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The 50th California International Antiquarian Book Fair, Oakland
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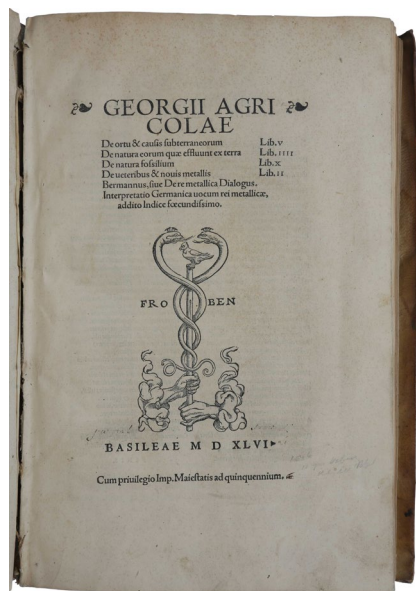
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are available by following the url mentioned at the end of each item.*

The first handbook of modern systematic mineralogy

1. **AGRICOLA, Georg.** *De ortu & causis subterraneorum ... De natura fossilium*. Basel: Hieronymus Froben, 1546.

\$37,500

An exceptionally fine copy, completely untouched in its original binding, of 'the first handbook of modern systematic mineralogy' (*One Hundred Books Famous in Science* 2a). "Georgius Agricola (latinized from the German 'Georg Bauer') became interested in the theoretical and practical aspects of mining, metallurgy and geology after being appointed town doctor of Joachimsthal, a silver-mining community on the east side of the Erzgebirge mountains in what is now Czechoslovakia. He published his first work on mining, *Bermannns sive de re metallica dialogus*, in 1530, and followed it sixteen years later with this collection of five treatises on geology and metallurgy, including the first work on physical geology ("De ortu & causis subterraneorum"); the first systematic mineralogy ("De natura fossilium"); a work on subterranean waters and gases ("De natura eorum quae effluunt ex terra"); a treatise on references to minerals and mining in classical history ("De veteribus et novis metallis"); and a reprint of *Bermannns*. "De natura fossilium," after *De re metallica*, must be considered Agricola's most important work; in it he rejected the traditional arbitrary alphabetical listing of "fossils" (i.e., stony substances dug from the earth), and attempted to classify them according to their physical properties" (Norman).



Grolier/Horblit 2a; Hoover 14; Norman 19; Stillwell *Science* 565. See PMM 79.

<http://sophiararebooks.com/4140>

Invention of the breathing apparatus

2. **ALDINI, Giovanni.** *Art de se préserver de l'action de la flamme, appliqué aux pompiers et à la conservation des personnes exposées au feu...* [Bound with:] *Expériences faites à Londres pour perfectionner et faire connétre plus généralement l'art de se préserver de l'action de la flamme*. Paris: Madame Huzard (née Vallat la Chapelle), 1813.

\$5,000

First editions, in a stunning contemporary red morocco binding, of these important and beautifully illustrated works on fire-fighting including, among other things, the invention of the first fire helmet which allowed respiration during fires and protected the fire-fighter from inhaling hot air and smoke. Both works are very rare, especially when complete with the fifth plate which is almost always missing. The 'Apparatus Aldini' was a thick mask of asbestos worn over the head; another mask made of woven iron wire was placed over the first. The device provided a measure of heat protection, provided the wearer was able to maintain the air space between the two masks and not allow the iron mask to touch the inner mask. The functionality of the mask left much to be desired, but the scientific testing by Aldini was ground breaking – he conducted tests of his apparatus under actual fire conditions. This was the start of serious efforts to protect fire-fighters from smoke as they operated at fires. The first work describes the equipment and tests carried out in Milan, Turin, Geneva and Paris; the second work describes tests carried out for the Royal Society in London.



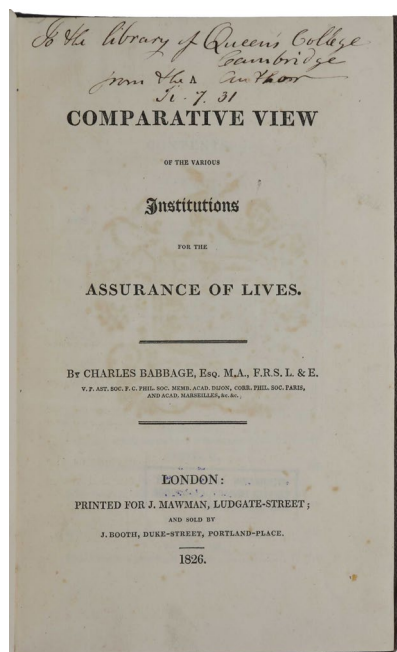
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Presentation copy of the first thorough treatise on actuarial science

3. **BABBAGE, Charles.** *A comparative view of the various institutions for the assurance of lives.* London: J. Mawman, 1826.

\$8,500

First edition, inscribed presentation copy, of Babbage's first substantial published work, the first thorough treatise on actuarial theory, complete with folding table of mortality statistics, generally considered the first reliable life table. It serves as an early example of the desire and need for accurate statistics and calculations that would be a driving force throughout Babbage's life. (He was, after all, the man who reputedly once wrote to poet Alfred Lord Tennyson and demanded he change the lines: "Every moment dies a man, Every moment one is born" to "Every moment dies a man, Every moment one and one-sixteenth is born.") In this work, Babbage "provided a simple guide to the quantitative basis of life insurance and fulminated against "the disgraceful practices which prevail at some assurance of-fices" (p. ix), such as allowing lawyers and other interested parties to sell policies on commission. Babbage's book was translated into German in 1827, and formed the basis for the Life Assurance Bank of Gotha, which also adopted Babbage's actuarial tables" (OOC). ABPC/RBH record ten copies in the last 50 years, none of them presentation copies. *Provenance:* Inscribed by Babbage on title page "to the library of Queens' College, Cambridge, from the Author," and dated July 1831; bookplate and withdrawal stamp of Queens' College, Cambridge on title verso.



Hook & Norman, *Origins of Cyberspace*, no. 36

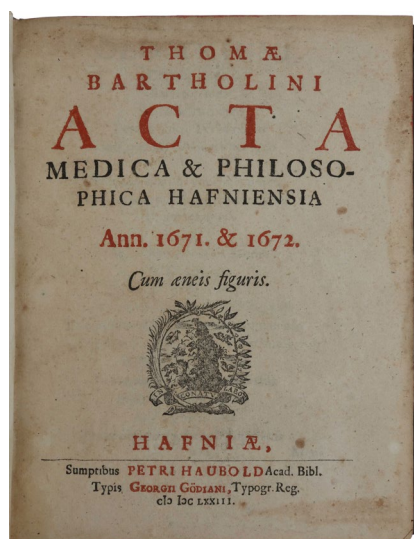
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Complete run of one of the earliest medical periodicals

4. **BARTHOLIN, Thomas; [STENO, Nicolaus, et al.]** *Acta Medica & Philosophica Hafniensia.* Copenhagen: Peter Haubold, 1673-1680.

\$12,500

Rare complete set (i.e., 5 volumes and 63 plates) of one of the first medical journals. While Garrison lists 3 previous journals, 2 of these were published for one issue only. Only the *Giornale dei letterati* (Parma, 1668-88) predates this. Among the many significant contributions, including more than 100 by Bartholin himself, are the last published scientific works of Niels Stensen (i.e., Steno). Stensen returned from Italy to Denmark in 1672 to accept an appointment at the University of Copenhagen under Bartholin. During his stay he carried out a number of experiments, two of which are published in vol. I: *Embryo monstro as finis Parisiis dissectus* (pp.200-3) and *Uterus Leporis Proprius, foetum resolvable* (pp.203-7). During his stay in Italy, however, Stensen converted to Catholicism and found himself the target of attack from orthodox Protestants. He became more interested in theological debates than scientific research and in 1674 he returned to Florence and in 1685 took Holy Orders. "The Copenhagen biologists, under the quickening influence of Thomas Bartholin, produced five volumes of transactions known as the *Acta Medica et Philosophica Hafniensia*, which is now very rare and almost entirely forgotten." (Cole). The leading authors besides Thomas Bartholin and Niels Steensen were Holger Jacobsen (Jacabaeus), Caspar Bartholin, Ole Borch (Borrichius), Ole Worm, Simon Paulli, Johan Rodhe, Caspar Kolichen and several others.



