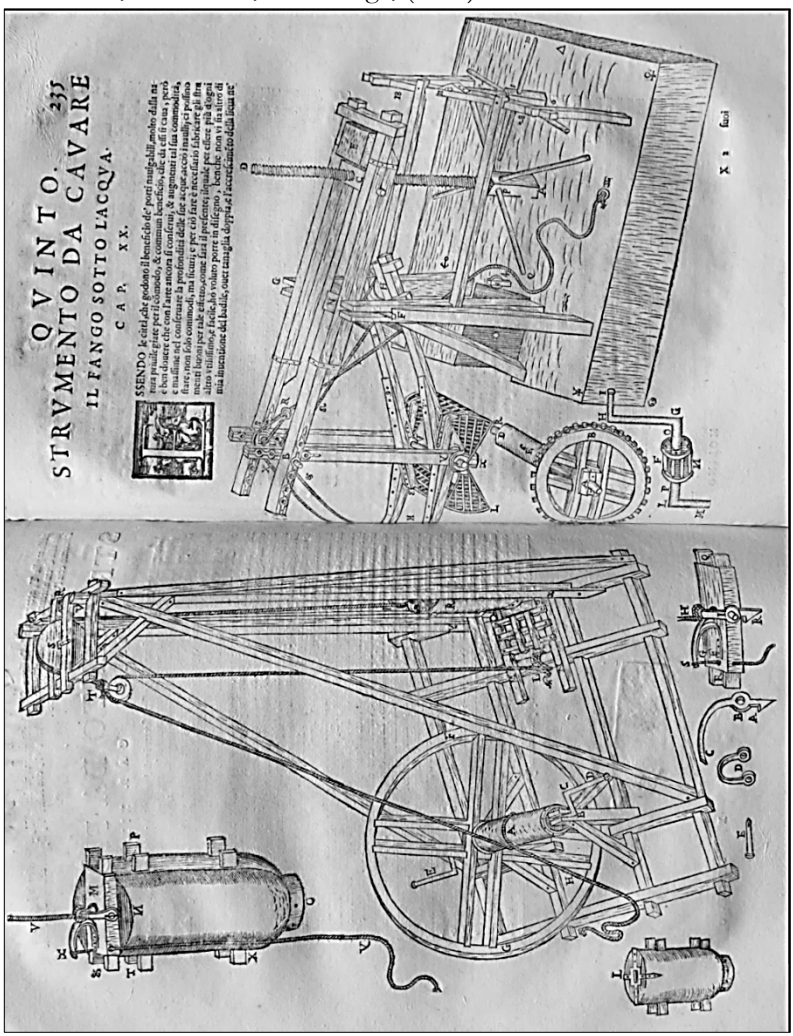
27. **LORINI, Buonaiuto** (ca. 1538-ca. 1611). *Le Fortificationi, … con l'aggiunta del sesto libro. Doue si mostra con la Scienza, e con la Pratica, l'ordine di Fortificare le Città, & altri luoghi, con tutti gli avvertimenti, che più possono apportar beneficio, per la sicurtà. delle Fortezze.* Venice: Francesco Rampazetto, 1609. ¶ Two parts in one. Folio. Collation: a^6, A^4, B^2, C^8, D^2, E^6, F^2, G-H^2, I^8, K^6, L^4, M-P^8, Q^6, R^8, S^6, T-Aa^8, Bb^4. Pagination: [12], 303, [1] pp. Includes title page for book six (first added in this edition). Engraved portrait of the author by W. Kilian, numerous large and small woodcuts and diagrams in text, decorated initials. Contemporary vellum, minor stains, title to head of spine in old ink. Inner front hinge opened at top. Few pages with slight toning, some foxing, small tape repair to last leaf (register), otherwise a very nice copy.

$ 2,195

Second, enlarged edition (with additional sixth book and added illustrations). "Lorini's work is the first systematic course of instruction in all aspects of military architecture, and the first work to give measured plans it its illustrations" - Breman. "Buonaiuto Lorini (circa 1538- circa 1611), was born in Florence, won a great reputation in the sixteenth century for his intelligent fortifications and the way he fiercely defended cities. He was employed by the kings of France and Spain, and also by the Dodges of Venice. Lorini's treatise is divided in five books, written in the form of a dialogue with a count (identified as the military man Bestore Martinengo)... The present work contains a wealth of practical detail and a long and detailed section on the machine tools of construction... In 1609 Lorini added the sixth book to his work." -Breman.

"Lorini published a treatise, *Delle Fortificationi*, which outlined the expectations of a good working design.... It centers around the problem of determining which plans succeed, and what qualifications of an engineer are requisite. Design, Lorini suggests, is necessary to all arts, but especially to command. Lorini conceives of design as a process, which allows one to represent both concepts and things as

they really are. Design is especially valuable because of concepts and things, invention and nature, can interact together on the simple piece of paper. While this may be a specific interpretation of the role of the architect, Lorini highlights here the importance of clarifying one's invention through design." – Wolfgang Lefevre, *Picturing Machines, 1400-1700*, MIT Press, Cambridge, (2004).



Book I: That fortification is a science and lays out basic principles and terminology. Book II: The practical construction of works, including bridges, gates, walls, and how to arm them. Book III: Overview of the most significant fortification methods in use to date. Book IIII: Explaining how to adapt planned fortifications according

to their situation and renovate old defensive works. Book V: Dedicated to machines of construction, describing and illustrating hoists, and tackle, water-raising engine, dredger for draining swamps, ropes, diving bell for subterranean work, mills, folding ladders, and pontoon bridges. Book VI: Lorini's own experiences in the field, sieges, practical problems, portable fences, likely trajectory of cannon balls, making artillery mobile and protection.

"Palmanova and Valletta [both Italian fortified cities] sprang from experiments, though none was as thorough or as spectacular. …the fortress-city must be understood as a development of the geometrically previse citadel, integrating the planned town and the protective fortresses into a single body. Though the four- or five-bastioned citadel is often the prototype, the history of influence is a short one: citadels and fortress-cities are developed almost synchronously and probably owe much to one another. For example, the radial fortress-city designed by Lorini, with its nine bastions and concentric ring roads linking the radial streets that converge on the central square, unmistakingly approximates the realized design of Palmanova." – Pollack, p. 163.

☼ BL Italian (17th cent) I: 502; Paul Breman, *One hundred books on military architecture*, 48 [1596/97 ed.]; Paul Breman, *Military Architecture Printed in Venice*; Paul Breman, *Books on military architecture printed in Venice. An annotated catalogue*, (2002), 165; Roberto L. Bruni & D. Wyn Evans, *Italian Seventeenth Century Books*, 3070; Maurice J. D. Cockle, *A bibliography of English military books up to 1642*, 791; Gamba 1494; Graesse 261; CNCE Venezaine L786; Riccardi I:52-53.

See: Daniele Danesi, Milena Pagni, Annalisa Pezzo, *Architetti a Siena: testimonianze della Biblioteca comunale tra XV e XVIII secolo*, 2009. p. 184; Martha Pollak, *Cities at War in Early Modern Europe*, 2010. pp. 67-69.

ATLAS VOLUME

28. **MEISEL, Ferdinand; F W BARFUSS**. *[Optik]. Lehrbuch der Optik.* Weimar: Bernhard Friedrich Voigt, 1889. ¶ Series: *Neuer Schauplatz der Künste und Handwerke*, 3. Bd. 4to. 17 double-page engraved plates (depicting various geometrics and instruments, including 3 microscopes). Original half-dark calf, marbled boards; neatly rebacked with kozo. Sold as a collection of plates. RARE.

$ 75

This is the Atlas volume only, the third edition being issued in 1889 (and contained 17 plates), for which there was a text of [xvi, 500] pages. Meisel was astronomer at Halle. He also got involved in the Mars canals controversy, regarding them as water courses. See: *The Sidereal Messanger, a monthly review of astronomy*, vol. IX, 1890. Conducted by Wm. W. Payne, p.33.

29. **NEWTON, Isaac** (1643-1727). *Optice: sive de Reflexionibus, Refractionibus, Inflexionibus et Coloribus Lucis, libri tres. Editio novissima.* Lausannae & Geneva, Marci-Michaelis Bousquet & Sociorum, 1740. ¶ 4to. [ii], xxxii, 363, [1] pp. 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; lacks portrait included in some copies. Contemporary full vellum, gilt-stamped spine. Inscribed "S.Ma. Novella, 9163." Title with oval rubber stamp of "Bibliotec: Se.me.novelle," inscribed at foot, "Bibliothécae Lanetae Mariae Novellae, Do suit ex annuo … Frugoni Biblioth. ey anno 1743." [!?] Rubber stamp on title. Very good – a remarkably clean, fresh copy.

$ 1,750

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.

PROVENANCE: Santa Maria Novella, Church library, Florence, possibly the Biblioteca Domenicana di Santa Maria Novella. See also: UCLA/Naiditch, *The Aldine Press: Catalogue of the Ahmanson-Murphy Collection of Books*, no. 574.

☼ 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.

NEWTON'S FINAL EDITION OF THE OPTICKS

30. **NEWTON, Isaac** (1643-1727). *Opticks: or, a Treatise of the Reflections, Refractions, Infections and Colours of Light. The Fourth Edition, corrected.* London: Printed for William Innys, 1730. ¶ Sm. 8vo. [viii], 382, ads. [2] pp. 12 engraved folding plates [Book I: pt. 1, 5 pls.; Book II: pt. 2, 4 pls.; Second Book: Pt. I: 2 pls.; Book III: 1 pl.]; minor ms. annotation on p.1 [GT-xxx – ownership initials?]. Original full gilt-ruled calf, modern red gilt-stamped leather label; joints cracked (incl. middle of spine), kozo repairs to hinges, corners showing, short worm trail effecting rear board and extending (diminishing) to p.295, mild foxing. Notation on ffep "OT". Very good.
$ 5,000
Fourth edition, corrected. "This is the final edition, revised by Newton." "This new edition is carefully printed from the Third Edition, as it was corrected by the Author's own Hand, and left before his Death with the Bookseller." – Advertisement.

"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.

This edition contains the full set of 11 Observations, and 31 queries or questions. As written by the respected Newton scholar, Richard S.