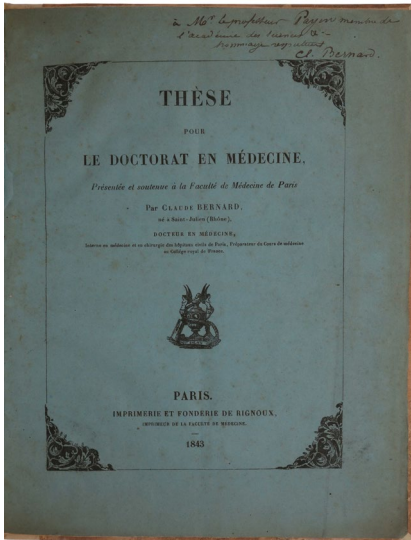
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Presentation copy of his doctoral thesis

5. **BERNARD, Claude.** *Du suc gastrique et de son rôle dans la nutrition.* Paris: Rignoux, 1843.

\$11,500

First edition, very rare inscribed copy, of Claude Bernard's doctoral thesis on the gastric juice and the process of digestion. This thesis "was a work both useful to medicine and dedicated to pure science, since it furnished new facts on gastric digestion and the transformations of carbohydrates in the animal organism" (DSB). "Bernard's doctoral thesis on the gastric juice published the first results of his experiments on the artificial ingestion of food substances. It linked two important discoveries: first, that when sucrose (a complex sugar) is injected into the bloodstream, it is eliminated in the urine, while injected glucose (a simple sugar) is retained in the organism; and second, that gastric juice transforms sucrose into physiologically usable sugar; i.e. one that, when injected, is not eliminated" (Norman). "The work of Claude Bernard constitutes the founding of modern experimental physiology. His scientific career started with two series of precise and well delimited researches: on the one hand, the chemical and physiological study of gastric digestion, and on the other, experimental sections of nerves" (DSB). ABPC/RBH record only two copies sold in the last 75 years, that of Haskell Norman being the only presentation copy. *Provenance:* Inscribed by Bernard on upper wrapper to "Professor Payen en homages respectueux." The recipient is probably Anselme Payen (1795-1878), French chemist known for discovering the enzyme diastase and the carbohydrate cellulose.



Norman 197; Garrison-Morton 992.3

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The law of large numbers

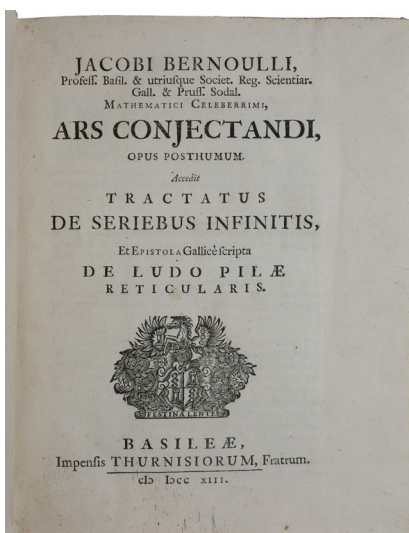
6. **BERNOULLI, Jacob.** *Ars conjectandi.* Basel: Impensis Thurnisiorum Fratrum, 1713.

\$40,000

First edition, an exceptionally fine copy, rare in this condition. "Jakob 1 Bernoulli's posthumous treatise, edited by his nephew [Nicholas I Bernoulli], (the title literally means "the art of [dice] throwing") was the first significant book on probability theory: it set forth the fundamental principles of the calculus of probabilities and contained the first suggestion that the theory could extend beyond the boundaries of mathematics to apply to civic, moral and economic affairs.

The work is divided into four parts, the first a commentary on Huygens's *De ratiociniis in ludo aleae* (1657), the second a treatise on permutations (a term Bernoulli invented) and combinations, containing the Bernoulli numbers, and the third an application of the theory of combinations to various games of chance. The fourth and most important part contains Bernoulli's philosophical thoughts on probability: probability as a measurable degree of certainty, necessity and chance, moral versus mathematical expectation, a priori and a posteriori probability, etc. It also contains his attempt to prove what is still called Bernoulli's Theorem: that if the number of trials is made large enough, then the probability that the result will lie between certain limits will be as great as desired" (Norman). This was the first statement of the law of large numbers.

PMM 179; Dibner 110; Evans 8; Grolier/Horblit 12; Sparrow 21; Norman 216.



<http://sophiararebooks.com/4063>

A new branch of geometry founded

7. BERTHOLET, DAUBENTON, LAPLACE, LAGRANGE, MONGE, et al. *Séances des Ecoles Normales recueillies par des sténographes et revues par les professeurs*. Paris: Reynier [Imprimerie du cercle sociales], An [III]-IV [i.e. 1795-96/97].

\$18,000

First edition of the *Séances des Écoles Normales*, of which the six volumes of *Leçons* are here in the extremely rare first issue. A very fine set, uniformly bound, with contemporary corrections and notes on the tables and with the 28 plates bound separately with wide margins. These volumes contain the first, preliminary, edition of Laplace's *Essai philosophique sur les probabilités* and the true first edition of Monge's *Géométrie descriptive*, which was "to be the starting-point of the interest of French mathematicians in geometry and of the upheaval mathematics underwent in the 19th century" (Sakarovich, p. 226), as well as a substantial number of major original papers by Laplace, Lagrange, Berthollet, Haüy and others. These volumes are an almost unique document in the history of science before the advent of taped 'oral history', containing as they do verbatim transcripts of these lectures and discussions. In the second edition of the *Leçons* the text was rearranged, edited, and in some cases different texts substituted, so that this first edition is of the greatest significance as original documentation. We know of only one other copy of this first issue having appeared on the market (Quaritch, Cat. 1110, item 31), but that copy lacked several signatures.



Landmark Writings in Western Mathematics 17

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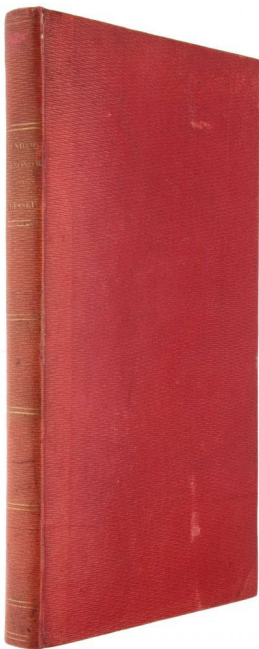
A landmark in the history astronomical observations

8. BESSEL, Friedrich Wilhelm. *Fundamenta astronomiae pro anno MDCCCLV deducta ex observationibus viri incomparabilis James Bradley in specula astronomica Grenovicensi per annos 1750-1762 institutis*. Königsberg: Friedrich Nicolovius, 1818.

\$2,400

A fine copy of this work which "constitutes a milestone in the history of astronomical observations, for until then positions of stars could not be given with comparable accuracy: through Bessel's work, Bradley's observations were made to mark the beginning of modern astrometry" (DSB). "Bessel's reduction of the English astronomer James Bradley's star position observations for the year 1755 marks the beginning of modern astrometry. Bessel recognized that Bradley's accurate observations could be used to create a reference system for measuring the positions of stars and planets, and to aid in determining accurate positions for the earliest possible epoch. Recognizing that Bradley, although adept at the art of observation, had not been able to evaluate his extensive data, Bessel established the principle that immediately after an observation, the reduction should be made by the observer himself, taking into account precession, nutation, ablation, refraction and instrument error." (Norman).