Westfall, "From the perspective of natural philosophy, the 'Quaestiones' were the first of the series of speculations that form the warp on which he wove the fabric of his scientific career. Throughout his life, his speculations turned on a limited set of crucial phenomena which seem to have functioned in his eyes as keys to the understanding of nature. Nearly all of them appear in the 'Quaestiones.'" – Westfall, p. 96.

"Whereas the Principia is a mathematical work involving intricate geometrical relationships and only a handful of major experiments, the Opticks overflows with detailed accounts of reflection and refraction, the separation of white light into the colors of the spectrum, the manner of the eye's operation, the formation of images by lenses, the colors of the rainbow, the construction of the reflecting telescope, and much more. Unable to contain himself, the author introduces many subjects that have little or nothing to do with the behaviour and analysis of light: metabolism and digestion, the circulation of the blood, the creation of the world and the Great Flood of Noah, the scientific method, even the images that haunt the dreams of madmen. Moreover, Newton wrote the Opticks in English, making its contents accessible to a far wider audience than the Principia, whose classical Latin had stymied many potential readers. His friend John Locke, who had only months to live, was baffled by the earlier work, but read the Opticks 'with pleasure, acquainting myself with every thing in them.'" – Gale E. Christianson, *Isaac Newton*, Oxford University Press, 1996.

Babson, 136 (v. I, pp. 68-9); Gray, Newton, p. 37. See: Richard S. Westfall, *Never at Rest*, p. 96.

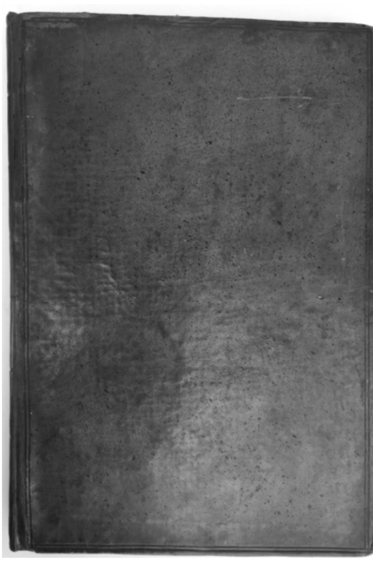
31. [**NEWTON**] **Fortunato Bartholomeo de Félice** (1723-1789). *Physicae experimentalis et matheseos regij quondam.... nunc vero imperialis annae professoris, De Newtoniana Attractione unica Cohaerentiae Naturalis Caussa Dissertatio physico-experimentalis elenchtica adversus Dn. G. E. Hamburgerum*. Annae: Ex Typografica Imperialis Conlegij, 1766. ¶ Small 4to. [22 cm.]. [2], 172 pp. Original stiff paper wrappers with manuscript spine title; browning to contents. Binding is in excellent condition.
$ 400
First printed in 1757, this appears to be a reissue of the original sheets with a new title-page. Clearly this issue, not in WorldCat, is much rarer than its predecessor. The Babson catalogue does not include this issue, but does have the 1757, calling it "Seems to be

rare". "This Latin tract supports the views of Newton on gravitation, as opposed to those of Leibnitz and Hamberger. The book seems to be rare, as it is not listed in Gray or among the author's works in the *Biographie Universelle*.

Fortunato Bartolommeo Felice (1723–1789), "2nd Comte de Panzutti, also known as Fortuné-Barthélemy de Félice and Francesco Placido Bartolomeo De Felice, was an Italian nobleman, a famed author, philosopher, scientist, and is said to have been one of the most important publishers of the 18th century. He is considered a pioneer of education in Switzerland, and a formative contributor to the European Enlightenment." de Félice was extremely productive as a writer and educator. He was interested in many fields, including philosophy and science. He translated works by Descartes, d'Alembert, Maupertuis, and Newton into Italian.

See: Eugène Maccabez, *F.B. de Félice, 1723-1789, et son Encyclopédie: Yverdon 1770-1780*, Bale, 1903.

No copies on WorldCat, unrecorded on OCLC.



ANAMORPHOSES AND THE THEORY OF PERSPECTIVE

32. **NICERON, Jean François** (1613-1646). *La Perspective Curieuse ou Magie Artificiele des effets Merveilleux: de l'optique, par la vision directe, la*

catoptrique, par la reflexion des miroirs plats, cylindriques & coniques, la dioptrique, par la refraction des crystaux ... Oeuvre tres-utile aux peintres, architectes, graveurs, sculpteurs... Paris: Chez Pierre Billaine, 1638. ¶ 6to. [xxiv], 120, [2] pp. Engraved frontis. (by Pierre Daret), 25 engraved copper plates (1 double-page). Original full blind-stamped calf, spine

with gilt rules and title; spine neatly replaced, extremities rubbed. Bookplates of Newbattle Abbey Library, [First] Earl of Ancram [Sir

Robert Kerr (c. 1578–1654)] and the Honorable William Marquiss of Lothian (General William John Kerr, 5th Marquess of Lothian, 1737-1815). Fine.

$ 12,500

First edition, with a fine provenance, of Niceron's important treatise on perspective, geometrical optics, and anamorphic projection, which gains added significance in the history of science for containing (in Book IV) "perhaps the first published reference to Descartes' derivation of the law of refraction (1638) and thus gains some historical significance" – *DSB*.

The work is famous for its study of the application of illusion to optical science: "The classic phase of anamorphosis, during which it came to relate vitally to a series of scientific and theological concerns, occurred in France and Rome in the 1630s and 1640s. The theorist at the centre of the Paris-Rome developments was Jean-François Niceron" – Kemp.

"This richly illustrated manual on perspective revealed for the first time the secrets of anamorphosis and trompe l'oeil. It contained the first published reference to Descartes's derivation of the law of refraction. First published in 1638 with 25 plates only, Niceron's work was later enlarged by Roberval in a far inferior edition (1663). Divided into four Books, the first Book presents briefly the fundamental geometrical theorems, and then develops a general method of perspective, borrowing heavily from Alberti and Dürer." – gogeometry.com.

Jean-François Niceron (1613-1646), born in Paris, was a French mathematician, Minim [Catholic] friar, and painter of anamorphic art, on which he wrote the ground-breaking book, "La Perspective Curieuse." He travelled widely throughout Europe and was and awarded a professorship in Rome.
Provenance: Sir Robert Kerr (c. 1578–1654) was a Scottish nobleman. His son Charles inherited the title, though ultimately the title merged with that of Lothian, thus the second bookplate.

☼ Martin Kemp, *The Science of Art: Optical Themes in Western Art from Brunelleschi to Seurat*, Yale University Press, 1992; Vagnetti, 391-393; *DSB* X, p. 103; Berlin Katalog 4713. See: Christie's sale 3534.

See: Ivan Moscovich, *The Magic Cylinder Book*, Tarquin Publications; Martin Gardner, "Anamorphic art", *Scientific American*, vol. 232, no 1, pp. 110-116, January 1975; Richard Gregory, *Mirrors in Mind*, W.H. Freeman, New York, 1996; Jonathan Miller, *On Reflection*, National Gallery Publications, London, 1998; Ernst Gombrich, *Art and Illusion*, Phaidon Press, Oxford, 1977.

33. **OPPENHEIMER, J. Robert**; **Julian SCHWINGER**. "On the Interaction of Mesotrons and Nuclei." [pp. 150-152]. Lancaster PA: *American Institute of Physics*, 1941. ¶ Second Series, July 1 – December 1, 1941. [Whole number 60, nos. 1-12]. 4to. viii, 925 pp. Illus., index. Full green gilt-stamped buckram. Library bookplate. Very good.
$ 250

Schwinger received the Nobel Prize for Physics, jointly with Sin-itiro Tomonaga, and Richard Feynman in 1965, "for their fundamental contributions in the domain of quantum electrodynamics."

Abraham Pais wrote of this period, "... I note that the intensive work in meson theory by the Berkeley group in 1940-41 also included the work of Oppenheimer and Julian Schwinger (with whom he had earlier published a paper on electron-positron production) on the strong coupling theory for charged scalar and neutral pseudoscalar mesons, in which they calculated scattering cross-sections and predicted nucleon isobars. These efforts continued until interrupted by World War II." – Pais, J. *Robert Oppenheimer, a life*, (2006), p. 31.

Kai Bird and Martin J. Sherwin are effusive about Oppenheimer's influence from this period on with regard to mesons and leaders in physics, "Once again, if Oppenheimer himself was not the author of such discoveries, many of his peers saw him as their great facilitator."

– p. 374. This was demonstrated at the 1947 Shelter Island Conference for the country's 23 leading physicists, "On the third and last day, Oppenheimer led a discussion of the paradoxical behavior of mesons, a topic he had explored with Robert Serber prior to the war. [Abraham] Pais later remembered Oppenheimer's "masterful" performance, interrupting at all the right moments with leading questions, summarizing the discussion and stimulating others to think of solutions. ..." Pais wrote, Oppenheimer ""got up and and said, 'Maybe there are two kinds of mesons. One kind is copiously produced, then disintegrates into a different kind which absorbs only weakly.'" In Pais' view, Oppenheimer thus midwifed Marshak's innovative two-meson hypothesis, a breakthrough which later won the British physicist Cecil F. Powell a Nobel in 1950. The Shelter Island conference also helped Feynman and Schwinger to work out "renormalization theory," an elegant new way to calculate the interactions of an electron with its own on another electromagnetic field." – Bird and Sherwin, pp. 373-4.

34. **PAULI, Wolfgang** (1900-1958). "The Connection Between Spin and Statistics." [Pages 716-722]. Lancaster PA: American Institute of Physics, 1940. ¶ In: *Physical Review*, Second Series, July 1 – December 15, 1940. [Whole number 58, nos. 1-12]. 4to. ix, 1,138 pp. [whole volume]. Illus., index. Full green gilt-stamped buckram. Library bookplate. Very good.

$ 250

"In 1940, he re-derived the spin-statistics theorem, a critical result of quantum field theory which states that particles with half-integer spin are fermions, while particles with integer spin are bosons." – Wikipedia.

Wolfgang Pauli won the Nobel Prize for Physics in 1945, "for the discovery of the Exclusion Principle, also called the Pauli Principle."

"Pauli's 1940 proof ... has been the standard for almost sixty years." – Ian Duck & E. C. G. Sudarshan, *Pauli and the Spin-statistics Theorem*, 1997, p. x.

Einstein himself proposed Pauli for the Nobel Prize. In fact, Einstein's telegram sent to the committee was convincing and came at the last minute. In it he wrote, "... the so-call pauli or exclusion principle became fundamental part of modern quantumphysics being independent from the other basic axioms of the theory stop albert

einstein." – Charles P. Enz, *No Time to be Brief; a scientific autobiography of Wolfgang Pauli,* Oxford, 2002, p. 125.


ALEXANDRI PICCOLOMINEI
IN MECHANICAS QVÆSTIONES
ARISTOTELIS, PARAPHRASIS
paulo quidem plenior.
AD NICOLAVM ARDINGHELLVM
Cardinalem Amplissimum.
EIVSDEM COMMENTARIVM DE CERTITVDI
AD FERDINANDVM DE MENDOZZA
Virum Illustrissimum.
M. D. XLVII.

OF ARISTOTELIAN MECHANICS AND ITS PHILOSOPHY

35. **PICCOLOMINEI, Alexandri** [**Alessandro Piccolomini**]. *In Mechanicas Quaestiones Aristotelis, Paraphrasis paulo quidem plenior. Ad Nicolaum Ardinghellum Cardinalem Amplissimum. Eiusdem commentarium de certitudine mathematicarum disciplinarum: in quo, de resolutione, diffinitione, & demonstratione: necnon de materia, & fine logicæ facultatis, quamplura concinentur [i.e. continentur] ad rem ipsam, tum mathematicam tum logicam, maximè pertinentia.* Romae: Apud Antonium Bladum Asulanum, 1547. ¶ Sm. 4to. [viii] pp., CX ff. Signatures: A-2E□ 2F². Printer's woodcut device on title, woodcut initials, geometric diagrams throughout and occasional woodcut figures [balance scales [XXI-XXII], unknown device [XXXV], wedge [XXXIX], pulley [XL], well [LX], 2-man team with poles braced between them, on their shoulders in order to lift a

heavy rock [LXII], concentric circles as in a solar system model, incl. rocks in place of planets [LXVIII]; f. XL bottom corner torn away. Early quarter vellum, marbled boards, later endleaves; worming at spine joints, vellum present, but gnarled. Ownership signature and black stamps on title. Very good.

$ 1,750

First edition. This book ignited a debate "over the certainty of mathematics, which was sparked in 1547 by Alessandro Piccolomini's commentary on pseudo-Aristotle's *Problemata Mechanica*." – Niccolò Guicciardini, *Isaac Newton on Mathematical Certainty and Method* - Issue 4 – 2009, pp. 3-4. See also: Nicholas Jardine, "Keeping Order in the School of Padua," 1997.

"Many sixteenth-century authors studied the *Mechanical Problems*." These include Niccolo Leonico Tomeo, Alessandro Piccolomini, Girolamo Cardano, and Niccolo Tartaglia. "Alessandro Piccolomini chose to make it more accessible by publishing a paraphrase of the work in 1547 in Rome: *In mechanicas quaestiones Aristotelis, para phrasis paulo quidem plenior,* shows both his erudition in the use of available manuscripts as well as his practical knowledge of the contemporary mechanical technology." – Nenci, pp. 9-10.

"Piccolomini thus shows … the reasons for the success among humanists of the difficult text of the Mechanica: one draws from the text an intuition of a movement of rotation made up of constraints and forces rather than rigorous geometric analyses." – Walter Roy Laird, Sophie Roux, *Mechanics and Natural Philosophy before the Scientific* ... (2008), page 159.

"Piccolomini in effect elevates mechanics from an art to a science, by arguing that it is the contemplation of the causes and principles behind machines that is properly called mechanics. The use of these machines to produce useful effects is distinguished from the theory on which they are based, and his practical aspect is classified separately under the sellularian or humble arts." – Helen Hattab, *Descartes on Forms and Mechanisms*, (2009), pp. 95-6.

Alessandro Piccolomini (1508-1578), student of the classics in both Padua and Rome, a master of Petrarchan style, was a member of the noble Piccolomini family that included two Popes. He came to reside in Padua, becoming established as professor of philosophy at the university. Though he was not an astronomer, he is best known for producing in 1540 the first star atlas, *De la Sfera del Mondo*. He was a

prolific writer of works relating to philosophy, mathematics, mathematical astronomy, comedies, sonnets, literature and translated several works (Ovid's *Metamorphoses*, Aristotle's *Poetics* and *Rhetoric*, part of Vergil's, *Aeneid*) from Lain into Italian. See: article by Ronald Brashear, within: Thomas Hockey (ed.), *Biographical Encyclopedia of Astronomers,* II, pp. 904-5.

See: Rufus Suter, "The Scientific Work of Alessandro Piccolomini," *ISIS*, 60, pp. 210-222.

COPY OF SIR ARTHUR LYON BOWLEY
THE FIRST CHAIR OF STATISTICS AT UNIVERSITY COLLEGE LONDON

36. **QUETELET, Lambert Adolphe Jacques** (1796-1874). *Lettres à S.A.R. le Duc Régnant de Saxe-Cobourg et Gotha: sur la Théorie des probabilités, appliquée aux Sciences Morales et Politiques*. Bruxelles: M. Hayez, 1846. ¶ Large 8vo. [vi], iv, 450 pp. Half-title, numerous tables. Later full brown gilt-stamped cloth; endleaves with offsetting. With ownership signatures of A.L. Bowley, 1896, and F.N. David, 1957. Very good copy.

$ 1,650

FIRST EDITION of a landmark in social statistics. "This book is really an original, if elementary, treatise on probability and social statistics, written in the form of a series of letters to the Belgian king's two nephews, Ernest (the duke to whom the book was dedicated) and Albert (who by 1846 was husband to Queen Victoria of Great Britain). Quetelet had tutored the two in the 1830's, and in writing his book as a series of letters he was adopting a form that had been used with great success by Euler in 1768, with *Letters to a German Princess*, a popular exposition of physical science." – Stigler, *History of Statistics*, p. 206.

In his 1846 *Lettres*, Quetelet used [Laplace's curve of 'possible error'] to interpret anthropomorphic data, thus giving it a new methodological significance, as has been pointed out by Stigler. Quetelet used Laplace's theorem to determine whether a series of real objects (and not mere measures) could be considered homogeneous. Laplace's theorem implied that a group of measures affected by the same major causes, and varying only in terms of many minor, accidental causes, should be distributed according to Gauss' law. Quetelet's innovation was to use the Gaussian distribution as a way of detecting groups of homogeneous objects. He thus made

explicit what had previously been merely implicit in Laplace's work: a Gaussian (or 'normal' distribution) is a necessary and sufficient condition of homogeneity. The Laplace-Gauss law thus left the arcane realm of the estimation of error (in the measurement of a given object) to become a tool for detecting homogeneity in groups of real objects. In particular, it became a method for identifying 'populations' as objective entities. If, for example, the chest size or stature of soldiers was approximately distributed according to Gauss' law, this would indicate that it was a real population, within which variation was merely accidental. For Quetelet, a Gaussian distribution revealed both order in apparent chaos, and also an underlying ideal type that nature tries to attain, implying that variation has no real significance. This would also explain why Darwin, if he did read Quetelet, would hardly have been attracted by his concept of a 'population.'" – (Jean Gayon, *Darwinism's Struggle for Survival: Heredity and the Hypothesis of Natural Selection*, tr. by Matthew Cobb, 1998, pp. 117-8).

"Quetelet is credited with the first published visual images of normal and skewed probability distributions" (Judy L. Klein, *Statistical Visions in Time: A History of Time Series Analysis, 1662-1938,* 1997, p. 164).

PROVENANCE: Sir Arthur Lyon Bowley (1869-1957), was an English statistician and economist who worked on economic statistics and pioneered the use of sampling techniques in social surveys. He is called the father of economic statistics. Bowley took his degree from Trinity College, Cambridge and graduated as Tenth Wrangler in the mathematics department. From 1893 to 1899 (the time he signed this book), Bowley taught mathematics at St. John's. From 1895 he took a part-time position at the new London School of Economics. He also taught at University College, Reading. In 1919 he was appointed the first chair of statistics at University College, London, apparently the first such position in Britain. The Royal Statistical Society awarded him its Guy Medal in Gold in 1935, becoming the Society's president 1938–40. – See: "Bowley, Arthur Lyon (BWLY887AL)". A Cambridge Alumni Database.

F.N.D. Florence Nightingale David (1909-1993), also known as F. N. David was an English statistician, born in Ivington, Herefordshire, England. She was named after Florence Nightingale, who was a friend of her parents. David did not like her forenames and thus always referred to herself as "F. N. David". She attended Bedford College for Women in London, earning her degree in mathematics in

1931. She then joined University College, London to work with Karl Pearson who obtained a scholarship for her, working as his research assistant, resulting in a doctorate received in 1938 (Pearson died in 1934). In 1938 her first book was published, *Tables of the Correlation Coefficient*. During that period she was working with Jerzy Neyman. "During World War II she served as Experimental Officer in the Ordnance Board for the Ministry of Supply, Senior Statistician for the Research and Experiments Department for the Ministry of Home Security, Member of the Land Mines Committee of the Scientific Advisory Council, and as Scientific Advisor on Mines to the Military Experimental Establishment. Her work during this time ranged from the study of bombing patterns and damage to the problem of discovering the placement of enemy land mines and a methodology for randomly placing land mines so as to avoid the semblance of any pattern in their placement." [Garber et.al.] After WWII she came back to University College, London, and was appointed professor in 1962. Five or six years later she took a position at the University of California, Riverside, becoming head of the Department of Statistics in 1970. Retiring in 1977 she came to Berkeley and continued her research. This copy of Simpson bears her initials on the Francis Galton Laboratory bookplate; she gave her books to Margaret Stein of Stanford University. See: M. J. Garber D. V. Gokhale J. M. Utts R. J. Beaver, Chair, "Florence Nightingale David, Statistics: Riverside." [Obituary]; "A conversation with F.N. David," Statistical Science, Vol. 4, No. 3,235-246 by Nan Laird; J. Utts, "Florence Nightingale David 1909-1993: Obituary," *Biometrics*, (1993) 49, 1289-1291; Norman L. Johnson & Samuel Kotz (eds.), *Leading Personalities in Statistical Sciences from the Seventeenth Century to the Present*, Wiley, 1997 (pp. 91-92); F.N. David, *Games, Gods and Gambling: The Origins and History of Probability and Statistical Ideas From the Earliest Times in the Newtonian Era*, (1962).