Norman 226; Honeyman 311; Houzeau & Lancaster 10117



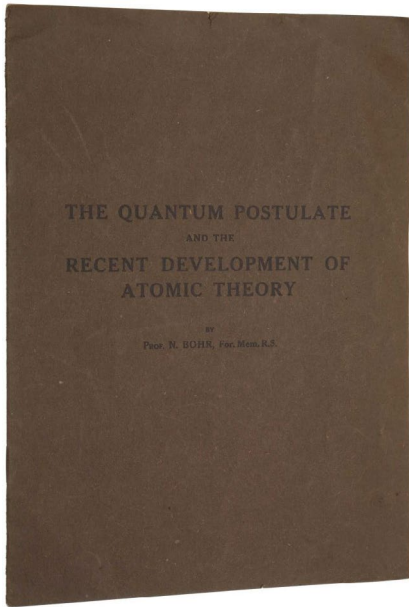
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The principle of complementarity

9. **BOHR, Niels.** *The Quantum Postulate and the Recent Development of Atomic Theory*. [Edinburgh: Clark, 1928].

\$8,750

First edition, extremely rare offprint issue, of this fundamental paper introducing Bohr's statement of his 'complementarity' principle, the basis of what became known as the 'Copenhagen interpretation' of quantum mechanics. "From the epistemological point of view, the discovery of the new type of logical relationship that complementarity represents is a major advance that radically changes our whole view of the role and meaning of science. In contrast with the nineteenth-century ideal of a description of the phenomena from which every reference to their observation would be eliminated, we have the much wider and truer prospect of an account of the phenomena in which due regard is paid to the conditions under which they can actually be observed - thereby securing the full objectivity of the description" (DSB). This is the first copy of this offprint we have seen on the market, and there is no copy on OCLC or COPAC. "The complementarity principle became the cornerstone of what was later referred to as the Copenhagen interpretation of quantum mechanics. Pauli even stated that quantum mechanics might be called 'complementarity theory', in an analogy with 'relativity theory'. And Peierls later claimed that 'when you refer to the Copenhagen interpretation of the mechanics what you really mean is quantum mechanics' ... by the mid-1930s Bohr had been remarkably successful in establishing the Copenhagen view as the dominant philosophy of quantum mechanics." (H. Kragh, *Quantum Generations*, 1999, pp. 209-210).



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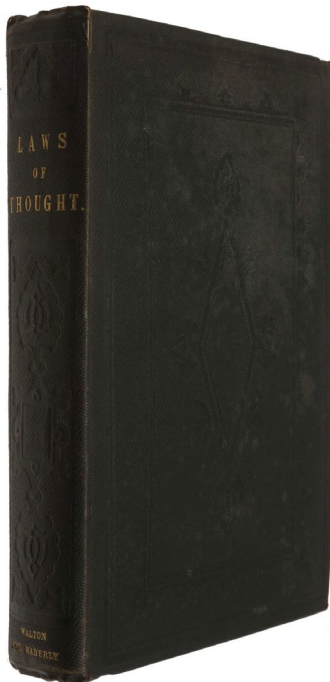
A fine copy, untouched in original publisher's binding

10. **BOOLE, George.** *An Investigation of the Laws of Thought, on which are founded the Mathematical Theories of Logic and Probabilities*. London, and Cambridge: Walton and Maberly; Macmillan & Co., 1854.

\$30,000

First edition, first issue. In this main work of Boole's he gave the first proper presentation of Boolean algebra – "Boole invented the first practical system of logic in algebraic form, which enabled more advances in logic to be made in the decades of the nineteenth century than in the twenty-two centuries preceding. Boole's work led to the creation of set theory and probability theory in mathematics, to the philosophical work of Peirce Russell, Whitehead, and Wittgenstein, and to computer technology via the master's thesis of Claude Shannon, who recognized that the true/false values in Boole's two-valued logic were analogous to the open and closed states of electric circuits." (Hook & Norman, *Origins of Cyberspace*).

OOC 224 (1st issue, re-backed); Erwin Tomasch B198 (2nd issue); Haskell Norman 266 (3rd issue).



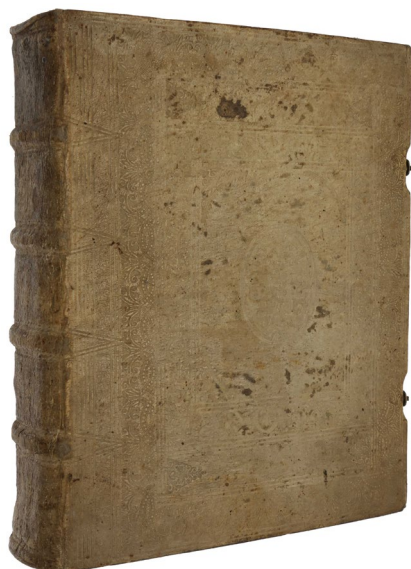
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PMM 203 - The birth of atomic physics

11. BOSCOVICH, Rogerius Josephus. *Philosophiae naturalis theoria redacta ad unicam legem virium in natura existentium*. Vienna: In Officina Libraria Kaliwodiana, 1758.

\$150,000

An exceptionally fine copy, in contemporary blind tooled pigskin, of “Boscovich’s masterpiece” (Norman), a work “now recognized as a fundamental influence on modern mathematical physics” (*Printing and the Mind of Man*), and a notorious rarity. Only two copies of this rare work have appeared at auction: 1. The Honeyman-Garden copy - this lacked the 16-page letter to Scherffer. 2. The Norman-Freilich copy - this had one gathering supplied from another, shorter, copy, and was in a 19th-century binding. OCLC locates US copies at Harvard, Yale, Chicago, Stanford, Indiana, Oklahoma, & Holy Cross. Of these, the Holy Cross copy is actually of the 1759 reprint and the Yale copy lacks the letter to Scherffer. “The first edition is very rare: there was no copy in Lancelot Law Whyte’s Boscovich collection sold in our London rooms 1964; and indeed only one other copy can be traced in the auction records for more than thirty years” (Garden Sale, Sotheby’s 1989).



PMM 203; Norman 277; Garden Sale 150; Freilich Sale 73; Honeyman Sale 427.

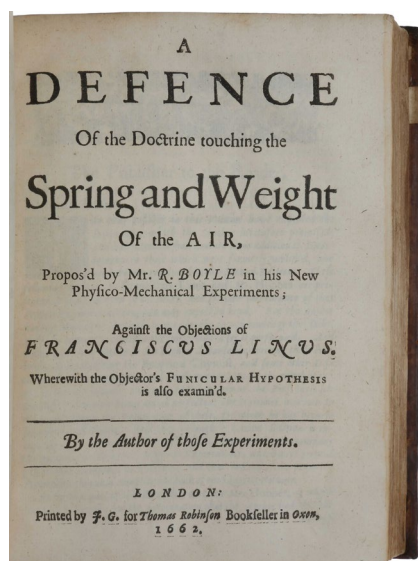
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PMM 143 - Boyle’s Law

12. BOYLE, Robert. *New Experiments physico-mechanical, touching the Spring of the Air, and its Effects; A Defence of the Doctrine touching the Spring and Weight of the Air ... against the objections of Franciscus Linus; An Examen of Mr. T Hobbes his Dialogus Physicus de naturci aeris*. Oxford: H. Hall for T. Robinson [and London: J.G. for Thomas Robinson], 1662.