☼ *Goldsmith-Kress Library of Economic Literature,* no. 34532.

GREAT WORK ON CRYPTOGRAPHY
BY ATHANASIUS KIRCHER'S ASSISTANT

37. **SCHOTT, Gaspar (Caspar, Kaspar).** *Schola Steganographica, In Classes Octo Distributa quibus, praeter alia multa, ac jucundissima, explicantur Artificia Nova, Queis quilibet, scribendo Epistolam qualibet de re, & quocunque idiomare, potest alteri absenti, eorundem artificiorum conscio, arcanum animi sui conceptum, sine ulla secreti latensis suspicione manifestare & scriptam*

ab aliis eâdem arte,quacunque linguâ, intelligere & interpretari. Nuremberg: Jobus Hertz for Johann Andrea Endter & Heirs of Wolfgang Junior, 1665. ¶ Sm. 4to. [36], 346, [6] pp. Extra-engraved title page (signed T.F.F.), half-title, title page printed in red and black, engraved arms of Ferdinand Maximilian (1625-1669), Hereditary Prince of Baden-Baden, 8 engraved plates (6 double-page, 2 folding), 3 tables (1 folding, 1 double-page), text engravings, woodcut initials, head and tail pieces. Lacks $2Y^{1-2}$ book-list of Schott's works, found in some copies [supplied in photo-copy facs.]. Contemporary vellum, title in old hand on spine, edges speckled red; minor toning and foxing, vellum browned as usual; one tie remains. Bookplate of Hedwig & Eberhard Frey dated 1920, drawn by Reinhold Nägele (1884-1972). One plate with repaired tears at blank tab; otherwise a fine copy.

$ 3,250

First edition of this early work on cryptography and ciphers, and more specifically secret writing.

Schott (1608-1666) Jesuit, student and assistant of Athanasius Kircher, during the last years of his life he decided to publish the mass of material he had collected on scientific subjects both from his own researches and those of others. He produced in a period of eight years (1658-1666) eleven books. He taught mathematics and physics at Mainz and Würzberg. He "...yearned for the intellectual delights of Rome, and after twenty-five years in Italy he suffered from German winters and had to have his own hypocaust installed...Exhausted, it is said, by overwork on his books, he died in 1666." *DSB* XII, p.211.

"Steganography fallas into two branches, linguistic steganography and technical steganography. Only the first is closely related to cryptography. The technical aspect can be covered very quickly: invisible inks have been in use since Pliny's time. Onion juice and milk have proved popular and effective through the ages (turning brown under heat or ultraviolet light)." – Friedrich L. Bauer, *Decrypted Secrets: Methods and Maxims of Cryptology,* p.8.

Provenance: Hedwig & Eberhard Frey. Eberhard Frey (1872-1963) was a German writer and art critic and a collector (and writer about) of bookplates. See: Richard Braungart, *Deutsche Exlibris und Andrere Kleingraphik der Gegenwart.* (1922), p.71.

☼ VD 17 3:006423R. Dunnhaupt (2ed.) V,12.1. Caillet 10007. Graesse VI, part 1 315. Hirsch III,551. Jantz II,2262. De Backer/ Sommervogel VIII, 910. Wheeler Gift I,190. BL 17th German S1254. Galland 163.

See: Umberto Eco, "Kircher Tra Steganografia E Poligrafia," in Athanasius Kircher S.J. Il Museo del Mondo, Rome, 2001, pp. 211-213, for a discussion of Schott's revision of Kircher's work on secret-writing. See: Paula Findlen *Athanasius Kircher: The Last Man who Knew Everything.* Routledge, 2004.

ONE OF THE FOUNDING WORKS IN INFORMATION THEORY
RICE COPY, WITH BELL LABS' COMPLIMENTS

38. **SHANNON, Claude Elwood**. *A Mathematical Theory of Communication. Monograph B-1598*. New York: American Telephone and Telegraph Company, (1950). "Reissued October 1950" printed on inside rear wrapper. ¶ Offprint from *Bell System Technical Journal*, Vol. 27 (July and October). 10 ¾ x 8 ½ inches [274 x 213 mm.]. 4to. 80 pp. Diagrams. Original blue & black printed gray wrappers, hole punched for ring binder, as issued; a trifle rubbed at the outer extremities, the saddle-stitch staples have burst away from upper cover, but intact. WITH COMPLIMENTS CARD LAID IN, "*With the Compliments of Bell Telephone Laboratories, Publication Department, 463 West Street, New York, NY.*" Ownership signature of original owner (on upper cover), "S. Rice."

$ 250

Early reprinting of this classic paper, "Probably no single work in this century has more profoundly altered man's understanding of communication than C. E. Shannon's article, 'A mathematical theory of communication', first published in 1948. The ideas in Shannon's paper were soon picked up by communication engineers and mathematicians around the world. They were elaborated upon, extended, and complemented with new related ideas. The subject thrived and grew to become a well-rounded and exciting chapter in the annals of science." – David Slepian (editor), *Key papers in the development of information theory*, New York: Institute of Electrical and Electronics Engineers, Inc., 1974.

This is Steven O. Rice's copy, a colleague of Shannon's at Bell Labs. In fact Rice was also working in the field of information technology and was awarded the IEEE Alexander Graham Bell Medal in1983. The "compliments" slip included in this copy is indicative of the close proximity and/or personal familiarity of Claude Shannon and his work.

PROVENANCE: Stephen "Steve" Oswald Rice (November 29, 1907 – November 18, 1986) was a pioneer in the related fields of information theory, communications theory, and telecommunications. Born in Shedds, Oregon, Rice earned his bachelor's degree electrical engineering from Oregon State University, followed by graduate work at Caltech and Columbia University. Rice worked for nearly 40 years at Bell Labs, where he discovered the Rice distribution and Rice's

formula. He was also a visiting professor at Harvard University (1957-58). His early work on the mathematical analysis of noise obtained by passing random noise through physical devices, is considered as a classic paper in communication theory [See: "Mathematical Analysis of Random Noise", July 1944, The Bell System Technical Journal, Volume 23, issue 3]. In 1983 he was awarded the IEEE Alexander Graham Bell Medal. The IEEE Communications Society named a paper prize after him: the Stephen O. Rice Prize for best paper in the field of communications theory. Rice died in 1986, La Jolla, California.

"Steven O. Rice described two encoding schemes in which the ideal rate of information transmission in the presence of noise is approached. He considered two explicit construction schemes for choosing the transmitted signal and gave an exact result for the probability of error of the decoded message. Through numerical approximations, he showed that both schemes approach the ideal rate of transmission in the presence of random noise when the signal length is increased." – Lav R. Varshney, "Engineering Theory and Mathematics in the Early Development of Information Theory," 2004 IEEE Conference on the History of Electronics, p. 4. See also: S.O. Rice, "Communication in the Presence of Noise-Probability of Error for Two Encoding Schemes," Bell Sys. Tech. J., Jan. 1950.

☼ DSB "Shannon, Claude Elwood", by Jérôme Segal; Norman, Origins of Cyberspace, 880. See: William Aspray, *Scientific Conceptualization of Information, a survey*, New York: IEEE Annals of the History of Computing, 7, (1985), pp. 119-22; *Biographical Memoirs of Fellows of the Royal Society*, 30 April 1916 - 24 February 2001; Paul J. Nahin, The Logician and the Engineer, Princeton University Press, 2012; J.R. Pierce, The Early Days of Information Theory, IEEE Transactions on Information Theory, Vol IT-19, No.1, pp. 3-8, January, 1973; Samuel W. Thomsen, "Some Evidence Concerning the Genesis of Shannon's Information Theory," *Studies in History and Philosophy of Science,* vol. 40, (2009) pp. 81-91. [S13072]]

39. **SHORT, Thomas** (1690?-1772). *The Natural, Experimental, and Medicinal History of the Mineral Waters of Derbyshire, Lincolnshire, and Yorkshire, particularly those of Scarborough. Wherein, They are carefully examined and compared, their Contents discovered and divided, their Uses shewn and explained, and an Account given of their Discovery and Alterations. Together with the Natural History of the Earths, Minerals and Fossils through which the Chief of them pass...* London: Printed for the Author, 1734. ¶

4to. [xxiv], xxii, 359 [i.e. 361], [3] pp. [Note: A leaf signed "[Uu]" and numbered "[315]" and "[316]" precedes the normal p. 315]. Half-title, subscriber's list. 5 engraved plates (including 4 folding [plates: pp. 23, 75, 112, 196, 236 (repaired)]), table of waters, errata; some edge browning. Twentieth century half calf, marbled boards, raised bands, green leather gilt-stamped spine label, recent endleaves; rubbed. Very good copy.

$ 750

First edition[8]. Mineral waters were discovered at Scarborough in 1626. This is one of three texts published in the 1730s that described the virtues of the mineral waters at Scarborough. These included accounts by John Atkins, Peter Shaw and Thomas Short.[9] Short differentiated from the others in that in addition to recommending the mineral waters for a curing "bewildering range of complaints," he also supported moderation in diet, exercise and liquor. This work by Short was sponsored by the Royal Society and includes a preface addressing the society and Sir Hans Sloane, the president.

The text offers the authors view, including why mineral waters are not beneficial to all, the history of mineral waters in Britain, rules for use, differences between waters found at Bath, Buxton, Matlock and Scarborough. Minerals found in the spa are mentioned, as well as shells and even diamonds. The effect of waters on kidney stones and other health benefits are mentioned. Sulphur is frequently referred to.

Robert Boyle also wrote on mineral waters and Thomas Short here responds to his position (p. x), being displeased with Boyle's lack of belief that mineral waters had properties capable of promoting health. In addition Boyle took positions on how to analyze the chemical or mineral content of mineral waters, in particular the oak-gall test. – Allen G. Debus, *The Chemical Philosophy: Paracelsian Science and Medicine in the Sixteenth and Seventeenth Centuries*, (1977), p. 497.

The appendix discusses, liquors (brandy, rum, rack (or Arack, an anise-flavored liquor), malt spirits, mead, methlegin, hydromel), grapes, cider, ale, tea, and wine (birch wine, gooseberry wine, cowslip

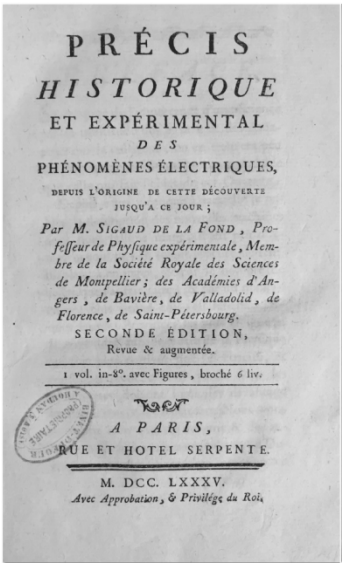
[8] A second part was issued in 1740, *An essay towards a natural, experimental, and medicinal history of the principle [sic] mineral waters of Cumberland, Northumberland, Westmoreland.*

[9] John K. Walton, Mineral Springs Resorts in Global Perspective: Spa Histories, 2016, p. 21.

(Primula veris – used to flavor wine), orange wines. raspberry or strawberry wine).

Thomas Short, physician, practiced medicine in Sheffield, England. This works deal with mineral waters, tea and milk (1730, 1734, 1750, 1766, and 1767).

☼ ESTC: T130118; Hirsch, V, pp. 251-52; *DNB,* XVIII, pp. 154-5.



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Par M. SIGAUD DE LA FOND, Professeur de Physique expérimentale, Membre de la Société Royale des Sciences de Montpellier; des Académies d'Angers, de Bavière, de Valladolid, de Florence, de Saint-Pétersbourg.
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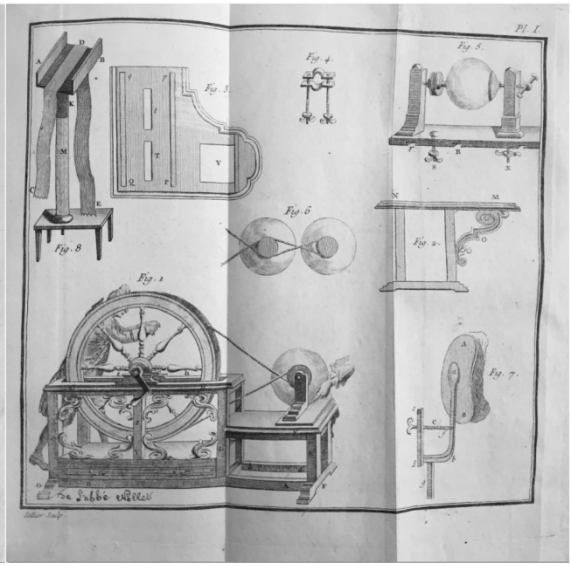

ELECTRICAL DEMONSTRATIONS & INSTRUMENTS

40. **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; Poggendroff, 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 siecle: Correspondance entre l'Abbé Nollet (1700-1770) et le physicien genevois Jean Jallabert (1712-1768),* Genève, 1984, page 40.

SAMMELBAND OWNED BY
THE FRANCIS GALTON LABORATORY &
FLORENCE NIGHTINGALE DAVID'S COPY

41. **SIMPSON, Thomas** (1710-1761). *The Nature and Laws of Chance. Containing, among other Particulars, The Solutions of several abstruse and important Problems... the whole after a new, general, and conspicuous manner, and illustrated with a great variety of examples*. London: Printed by Edward Cave, 1740. Lowndes p. 1685. First edition.

[With:] **SIMPSON**. *A New Treatise of Fluxions: wherein the direct and inverse method are demonstrated ... also the doctrine of infinite series ... are amply explained, ... together with a variety of new and curious problems*. London : Printed by Tho. Gardner… ; For, and are to be had of, the author …, 1737. First edition.

[With:] **STUART, Alexander** (1673-1742). *Three Lectures on Muscular Motion Read before the Royal Society in the Year MDCCXXXVIII … William Croone … Being a supplement to the Philosophical Transactions …* London: Printed for T. Woodward; and C. Davis … 1739. See: Russell, K.F. *British anatomy* (2nd ed.), 782. First edition.

[With:] **LANGRISH, Browne** (d.1759). *A New Essay on Muscular Motion. Founded on Experiments, Observations, and the Newtonian Philosophy.* London: Printed for A. Bettesworth and C. Hitch, 1733. First edition.

8vo. [2], iv, 85, [1]; [2], iv, [5]-216; [v], x, "[liv]", [2]; 103, [1] pp. Frontispiece (Stuart), 3 folding engraved plates – the three folded plates are signed: "J. Mynde sc."; the frontispiece is signed "I Fayram inven. deli et sculp."; small stab-holes deep in gutter (center) pp. 95-216 (Fluxions). Modern full calf, black leather spine label. Early armorial bookplates of Thomas Salwey, L.L.D. [ca.1740-60] of Richard's Castle [motto: "Crucem gerentes salvaegentes"], Salop; J.W.L. Glaisher, Sc.D., Trinity. Bookplate of The Francis Galton Laboratory for National Eugenics (Jan. 1930); initials "F.N.D." for Florence Nightingale David of University College London. David presented this book to statistician Margaret Stein (married to fellow statistician Charles Stein). Rare collection.

$ 5,500

Sammelband on British mathematics and medicine. All first editions and each are rare on the market. The lead work is Simpson's response to and challenge towards Abraham de Moivre's (1667-1754), *Doctrine of Chances*, issued in a second edition in 1738.

Simpson's work in the preface directly addresses Mr. De Moivre, "I should be poorly ambitious of appearing the Author of a Performance, that would, was every Bird to claim his own Feather, be stript as naked as the Jay in the Fable." See also: Karl Pearson, (edited by Egon Sharpe Pearson), *History of Statistics in the 17th and 18th Centuries*, (1978), pages 169, 171-2.

Stephen Stigler describes how this book and the author's 1742 title, *The Doctrine of Annuities and Reversions*, irritated De Moivre. Both titles were based on the work of De Moivre, whom Stigler indicates was intellectually the superior to Simpson. – (Stigler, p. 88). De Moivre's second edition of his Annuities book is scathing of Simpson's work, saying he "mutilates my Propositions." The two exchanged barbs and accusations as evidenced in their own writings. Stigler observes that

Simpson as a mathematician-writer tends to the reactionary and chooses to point out the distribution of errors and not on the mean observation. "Even though the position of the body observed might be considered unknown, the distribution of errors was, for Simpson, known." (p. 91).

Thomas SIMPSON (1710-1761), son of a weaver, was an autodidact British mathematician and inventor, became a Fellow of the Royal Society. He is most famous for promulgating "Simpson's rule" which is a method of numerical approximation for a definite integral. He observed the solar eclipse of 1724 and began thus studying mathematics and maintained an interest in astrology and horoscopes. From 1725-1733 he taught at Nuneaton. He married his landlady (much older himself). An odd episode occurred with either he (or an assistant) was clad as the devil – this was not well received and subsequently forced both he and his wife to flee to Derby. His first book, *A New Treatise of Fluxions*, (1737), was an entrée to employment. Later he relocated to London and from 1743 taught mathematics, engineering and fortification at the Royal Military Academy, Woolwich. He was a member of the Spitalfields Mathematical Society, the membership being largely made-up of weavers as per his own original profession. Abraham de Moivre and Simpson both belonged to a group of itinerant lecturers who at night taught at the London coffee houses. Suzuki states that Simpson was "perhaps the most distinguished of the coffee-house teachers." Thus he became aware of de Moivre's work in statistical theory and games of chance. In 1754 he was made editor of the *Ladies Diary*, later editing the *Gentleman's Magazine*, *Miscellanea Curiosa Mathematica* as well as the *Gentleman's Diary*. In 1758 he became a Fellow of the Royal Swedish Academy of Sciences. See: Jeff Suzuki, *Mathematics in Historical Context*, 2009, page 242; Frances M. Clarke, *Thomas Simpson and His Times*, (1929); Charles Hutton, "Memoirs of the Life and Writings of the Author," preface within: Simpson's *Select Exercises*, London, 1792. See: Nicholas Hans, *New Trends in Education in the Eighteenth Century,* (1966), p. 190; Florian Cajori, *A History of the Conceptions of Limits and Fluxions in Great Britain, from Newton to Woodhouse*, (1919), pp. 210-11.

PROVENANCE: Rev. Thomas Salwey (ca.1705- after or on 1759), of Ludlow, L.L.D. * Salwey was Rector of Richard's Castle. He married Constance (only daughter of Francis Biddulph) in 1742.
[Note this is not the famous Shropshire Botanist Rev. Thomas Salwey (1791-1877) of the same name].

Francis Galton Laboratory. Karl Pearson In the twentieth century Francis Galton and Karl Pearson led the way in developing statistics into a mathematical discipline. This is mentioned partly because the provenance of this copy of Simpson comes from the Francis Galton Laboratory and was likely in the possession of Pearson himself. Indeed he inscribed his name to some of the books in his collection, though not with this volume. The Galton Lab bookplate is present however and the book is further signed with the initials of one of its known researchers, that of Florence Nightingale David (see below).