\$25,000

Second edition, containing the first announcement of Boyle’s law. A fine copy in contemporary English calf. This second edition is “particularly important for what Boyle called an ‘hypothesis’ but what we know as ‘Boyle’s Law’: that the volume of air in a confined space varies inversely as the pressure. He demonstrated this by much experimental detail: with experiments on rarefaction performed by others, including Hooke, and on compression performed by himself” (PMM). Boyle’s law is stated in the second part of this edition, his *Defence* against the attacks of Linus on the first edition of this work (1660). “In the first edition of the *New Experiments* (1660), Boyle had published his experiments proving that (1) air has weight and exerts pressure; (2) the phenomena associated with suction pumps and siphoning are caused by the evacuation of air; (3) air is necessary for life, flame and the transmission of sound; and (4) air is permanently elastic. These statements were attacked by many critics, whom Boyle refuted in an appendix to the second edition, a chapter of which describes the experimental attempts to measure atmospheric pressure that led to the formulation of Boyle’s Law” (Norman).



Dibner 142; Evans 28; Grolier/Horblit 15; PMM 143; Norman 300; Fulton 14.

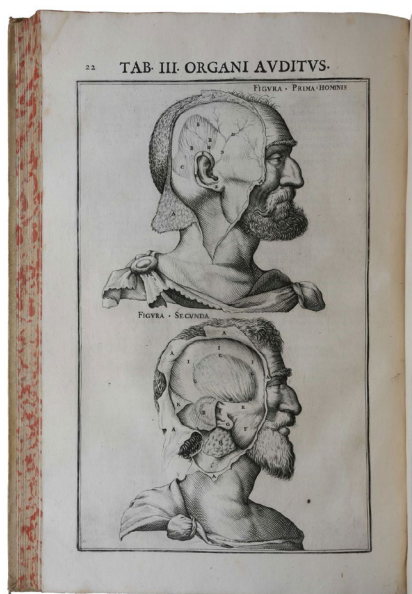
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One of the most ambitious and detailed investigations in comparative anatomy

13. CASSERI, Giulio Cesare. *De vocis auditisque organis historia anatomica*. Ferrara: Baldinus, 1601 (Part II: 1600).

\$25,000

First edition, and a very fine copy, of the most beautiful book ever published on the comparative anatomy of the ear and throat. "Like Fabrici, Casserio attempted to explain human anatomy by reference to the lower animals, and his *De Vocis*, containing the first comparative studies of the vocal and auditory organs, represents one of the sixteenth century's most ambitious and detailed investigations in comparative anatomy. The work is divided into two treatises--on the anatomy of the larynx and on that of the ear. In the first Casserio compared the human vocal apparatus to those of other mammals, birds, amphibians and insects. He recognized the larynx to be the principal organ of voice, gave the first precise description of the cricoid-thyroid muscles and accurately depicted the superior and inferior laryngeal nerves, which he correctly assumed to originate from cranial nerves. He also was the first to understand the complex sound-producing organs on the abdomen of the cicada. In the second treatise, Casserio provided the first detailed comparative account of the auditory ossicles, the first adequate description of the mammalian osseous labyrinth, and the first representation of the ear of the fish--this last all the more remarkable in that, up to this time, no one had believed that fishes possess a sense of hearing" (Norman).



Garrison-Morton 286; Grolier/Medicine 24; *Heirs of Hippocrates* 397; Norman 410.

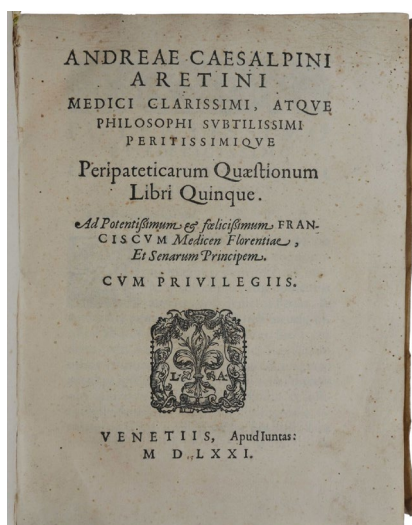
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The theoretical basis for Harvey's discovery of the circulation of the blood

14. CESALPINO, Andrea. *Peripateticarum Quaestionum Libri Quinque*. Venice: Giunta, 1571.

\$140,000

First edition, and a beautiful copy in untouched contemporary vellum, of this very rare work which coined the phrase "circulation of the blood" (*circulatio sanguinis*, f. 111v) and provided the theoretical basis for Harvey's experimental and quantitative treatment in *De motu cordis* (1628). "Cesalpino preceded Harvey in the discovery of the concept of the circulation, and Harvey must have known of his ideas" (Garrison-Morton). "Cesalpino's most important medical studies concern the anatomy and physiology of the movement of the blood. He gave a good description of the cardiac valves and of the pulmonary vessels connected to the heart, as well as of the minor blood circulation; he also recognized that the heart is the center of the circulation of the blood and accepted the existence of the traditional synanastomoses of the arteries with the veins. He did not, however, discover the major circulation (first demonstrated in 1628 by William Harvey)" (DSB). "No-one who reads Cesalpino impartially can deny the eminent part that he played in the discovery of the circulation of the blood" (Castiglioni, p. 438). ABPC/RBH lists only three other copies in contemporary bindings sold at auction in the last 60 years: Norman copy, 1998, \$36,800 ("title page stained at edges and with removed stamp"); Swann, 2001, \$33,350 ("wormholes through front cover & blank outer margin of opening leaves, title page stamped"); Friedman copy, 2001, lot 29, \$110,000 ("repaired tear to title page, spine head repaired, C4,5 guarded").



Lilly, *Notable Medical Books* 45; Garrison-Morton 755; Norman 430.

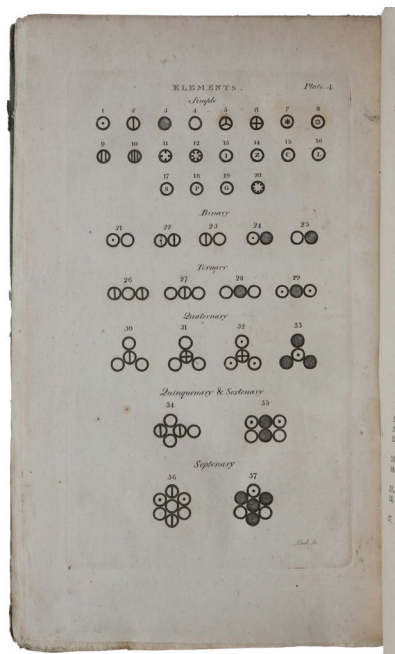
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PMM 261 - The atomic theory

15. DALTON, John. *A New System of Chemical Philosophy*. Manchester: Russell, 1808-1810-1827.

\$65,000

First edition of Dalton's classic work on the atomic theory of matter, very rare when complete with all three parts in the original boards with the original printed spine labels. "Dalton reconstructed Newton's speculations on the structure of matter, and, applying them in a new form to chemistry, gave Lavoisier's reformation of that science a deeper significance" (PMM). "Dalton's chemical atomic theory was the first to give significance to the relative weights of the ultimate particles of all known compounds, and to provide a quantitative explanation of the phenomena of chemical reaction. Dalton believed that all matter was composed of indestructible and indivisible atoms of various weights, each weight corresponding to one of the chemical elements, and that these atoms remained unchanged during chemical processes. Dalton's work with relative atomic weights prompted him to construct the first periodic table of the elements (in Vol. I, pt. 1), to formulate laws concerning their combination and to provide schematic representations of various possible combinations of atoms. His equation of the concepts "atom" and "chemical element" was of fundamental importance, as it provided the chemist with a new and enormously fruitful model of reality" (Norman). "He developed a system of chemical symbols and a table [plate 4 in part 1] showing the relative weights of the atoms of a list of elements. From his principles he deduced the law of definite proportions and the law of multiple proportions" (Dibner).



PMM 261; Grolier/Horblit 22; Dibner 44; Evans 54; Sparrow 47.