F.N.D. Florence Nightingale David (1909-1993), also known as F. N. David was an English statistician, born in Ivington, Herefordshire, England. She was named after Florence Nightingale, who was a friend of her parents. David did not like her forenames and thus always referred to herself as "F. N. David". She attended Bedford College for Women in London, earning her degree in mathematics in 1931. She then joined University College, London to work with Karl Pearson who obtained a scholarship for her, working as his research assistant, resulting in a doctorate received in 1938 (Pearson died in 1934). In 1938 her first book was published, *Tables of the Correlation Coefficient*. During that period she was working with Jerzy Neyman. "During World War II she served as Experimental Officer in the Ordnance Board for the Ministry of Supply, Senior Statistician for the Research and Experiments Department for the Ministry of Home Security, Member of the Land Mines Committee of the Scientific Advisory Council, and as Scientific Advisor on Mines to the Military Experimental Establishment. Her work during this time ranged from the study of bombing patterns and damage to the problem of discovering the placement of enemy land mines and a methodology for randomly placing land mines so as to avoid the semblance of any pattern in their placement." [Garber et.al.] After WWII she came back to University College, London, and was appointed professor in 1962. Five or six years later she took a position at the University of California, Riverside, becoming head of the Department of Statistics in 1970. Retiring in 1977 she came to Berkeley and continued her research. This copy of Simpson bears her initials on the Francis Galton Laboratory bookplate; she gave her books to Margaret Stein of Stanford University. See: M. J. Garber D. V. Gokhale J. M. Utts R. J. Beaver, Chair, "Florence Nightingale David, Statistics: Riverside." [Obituary]; "A conversation with F.N. David," Statistical Science, Vol. 4, No. 3,235-246 by Nan Laird; J. Utts, "Florence Nightingale David 1909-1993: Obituary," *Biometrics*,

(1993) 49, 1289-1291; Norman L. Johnson & Samuel Kotz (eds.), *Leading Personalities in Statistical Sciences from the Seventeenth Century to the Present*, Wiley, 1997 (pp. 91-92).

ESTC [Laws of Chance] T78204; [Fluxions] N7839; [Three lectures] N14306; [Langrish] T65047.

See: Theodore M. Porter, *Karl Pearson: The Scientific Life in a Statistical Age*, (2010), page 290-1: "Simpson … was a scoundrel, supporting himself by converting De Moivre's great discoveries into textbook routines."

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FIRST OFFICIAL PUBLIC ANNOUNCEMENT ON THE MANHATTAN PROJECT
THE CREATION OF THE ATOMIC BOMB

42. **SMYTH, Henry DeWolf** (1898-1986); **United States. War Department. Corps of Engineers**. *A General Account of the Development of Methods of Using Atomic Energy for Military Purposes Under the Auspices of the United States Government 1940-1945*. Washington, D.C.: Government Printing Office, 1945. ¶ [10 ⅜ x 7 ⅞ inches] Sm. 4to. [193] pp. With page IV-7 printed upside down [IV-8 positioned correctly]. [After the unpaged front matter, which is printed on one side of the leaf, each chapter has separate pagination and the pages of the Appendices are numbered A1-1 and so forth."] Original cream-colored textured card-wrappers, lithoprinted on the front "Released for Publication on _____", side-stapled [2]; corners curled, variously soiled (representative of 'normal' exposure). Signature of M.J. Coffee. Good.

PROVENANCE: "M.J. Coffee / Rm 213 Chemistry Bldg. / Ohio State Univ. / Columbus, Ohio" With an inscribed index card, "This is my copy of the A-Bomb record sent to all the people who were instrumental in perfecting the bomb used on Hiroshima + Nagasaki. It was sent out after the war to people who worked for the Manhattan Project. I was at the Ohio State University in Columbus Ohio."

$ 4,000

LIMITED EIDTION of about 1,000 copies. [Jones]. First official government statement printed and released [on August 12, 1945] solely for persons related to the project and the press, being the first printed account of the development of the Manhattan Project and

the atomic bomb, issued just six days after the bombing of Hiroshima. The lithoprinting was done in the Adjunct General's Office in the Pentagon.

Coleman describes the conditions by which this book was put together, "It is apparent that gathering the leaves for binding was done in haste under the pressure of tight security precautions. Pages are lacking or repeated in several copies that have been seen." – p. 206. This copy is complete.

"Researchers should note that correspondence dealing with the writing and editing of the Smyth Report is mainly located in Series V, Smyth Report. This correspondence appears to have been filed by Smyth with related materials (i.e., notes, draft manuscripts, early printings) for several reasons. His primary intent appears to have been continuity; the correspondence discussing his work on the Smyth Report often refers to specific drafts, now also filed in Series V. These letters were also often classified "Secret" and "Top Secret" along with his various manuscript versions from 1944 through 1945. These materials remained together over the years while in Smyth's possession, periodically undergoing review for declassification as a group by the U.S. AEC. For these reasons, as well as the fact that Smyth meticulously arranged Series V himself, the correspondence dealing with the Smyth Report has been maintained in its original order and assigned to this separate series. Cross referencing has been done for correspondents who appear in Series V, Smyth Report; the existence of letters in Series V has been noted under the appropriate correspondent's name in the Series I section of the container list." – American Philosophical Society, Henry DeWolf Smyth Papers.

In addition, page VI-12 contains the sometimes missing "secret" classified content dealing with plutonium production rates. This copy contains both the entire section V and the plutonian production rates from VI-12.

"The story of the development of the atomic bomb by the combined efforts of many groups in the United States is a fascinating but highly technical account of an enormous enterprise. Obviously military security prevents this story from being told in full at this time. However, there is no reason why the administrative history of the Atomic Bomb project and the basic scientific knowledge on which the several developments were based should not be available now to the general public. To this end this account by Professor H.

D. Smyth is presented.¶ All pertinent scientific information which can be released to the public at this time without violating the needs of national security is contained in this volume …" – Major General L.R. Groves (foreword).

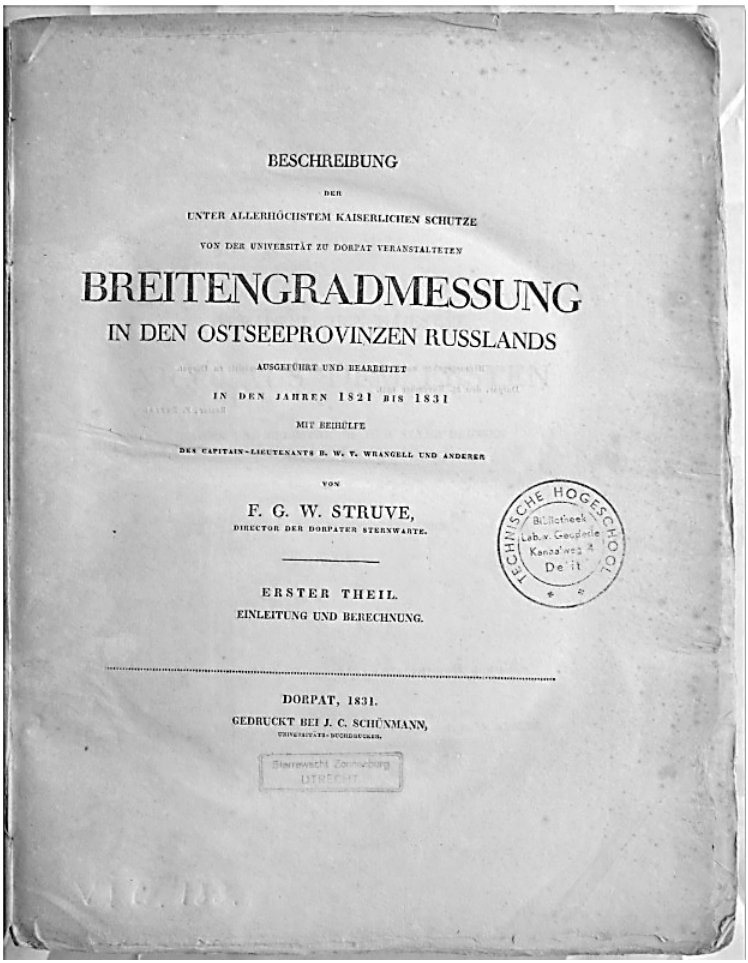
"There was published on 12 August 1945 (six days after the atomic attack on Hiroshima) the remarkably full and candid account of the development work carried out between 1940 and 1945 by the American-directed by internationally-recruited team of physicists, under the code name of 'Manhattan District', which culminated in the production of the first atomic bomb... Compiled by Professor Smyth of Princeton, a consultant to the 'Manhattan District' project at Los Alamos, whose commandant General L.R. Groves provided the foreword, 'the Smyth Report', as it is familiarly known, was published at one dollar by the U.S. Superintendent of Documents" – *Printing and the Mind of Man*, 422e.

Smyth (1898-1986), Professor of Physics at Princeton, served as a consultant to the Manhattan Project from 1943-45. After the war he was appointed Commissioner of the U.S. Atomic Energy Commission, from 1949-54.

☼ Coleman 3 [and earliest obtainable issue], see: Earle E. Coleman, "The 'Smyth Report': A descriptive checklist," *Princeton University Library Chronicle*, vol. 37 (1976), pp. 204-218; Smyth, "The 'Smyth Report,'" *Princeton University Library Chronicle,* 37 (1976), pp. 173-189. Jones, Vincent, *Manhattan: The Army and the Atomic Bomb*. Washington, DC: United States Army Center of Military History, 1985, pp. 560-1.

PIONEERING GEODETIC TREATISE
RARE IN ORIGINAL WRAPPERS

43. **STRUVE, Friedrich Georg Wilhelm** (1793-1864). *Beschreibung der unter allerhöchstem kaiserlichen Schutze von der Universität zu Dorpat veranstalteten Breitengradmessung in den Ostseeprovinzen Russlands ausgefürt und bearbeitet in den Jahren 1821 bis 1831 mit Beihülfe des Capitain-Lieutenants B. W. V. Wrangell und Anderer.* Dorpat, Estonia: J. C. Schünmann, 1831.


BESCHREIBUNG

DER

UNTER ALLERHÖCHSTEM KAISERLICHEN SCHUTZE

VON DER UNIVERSITÄT ZU DORPAT VERANSTALTETEN

BREITENGRADMESSUNG

IN DEN OSTSEEPROVINZEN RUSSLANDS

AUSGEFÜHRT UND BEARBEITET

IN DEN JAHREN 1821 BIS 1831

MIT BEIHÜLFE

DES CAPITAIN-LIEUTENANTS B. W. v. WRANGELL UND ANDERER

VON

F. G. W. STRUVE,

DIRECTOR DER DORPATER STERNWARTE.

ERSTER THEIL.

EINLEITUNG UND BERECHNUNG.

DORPAT, 1831.

GEDRUCKT BEI J. C. SCHÜNMANN,

UNIVERSITÄTS-BUCHDRUCKER.