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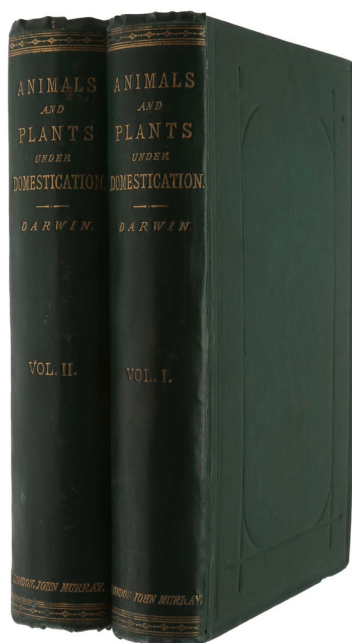
First appearance of "Survival of the fittest", inscribed by Darwin

16. DARWIN, Charles. *The Variation of Animals and Plants under Domestication*. London: John Murray, 1868.

\$35,000

First edition, first issue, presentation copy, trimmed for presentation in publisher's cloth, and with a slip of paper with inscription "From the Author" in Darwin's hand pasted to the front free endpaper. The term "survival of the fittest" (borrowed at Wallace's insistence from Herbert Spencer's 1866 *Principles of Biology*) first appeared in the *Variation* (vol. 2, p. 89), preceding its first use in the fifth edition of the *Origin of Species* (1869). "Its two volumes were intended to provide

overwhelming evidence for the ubiquity of variation, although they would also incidentally answer Lyell and Gray, who maintained that variations had not occurred purely by chance but were providentially directed. Darwin showed that breeders indeed selected from a vast array of minute random variations. He gave numerous instances of the causes of variability, including the direct effect of the conditions of life, reversion, the effects of use and disuse, saltation, prepotency, and correlated growth. The *Variation* also addressed a key criticism of the *Origin of Species*: that it lacked an adequate understanding of inheritance" (ODNB). This work "contained his hypothesis of pangenesis, by means of which Darwin tried to frame an explanation of hereditary resemblance, inheritance of acquired characteristics, atavism, and regeneration. It was a brave attempt to account for a number of phenomena which were beyond the bounds of scientific knowledge in his day, such as fertilization by the union of sperm and egg, the mechanism of chromosomal inheritance, and the development of the embryo by successive cell division" (DSB).

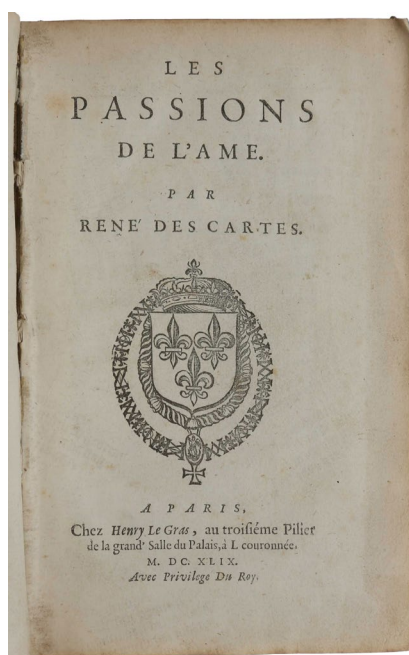


<http://sophiararebooks.com/4100>

A fine copy in untouched contemporary binding

17. DESCARTES, René. *Les passions de l'ame*. Paris: chez Henry Le Gras, 1649.

\$18,500



First edition of Descartes's important psychological treatise, one of his most influential works, and the last work published before his death in the following year. "*Les passions de l'ame*, which drew heavily on the then-unpublished *Traité de l'homme*, contains the application of Descartes's mechanistic physiology to the relationship between mind and body. Descartes made an essential distinction between the soul as the divinely-endowed seat of consciousness, will and rational thought, and the body as a machine or automaton subject to the laws of physics, and only indirectly controlled by the soul through the nerves. Using this dualistic model, he was able to make the important distinction between voluntary and involuntary actions, a distinction discussed further in the *Traité*. Descartes located the soul in the pineal gland, which thus served as the locus for interaction between soul and body; he had defined the pineal gland's function in the *Traité*, but *Les passions de l'ame* contains his first published account of it. The work also contains the first use of the word "reflex" in connection with the action of the nervous system" (Norman).

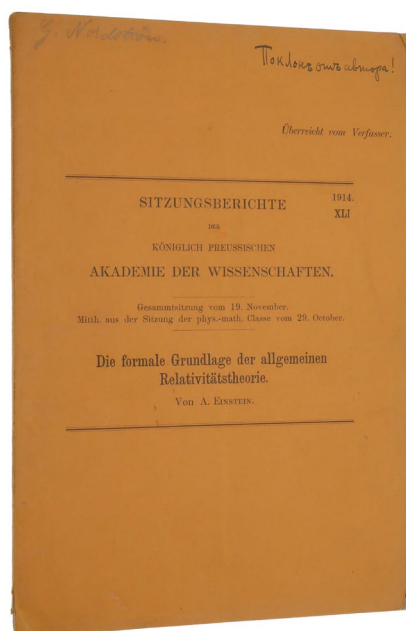
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Author's offprint, inscribed by Einstein to Nordström

18. EINSTEIN, Albert. *Die formale Grundlage der allgemeinen Relativitätstheorie*. Berlin: Königlich Akademie der Wissenschaften, 1914.

\$15,000

Very rare offprint of this crucial paper in the development of general relativity, a remarkable presentation copy inscribed by Einstein to the theoretical physicist Gunnar Nordström, often designated by modern writers as 'The Einstein of Finland'. This is the true author's offprint, with 'Überreicht vom Verfasser' printed on the front wrapper, which must not be confused with the much more common trade offprint without this statement. Einstein had an extended correspondence with Nordström on the subject of Nordström's own competing theory of gravitation, which at the time was considered a serious competitor to Einstein's, and which he completed in the same year as the present paper. A few years later Nordström also assisted Einstein in his work on gravitational waves. The present paper was the crucial step between Einstein's *Entwurf theory* of 1913 and the final form of general relativity which Einstein completed in November 1915: it develops the mathematical techniques necessary for the final formulation, namely the 'absolute differential calculus' of Tullio Levi-Civita, as well as the expression of the field equations in terms of a variational principle, which later proved to be of great importance. *Provenance*: Gunnar Nordström (1881-1923) ('G. Nordström' written in pencil on upper wrapper in Einstein's hand). Mathematical annotations in pencil to margin of p. 1077 (in Nordström's hand?). Later inscription in Russian on upper wrapper.



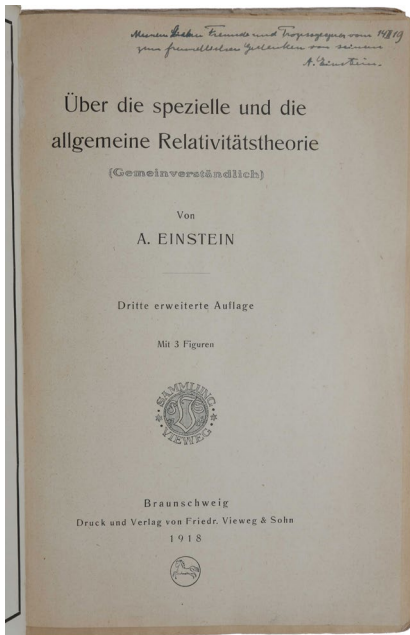
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Inscribed and signed by Einstein

19. EINSTEIN, Albert. *Über die spezielle und die allgemeine Relativitätstheorie*. Braunschweig: Vieweg & Sohn, 1918.

\$28,000

Exceptionally rare presentation copy of the important third edition (see below) of his 'popular account' (Gemeinverständlich) of relativity theory, which remains one of the most lucid explanations of the special and general theories ever written. According to the preface (in the first edition dated December, 1916), its aim was to provide "an exact insight into the theory of relativity to those readers who, from a general scientific and philosophical point of view, are interested in the theory, but who are not conversant with the mathematical apparatus of theoretical physics... The author has spared himself no pains in his endeavor to present the main ideas in the simplest and most intelligible form, and on the whole, in the sequence and connection in which they actually originated". The work is divided into three parts: the first on special relativity, the second on general relativity, and the third on the application of relativity to cosmology. This third edition is important as it is the first to contain a discussion of the universe as a whole (sections 30-32), and also the first to contain the two appendices "Simple Derivation of the Lorentz Transformation" (as a supplement to section 11) and "Minkowski's Four-Dimensional Space ('World')" (as a supplement to section 17). *Provenance*: Inscribed *Meinem Lieben Freunden und Prozessgegner zum freundlichen Gedanken von seinem A. Einstein* in Einstein's hand on title and dated February 14, 1919.



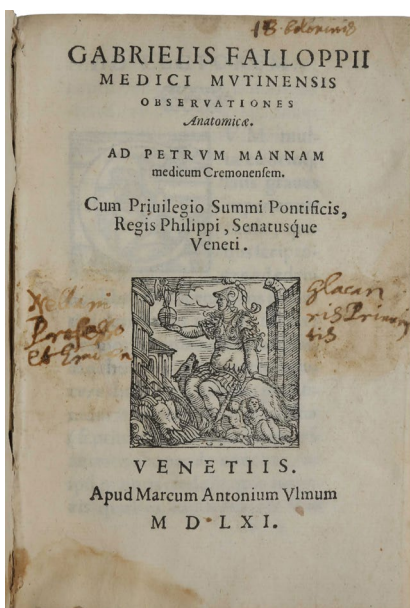
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The greatest Italian anatomical book of the 16th century

20. FALLOPPIO, Gabrielle. *Observationes anatomicae*. Venice: Ulmo & Perchachino, 1561.

\$35,000

Very rare first edition of this critical commentary on Vesalius' *De humani corporis fabrica*. This is a fascinating copy with copious annotations by an early owner, in an untouched contemporary binding. "The large amount of new material [in the present work] included Falloppio's investigations of primary and secondary centers of ossification, the first clear description of primary dentition, numerous contributions to the study of the muscles (especially those of the head), and the famous account of the uterine ("Falloppian") tubes, which he correctly described as resembling small trumpets (tubae). He also gave to the placenta and vagina their present scientific names, provided a superior description of the auditory apparatus (including the first clear accounts of the chorda tympani and semicircular canals), and was the first to clearly distinguish the trochlear nerve of the eye. Vesalius responded positively to Falloppio's work with his posthumously published *Examen on Falloppio* (1564)" (Norman). *Provenance*: Niall Ó Glacáin (c. 1563–1653), signature to title page and numerous annotations throughout the text. O'Glacáin was a hereditary physician born in Donegal, Ireland, who became Professor of Medicine in Toulouse at the age of 29 and physician to the King of France. He was a pioneer in pathological anatomy, his work predating that of Giovanni Battista Morgagni (1682–1771) by several decades.



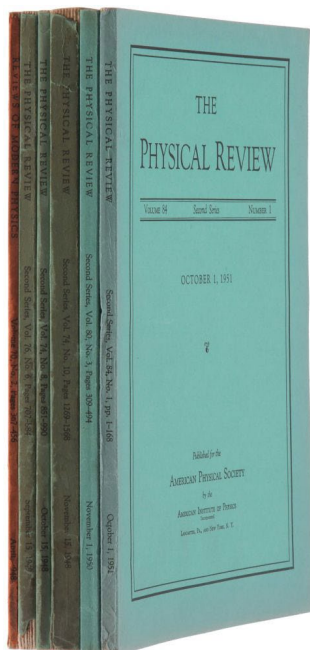
Norman 757; Lilly, *Notable Medical Books* 39; *Heirs of Hippocrates* 331; Garrison-Morton 1208.

<http://sophiararebooks.com/4136>

Feynman diagrams and the path-integral formulation of quantum theory

21. FEYNMAN, Richard P. *Space-Time Approach to Non-Relativistic Quantum Mechanics*; [with:] *A Relativistic Cut-Off for Classical Electrodynamics*; [with:] *Relativistic cut-off for quantum electrodynamics*; [with:] *The Theory of Positrons*; [with:] *Space-Time Approach to Quantum Electrodynamics*; [with:] *Mathematical Formulation of the Quantum Theory of Electromagnetic Interaction*; [with:] *An Operator Calculus Having Applications in Quantum Electrodynamics*. Lancaster: APS, 1948-51.

\$13,500



First editions, in original wrappers, of the seven papers which constitute Feynman's path-integral formulation of quantum theory and his 'Feynman diagram' approach to QED. Feynman "published an extended set of papers - they would stretch over three years and one hundred thousand words - that defined the start of the modern era for the next generation of physicists... No aspiring physicist could read these papers without thinking about what space was, what time was, what energy was. Feynman was helping physics live up to the special promise it made to its devotees: that this most fundamental of disciplines would bring them face to face with the primeval questions" (Gleck, pp. 271-2). It was for this work that Feynman received the Nobel Prize in 1965 together with, Julian Schwinger and Sin-Itiro Tomonaga - "for their fundamental work in quantum electrodynamics, with deep-ploughing consequences for the physics of elementary particles."

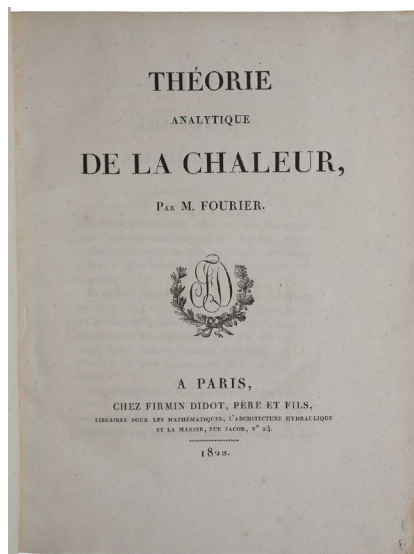
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The source of all modern methods in mathematical physics

22. FOURIER, Jean-Baptiste-Joseph. *Théorie Analytique de la Chaleur*. Paris: Firmin Didot, 1822.

\$32,000

First edition, and a fine copy in untouched contemporary binding, of the first mathematical study of heat diffusion, the first major mathematization of a branch of physics outside mechanics. "This work marks an epoch in the history of both pure and applied mathematics. It is the source of all modern methods in mathematical physics... The gem of Fourier's great book is 'Fourier series'" (Cajori, *A History of Mathematics*, p. 270). "In this groundbreaking study, arguing that previous theories of mechanics advanced by such outstanding scientists as Archimedes, Galileo, Newton and their successors did not explain the laws of heat, Fourier set out to study the mathematical laws governing heat diffusion and proposed that an infinite mathematical series may be used to analyse the conduction of heat in solids: this is now known as the 'Fourier Series'. His work paved the way for modern mathematical physics" (Introduction to the 2009 reprint by Cambridge University Press).



Dibner 154; Evans 37; Sparrow 68; *Landmark Writings in Western Mathematics* 26; Norman 824; *En Français dans le Texte* 232.

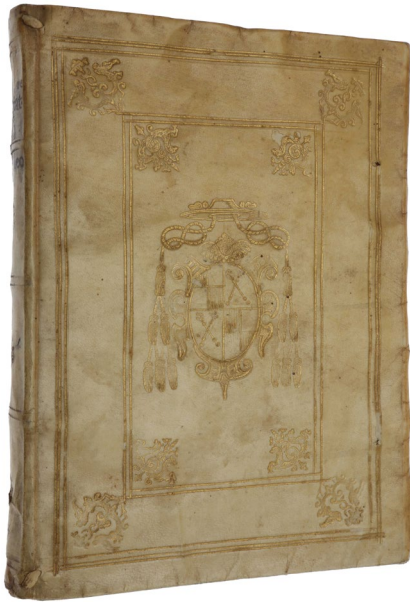
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One of the pioneering works of the scientific method

23. GALILEI, Galileo. *Il Saggiatore nel quale con bilancia esquisita e giusta si ponderano le cose contenute nella.* Rome: Giacomo Mascardi, 1623.