TECHNISCHE HOGESCHOOL Bibliotheek Lab.v. Geodesie Kanaalweg 4 Delft

Sterrewacht Zonnenburg UTRECHT

¶ 2 volumes in 1. 4to. [8], 360; [8], 424, [3] pp. 13 folding plates; light scattered foxing especially at plates and through p. 20, pages largely un-opened. Original printed wrappers; edges and spine chipped, top spine edges torn, hand-written ink front cover title. Spine and front cover library labels, rubber stamps to front cover and title-page (observatory in Utrecht and a Technical Library in Deft). UNTRIMMED IN ORIGINAL PUBLISHER'S PLAIN WRAPPERS, AS ISSUED. Very good +.

$ 6,500

FIRST EDITION of Struve's pioneering geodetic work. These measurements represent the initiation of the Struve Geodetic Arc, "a chain of survey triangulations stretching from Hammerfest in

Norway to the Black Sea, through ten countries and over 2,820 km, which yielded the first accurate measurement of a meridian" (*Wikipedia*). "The work carried out under Dr. Struve's supervision in Tartu during 1816-1855 was of considerable importance for determining the shape and size of the Earth and represented an important step in the development of astronomy, geodetics and cartography. The measurement of the arc constituted a rare example of collaboration for a scientific cause between the scientists and rulers of a number of countries" (*ER*).

The plates are mainly diagrams of scientific instruments employed by Struve.

"In 1819, M. Struve, who was then director of the observatory of Dorpat, while engaged in the survey of Livonia, suggested to the University of Dorpat the desirableness of measuring the arc of the

meridian included between the island of Hogland in the Gulf of Finland, and the town of Jacobstadt in the province of Courland.

The sanction of the emperor having been obtained for the project, the operations were commenced and were finally completed in the year 1827…. In the same year in which M. Struve brought to a close the operations connected with this arc, General Tenner also completed measurement of the arc of the meridian included between Bristen in Courland, and Belin in the province of Grodno…. It became desirable to connect trigonometrically the two arcs together. This was effected in 1827-8, by M. Struve and General Tenner, independently of each other, and the results upon being transmitted separately in sealed letters to Bessel, were found to exhibit a most satisfying accordance" (Knight, p. 349).

"From 1828 to 1831 Struve and Tenner had been engaged in joining their respective measurements of meridian arcs. The description of this operation was published in 1832; the full account of Struve's work having appeared in 1831 in the…*Breitengradmessung*" (Abbe, p. 375).

Struve was a Danish-Norwegian astronomer who is best known for his studies of double stars, making micrometric measurements of 2714 of them from 1824-1837, and his work in the field of geodesy. He taught astronomy at the University of Dorpat for many years, before becoming director of the Central Observatory in Pulkova, Russia, in 1839. "In addition to his teaching, Struve's research was also significant in a number of areas, notably observation of double stars; determination of stellar parallaxes and distribution of stars in space; observation of planets, the moon, comets, and auroras; meridian measurements; statistical techniques; and the design and refinement of astronomical and geodetic instruments" (*DSB*, vol. XIII, p. 109).

"At Pulkova, he determined anew the constant of aberration, but was chiefly occupied in working out the results of former years' work and in the completion of the geodetic operations in which he had been engaged during the greater part of his life. He had commenced them with a survey of Livonia (1816-19), which was followed by the measurement of an arc of meridian of over 34 in the Baltic provinces of Russia" ("Struve," *Encyclopaedia Britannica,* p. 641).

PROVENANCE: Rubber-stamps of "Technische Hogeschool, Bibliotheek Lab. v. Geodesie, Kanaalweg 4, Delft," a library at Delft University of Technology, and "Sterrewacht Zonnenburg, Utrecht," the Sonnenborgh Observatory, both in The Netherlands.

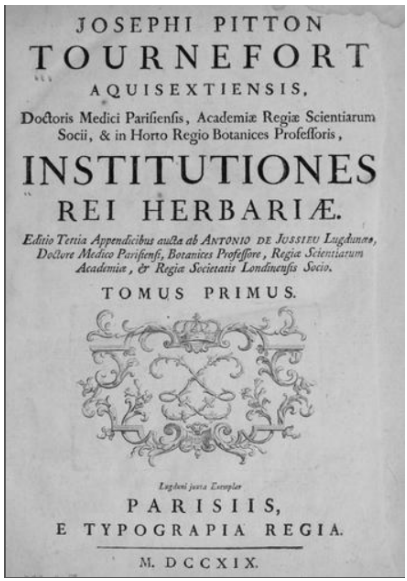
☼ *Estonian Review*, Jul. 11-24, 2005; Knight, Charles. "Geodesy." *English Cyclopaedia*. Vol. 4. London: Bradbury, Evans, 1867; Abbe, Cleveland. "Dorpat and Poulkova." *Annual Report of the Board of Regents of the Smithsonian Institution*. Washington, DC: Government Printing Office, 1868; "Struve." *The New Werner Twentieth Century Edition of the Encyclopaedia Britannica*. Vol. 22. Chicago: Werner, 1907.

"CLASSIFICATION OF ALL PLANTS INTO GENERA"

44. **TOURNEFORT, Josephi Pitton de** (1656–1708). *Institutiones Rei Herbariae*. Paris, Typographia Regia, 1719. ¶ Three volumes (1 text and 2 plate volumes.). 4to. [lvi], 695, [x], 58, [2 blank] pp. [1], 252; [1], 253-489 ff. Engraved title-vignette and chapter heading, two engraved titles (for the plate volumes), and 489 engraved plates, 4 indices. Original mottled paper over boards with ca. 20th century three-quarter calf; extremities worn, internally very good. Bookplates and ink signatures (on title-pages) of Robert Sonnenschein, M.D. [1935, Chicago, IL].

$ 1,250

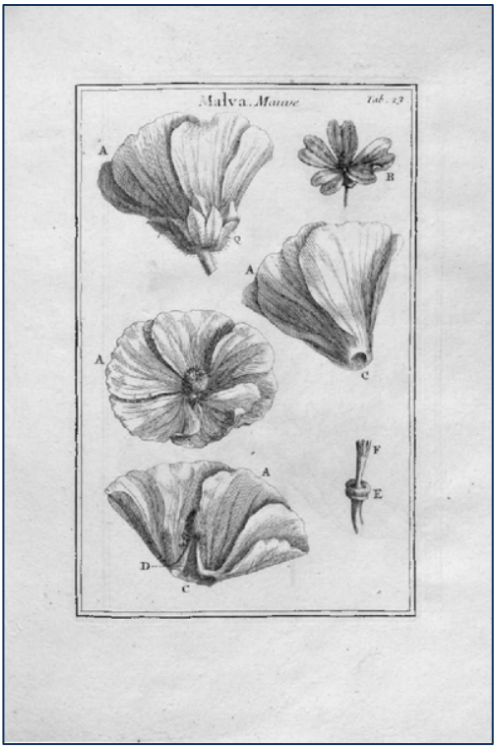
Third edition* with an appendix by the French naturalist and physician Antoine de Jussieu (1686–1758) and *Corollarium Institutionum Rei Herbariae in quo plantae 1356 munificentia Ludovici Magni in orientalibus reg. observratae recensentur...* (58 pp.). After studying medicine at the University of Montpellier, Jussieu travelled through Spain, Portugal, and southern France, building a large collection of plants. At the year of Tournefort's death in 1708 Jussieu succeeded Tournefort as Director at the Jardin du Roi, later named the Jardin des Plantes. This edition of Tournefort's is Jussieu's most important work. He became a member of the Académie des Sciences as a result of his work.


JOSEPHI PITTON
TOURNEFORT
AQUISEXTIENSIS,
Doctoris Medici Parisiensis, Academiæ Regiæ Scientiarum Socii, & in Horto Regio Botanices Professoris,
INSTITUTIONES
REI HERBARIÆ.
Editio Tertia Appendicibus aucta ab ANTONIO DE JUSSIEU Lugdunæ, Doctore Medico Parisiensi, Botanices Professore, Regiæ Scientiarum Academiæ, & Regiæ Societatis Londinensis Socio.
TOMUS PRIMUS.
Lugduni juxta Exemplar
PARISIIS,
E TYPOGRAPIA REGIA.
M. DCCXIX.

"Tournefort's significance lies in the fact of having classified all plants into genera. Hundreds of the generic names coined or accepted by him were later adopted by Linnaeus and are in use today."

The significance of Tournefort to eighteenth-century botany, and to that of today, lies in his classification of all plants into genera... The Institutiones (1700) was mainly a translation of the *Eléments de botanique* into Latin; and the *Corollarium Institutionum Rei Herbariae* (1703) was a supplement written on Tournefort's return from travels to the Near East, describing 1350 genera which he had found. The edition of 1719 is a reprint of these two works but made substantive by the addition of an appendix by Antoine de Jussieu.


LUDOVICO
MAGNO.
SI quid utilitatis ex hoc qualicumque laborum meorum monumento poterit aliquando proficisci, id totum immortalibus tuis, REX MAXIME, erga Litteratos beneficiis



The engravings were drawn by Claude Aubriet (ca.1665 or 1651–1742), the French illustrator and botanical artist, born at Chalons-sur-Marne, who had earlier worked on Tournefort's celebrated *Elemens de botanique*, 1694. "… he accompanied Tournefort and Andreas von Gundelsheimer on an expedition to the Middle East. There he made drawings of historical sites and the region's flora. After his return to Paris, Aubriet continued his work with the botanists at the Jardin du Roi." [Wikipedia]. "These illustrations, made no doubt under Tournefort's direct supervision, are remarkable

for the accuracy of their dissections." Blunt, p. 124.

*There is at least two issues of this work: see below.

☼ Hunt 450 (3rd edition); Stafleu & Cowan, 14.783; Nissen BBI, 1977.

* Alternative issue of the dedication with the type set differently than the present issue. The engraving with the cherubs and the elaborate "S" initial are entirely different in our issue, which is dated February 1700 in my copy, perhaps thus reprinting the original. I have not been able to see the entire volume of the alternate issue, but the text was reset and the two embellishments are also different; it would be necessary to check further the date at the end of the dedication to see if that text is the same or if it is updated (to 1719).