\$85,000

First edition, first issue, of “one of the most celebrated polemics in the history of science” (DSB), often called Galileo’s “scientific manifesto.” This is a specially bound copy, in contemporary vellum gilt, with the arms of Cardinal von Zollern, who acted on Galileo’s behalf in his attempts to persuade Pope Urban VIII, to whom the work is dedicated, to allow Galileo to reopen the Copernican question (von Zollern took part in the conclave in 1623 which elected Urban VIII). *Il Saggiatore* is the most important work in the series of publications which documented the “controversy of the comets,” one of the most infamous polemics in the history of science. According to Stillman Drake, these texts “deserve study for their bearing upon the origin of modern scientific method...” The controversy is of both scientific and philosophical significance because it was in this connection that Galileo disclosed his conception of scientific method.” “The dispute over comets had consequences of great significance both to Galileo and to science in general, as the favorable reception of [*Il saggiatore*] led him to proceed with the publication of the much more famous *Dialogue*, for which he was later imprisoned by the Inquisition. That fateful event was in turn intimately connected with the rift between Galileo and the Jesuits, which was widened and made permanent, if indeed it did not originate, in the public dispute about comets. Thus the controversy is closely linked with some of the most dramatic events associated with the dawn of our modern era” (Drake, *The Controversy on the Comets of 1618*, p. vii).



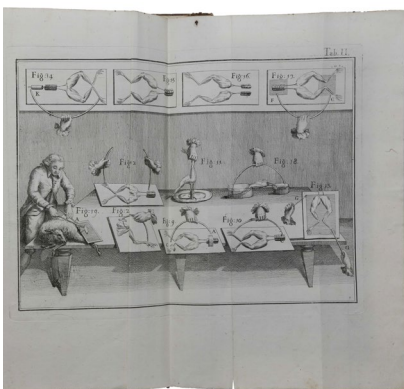
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Animal electricity - inscribed presentation copy

24. GALVANI, Luigi. *De viribus electricitatis in motu musculari commentarius cum Joannis Aldini dissertatione et notis.* Modena: Societatem Typographicam, 1792.

\$55,000

First edition in book form, and the first to contain the notes and commentary by Giovanni Aldini, Galvani’s nephew and principal apologist, of this epoch-making work, one of the most important in the history of electricity. This is a superb presentation/association copy, inscribed by Aldini, of the first issue (with the letter ‘E’ in figure 22 uncorrected). Galvani believed that animals possess in their nerves and muscles a subtle fluid quite analogous to ordinary electricity. In the course of his experiments, Galvani hit upon by accident the phenomenon of ‘galvanism’, the production of an electric current between two metals in a moist environment. This discovery led directly, in the hands of Alessandro Volta, to the first source of a continuous electric current. Galvani first published his theory in one of the ‘Opuscula’ of the Proceedings of the Bologna Academy of Science (*De Bononiensi scientiarum et atrium instituto atque academia*, 7, pp. 363-418), where it aroused great interest and controversy. The offprint of this article, the first separate edition of the work, is known in only a dozen copies. Aldini published this edition with his extended notes and commentary, but with Galvani’s text unchanged from its journal appearance. The engraved plates by Galvani’s friend Jacobo Zambelli, which graphically illustrate Galvani’s dissections and electrical apparatus, belong to the most famous of all illustrations in the history of biology. No other presentation copies of this book are located in auction records. Honeyman’s is the only copy of the offprint recorded by ABPC/RBH (Sotheby’s, 5 November 1979, lot 1428, \$29,859).



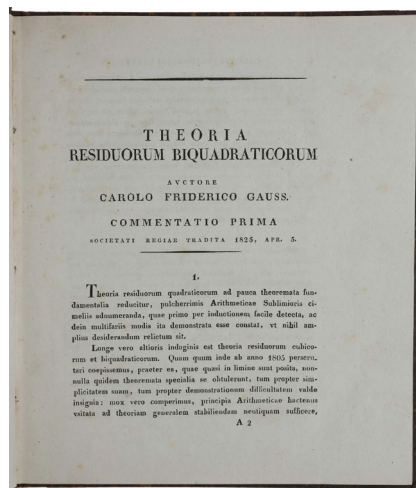
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Complex numbers and the Gaussian plane

25. GAUSS, Carl Friedrich. *Theoria residuorum biquadraticorum*. Göttingen: Dieterich, 1828 [- 1832].

\$9,500

First edition, very rare separately-paginated offprint issues, of these two important papers, in which Gauss coined the term ‘complex number’ and introduced the complex plane now known as the ‘Gaussian plane’. “The foundations of the theory of algebraic integers were laid by Gauss in his important work *Theoria residuorum biquadraticorum*, *Commentatio II*, which appeared in 1832, in which he considered the numbers $a + bi$ ($i = \sqrt{-1}$)” (Klein, p. 320). “In the *Disquisitiones Arithmeticae*, [1801], Gauss gave the first rigorous proof of ‘the gem of arithmetic’ — the law of quadratic reciprocity. In a series of papers published between 1808 and 1817 Gauss worked on reciprocity laws for congruences of higher degree, and in two papers published in 1828 and 1832 stated the law of biquadratic [i.e., quartic] reciprocity” (Ewald, p. 306). “In the second part of his study of biquadratic residues (1832), [Gauss] argued that number theory is revealed in its “entire simplicity and natural beauty” (Sect. 30) when the field of arithmetic is extended to the imaginary numbers. He explained that this meant admitting numbers of the form $a + bi$. “Such numbers,” he said, “will be called complex integers”. More precisely, he went on in the next section, the domain of complex numbers $a + bi$ contains the real numbers, for which $b = 0$ and the imaginary numbers, for which b is not zero. Then, in Sect. 32, he set out the arithmetical rules for dealing with complex numbers. We read this as a step away from the idea that i is to be understood or explained as some kind of a square root, and towards the idea that it is some kind of formal expression to be understood more algebraically” (Bottazzini & Gray, p. 71).



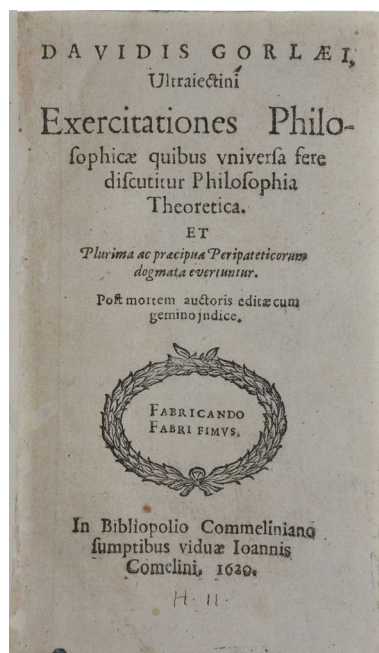
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One of the earliest modern works on atomism

26. GORLAEUS, David. *Exercitationes philosophicae quibus universa fere discutitur philosophia theoretica... cum gemino indice*. [Leyden]: in bibliopolio Commeliniano sumptibus viduae Joannis Comelini, 1620.