PROVENANCE: Ralph Robert Sonnenschein, M.D. (1923-2011), born in Chicago to Flora and Robert Sonnenschein (1879-1939). The son inherited the father's books (this being one of them). The younger Sonnenschein lived in Los Angeles, went to medical school at Northwestern and interned at the University of Illinois. He came to UCLA in 1951 and retired in 1988. Member: American Physiological Society and Honorary Member of Hungarian Physiological Society. His interests were in the history of physiology and medical portrait medals.
Dr. Robert Sonnenschein (1879-1939), his father, was a physician and Professor of Laryngology and Otology at Rush Medical College from 1924-1939. Sonnenschein was also an avid collector and scholar of medical history. Sonnenschein was an avid book collector and his interests included otolaryngology, hearing detection, portraits, bookplates and the history of medicine each represented in his various medical history collections at the University of Chicago.

45. **VIERI, Francesco de** (active 1547-1590). *Trattato dim. Francesco de'Vieri, Cognominato il Verino Secondo cittadino Fiorentino, Quale si Contengono itre primi libri dell metheore. Nuovamente ristampati, & da lui ricorretti con l'aggiunta del quarto libro. Con licenza, & privilegio.* In Fiorenza, Appresso Giorgio Marescotti, MDLXXXII. (1582). ¶ Small 8vo. [xiv], 424, [8] pp. Apparently lacking blank after a7 (preliminaries). Title vignette (ship at sea), woodcuts initials, dedication – to Francesco de Medici, with woodcut of Florence, 2 woodcuts (p. 132 showing a rainbow, p. 135 marginal woodcut); title

damaged with some loss, especially the top right corner which is trimmed and has opaque paper replacing the missing portion – lacking "TO" the last two letters of "Trattato" on title (somewhat worn title), mild waterstaining (mostly to margins), second leaf torn at gutter. Contemporary half vellum, marbled boards, manuscript spine title; rubbed. Good.

$ 175

Early issue (first printed in 1573 by the same printer) of the first comments on the first three books of "Meteorologica" of Aristotle in in the Italian language. Vieri, Professor at the University of Pisa, studied not only comets and meteors but also the Sun (p. 141), rainbows [water arc], earthquakes, the evaporation of water, the Milky Way, and the phenomenon of tides. Riccardi , II, 599.

46. **WELLS, Edward** (1667-1727). *The Young Gentleman's Trigonometry, Mechanicks, and Opticks. Containing such elements of the said Arts or Sciences, as are most Useful and Easy to be known.* [With]: *The Young Gentleman's course of Mathematicks: Containing the more Useful and Easy Elements of Mechanicks, more properly so called, of Staticks, and Hydrostaticks.* [Including]: *The Young Gentleman's Opticks … of Catoptricks, Dioptricks, and Perspective.* London: Printed for James Knapton, 1714, 1713. ¶ Two volumes in one (three parts). 8vo. [viii], 83, [1], [160]; 171, [1] pp. 8 + 8 [-9] + 14 plates (2 folding) [=30 (of 31) total pls., lacking pl. 9 from the second part (containing figs. 52, 53)], errata. Includes 154 pages of logarithm and "Sines and Tangents" tables. Original full antique blind-ruled calf; joints split, but reinforced by kozo. [Note: Pastedowns are exposed, showing earlier printed leaves bound into this volume (one leaf printed in Basel by Joannem Oporinum, [ca.1562] inscribed with the owner's name and date 1707; the other leaf, printed in [1591], is from, *Clarissimi theologi Magistri Ricardi de Mediavilla seraphici Ord. Min. Conuent: Super quatuor libros Sententiarum Petri Lombardi quæstiones subtilissimae*…]. Ownership signature of Samuel Roe, 1778. Good.

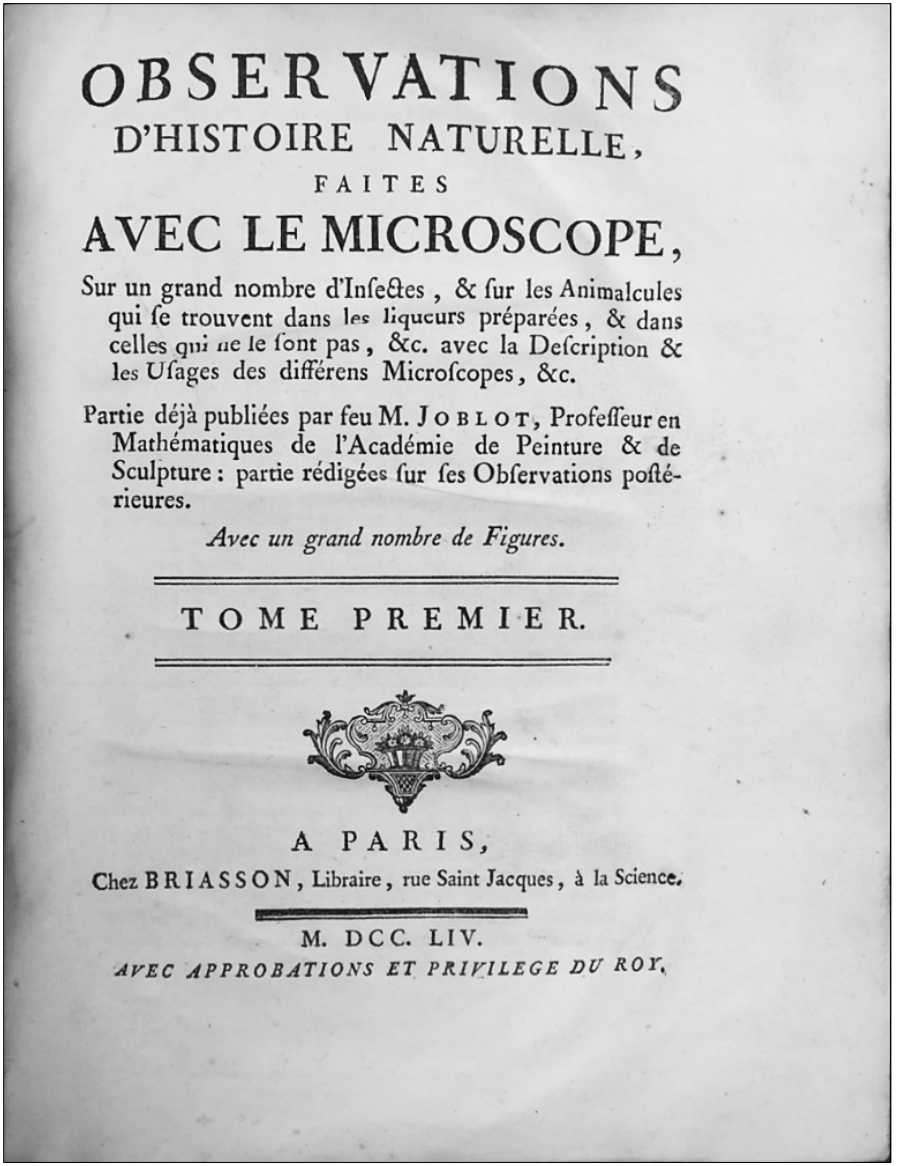
$ 450

An early work in English to present the sciences, especially mathematics, in a plain and simple form understandable for students or practitioners alike. As an instruction guide this represented a distribution of learning to the young. The popularity of the work is represented in the complexity of its printing history. This and other

similar titles from Edward Wells were issued in several forms or formats, sometimes a new edition, but often combined together with a series of Wells' other writings. Even so the scarcity of these books seems evident when they are looked at from the number of known copies or how many are not seen on the market. Wells (1667-1727) was a mathematician, geographer, an Oxford tutor, and divine. From 1680 he attended Westminster School. From there he went to Christ Church, Oxford, taking his masters in 1693. He also wrote widely, including several works relating to teaching basic scientific pursuits, among them astronomy, optics, arithmetic, technology / mechanics, geography. One such book was: *The young gentleman's course of mathematicks*, 1712-4.

PROVENANCE: "Samuel Roe, 1778" There are three people or pieces of evidence to consider – [I]: could this be the Reverend Samuel Roe, a descendent of Samuel Beckett (1906-1989)? If so, then he hails from Leixlip, County Kildare, Ireland, and with a heritage of land surveying among his kin. Reverend Samuel Roe was the vicar of Gartree. Samuel Becket's father William Frank Beckett, a surveyor, married Mary Jones Roe, a nurse, in 1901/2 in Foxrock, south of Dublin. See: James Knowlson, *Damned to Fame, The Life of Samuel Beckett*, Simon & Schuster, 1996. [II]: If not from Ireland, then another Samuel Roe appears in the records from Ilkeston, England. In 1775 he gave £100 to the poor and the gift is recorded. [III]: Yet a third possible ROE: Author of several sermons: *Another pertinent and curious letter humbly offered to the public, in favour of a revisal, and the amendment, of our liturgy*. By Samuel Roe, A.M. vicar of Stotfold in Bedfordshire, Cambridge: Printed for the author, by Fletcher and Hodson ; and sold by S. Crowder, in Pater-Noster-Row ; J. Dodsley, in Pall-Mall ; and M. Hingeston, near Temple-Bar, London, 1768. [AND:] *Useful remarks on some proposed alterations in our liturgy. A word to the Quakers, on their epistle at the Yearly Meeting, 1769. With a defence of the author, and his book enthusiasm detected, defeated. By Samuel Roe, M.A. Vicar of Stotfold in Bedfordshire*. Cambridge: printed and sold by Fletcher and Hodson: sold also by S. Crowder, J. Dodsley, and M. Hingeston, London, [1769?]. Another title: *The great case of tithes considered / by Samuel Roe. Very interesting to all true Protestants and lovers of their country; purely intended for the increase of unity and peace under our present happy establishment. With just remarks on a cunningly refined ad---ss, &c*. London: printed for J. Wilkie 1761.

☼ *Dictionary of National Biography*; Wellcome V, p. 411 (differing slightly as their third part is dated 1714 instead of 1713).



OBSERVATIONS
D'HISTOIRE NATURELLE,
FAITES
AVEC LE MICROSCOPE,

Sur un grand nombre d'Inſectes, & ſur les Animalcules qui ſe trouvent dans les liqueurs préparées, & dans celles qui ne le ſont pas, &c. avec la Deſcription & les Uſages des différens Microſcopes, &c.

Partie déjà publiées par feu M. JOBLOT, Profeſſeur en Mathématiques de l'Académie de Peinture & de Sculpture : partie rédigées ſur ſes Obſervations poſtérieures.

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[22 Joblot]

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