\$55,000

First edition, extremely rare, of one of the earliest modern works on atomism. “Gorlaeus is counted among the founders of modern atomism, which he proposed as an alternative to Aristotelian matter theory. Because of his notion of atomic compounds, he is also regarded as a contributor to the evolution of chemistry” (DSB). “When David Gorlaeus (1591-1612) passed away at 21 years of age, he left behind two highly innovative manuscripts. Once they were published [as the present work, and as *Idea physicae* (1610)], his work had a remarkable impact on the evolution of 17th-century thought. However, as his identity was unknown, divergent interpretations of their meaning quickly sprang up. 17th-century readers understood him as an anti-Aristotelian thinker and as a precursor of Descartes. 20th-century historians depicted him as an atomist, natural scientist and even as a chemist. And yet, when Gorlaeus died, he was a beginning student in theology. His thought must in fact be placed at the intersection between philosophy, the nascent natural sciences, and theology” (Lüthy). This is a very rare book. In his review of Lüthy’s book in 2012, Henri Krop wrote: “until now Gorlaeus’s life and ideas have remained basically unknown because both his elaborate *Exercitationes philosophicae* and his *Idea physicae* are extremely rare and copies were unavailable in Dutch public libraries. (However since 1986 the libraries of both Leiden and Leeuwarden have acquired copies of the former.)”



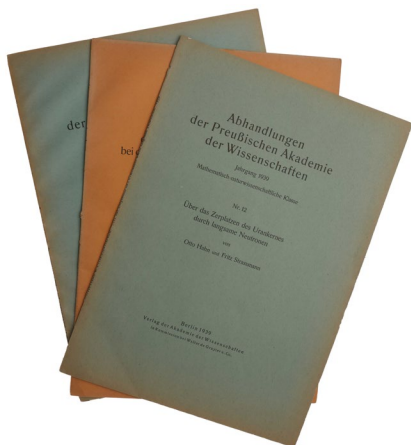
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The discovery of the fission of heavy nuclei

27. HAHN, Otto; Fritz STRASSMANN & Hans GÖTTE. *Über das Zerplatzen des Urankernes Durch Langsame Neutronen.* [with:] *Einiges Über die Experimentelle Entwerrung der bei der Spaltung des Urans Auftretenden Elemente und Atomarten.* [with:] *Die Chemische Abscheidung der bei der Spaltung des Urans Entstehenden Elemente und Atomarten.* Berlin: Walter de Gruyter und Co., 1939, 1942, 1944.

\$5,000

First edition, offprint issues, of the three fundamental papers on nuclear fission which eventually lead to the creation of the atom bomb. "...experiments conducted in 1938 at Berlin by Hahn and Strassman [sic] were reported to Lise Meitner, an Austrian scientist who had fled to Copenhagen to escape religious persecution. She and her nephew, O. R. Frisch, working in Niels Bohr's laboratory, found the true explanation of these phenomena. The interpolation of a neutron into the nucleus of a uranium atom caused it to divide into two parts and to release energy amounting to about 200,000,000 electron volts. This process bore such a close similarity to the division of a living cell that Frisch suggested the use of the term 'fission' to describe it" (PMM). "Hahn and Strassmann published this article [i.e. the 1939 paper] that started scientists down the path to the atomic bomb. Originally working with Lise Meitner who was forced to flee Nazi Germany in 1938, they had been working with uranium and bombarding samples with slow neutrons. They realized that this caused the uranium atoms to split into lighter nuclei and releasing large amounts of energy, and the implications were not lost to a world at war" (Dibner). Hahn received the 1944 Nobel Prize in Chemistry "for his discovery of the fission of heavy nuclei."



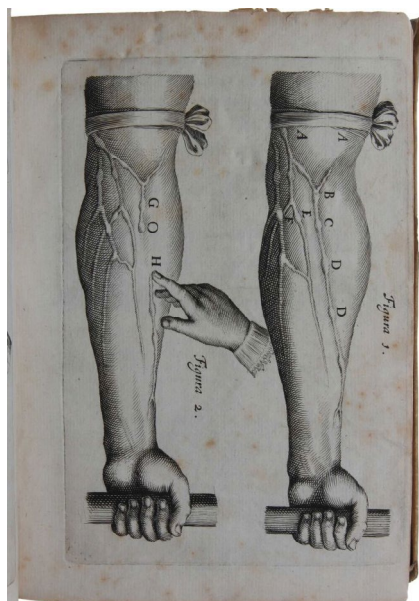
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The single most important and famous medical book ever published

28. HARVEY, William. *De motu cordis & sanguinis in animalibus, anatomica exercitatio.* Leyden: Johann Maire, 1639.

\$50,000

Third, but second complete, edition of the single most important and famous medical book ever published, containing Harvey's discovery and experimental proof of the circulation of the blood, which created a revolution in physiology comparable to the Copernican revolution in astronomy. Harvey's discovery was to become "the cornerstone of modern physiology and medicine" (Garrison-Morton). *De motu cordis* "is probably the most important book in the history of medicine. What Vesalius was to anatomy, Harvey was to physiology; the whole scientific outlook on the human body was transformed, and behind almost every important medical advance in modern times lies the work of Harvey" (*Heirs of Hippocrates*). This is the earliest edition that collectors can reasonably expect to obtain, the first edition (Frankfurt, 1628) being of the greatest rarity. The second edition (Venice, 1635), was fragmentary, lacking the plates, parts of the introduction and chapters I and XVI. In this edition, the publisher Maire restored these passages, included the illustrations, and also added the criticism and denials of James Primerose (*Animadversiones*, 1630) as a separate tract at the end of the book. The text of Harvey's treatise is printed passage by passage alternatively with the refutations of Parigiano. *Provenance*: S. Cunbert (ownership inscription "Bibliotheca medica 1722" on title); J.W.F. Stoll, Cologne 1796 (engraved bookplate); D. Lemberg, 1838 (owners name on title); Warren G. Smirl (his sale, Sotheby's London, 11 November 1994, lot 166, £18,400); Christie's New York, 14 April 2005, lot 120, \$45,600).



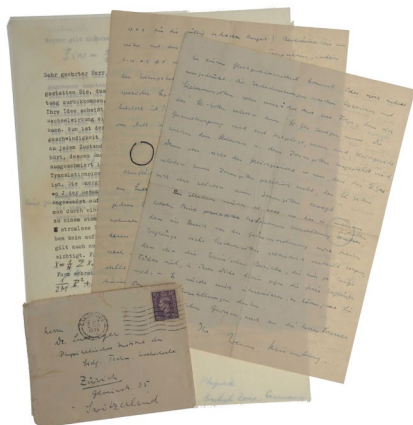
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Letter correspondence between Heisenberg and Luttinger on superconductivity

29. HEISENBERG, Werner. Autograph letter signed ("Werner Hesenberg") to Joaquin M. LUTTINGER, Cambridge, 3 February 1948. 4 pages, in German, small 4to, in ink with two small drawings, envelope. [With:] HEISENBERG, Werner. Typed letter signed ("W. Heisenberg") to "Herr Jost and Herr Luttinger" Goettingen, 11 November 1947. 2 pages, [With:] LUTTINGER, Joaquin and Res JOST. Typed letter signed ("J.M. Luttinger" and "Res Jost") to "Herr Professor" [Heisenberg], Zurich, 29 October 1947. 2 pages, in German, 4to, with ink manuscript corrections. [With:] Carbon copy to "Prof Heisenberg," 3 December 1947. One page, in English. 4to. [With:] HEISENBERG, Werner. Autograph letters signed ("Werner Heisenberg") to "Herr Luttinger." [With:] Carbon copy to "Herr Professor" [Heisenberg], 4 March 1948. 2 pages, in German. 4to.

\$9,500

Together three letters in which Werner Heisenberg (1901-76) discusses the problem of superconductivity. Heisenberg was famous for his work on quantum theory and atomic structure, as well as his invention of quantum mechanics. He was awarded the 1932 Nobel Prize for physics. In 1947 and 1948 Heisenberg's studies focused on superconductivity. He published four major papers on the subject. Although Heisenberg's attempt to solve the problem of superconductivity was unsuccessful (like those of Joseph John Thompson, Albert Einstein, Niels Bohr, Léon Brillouin, Ralph Kronig, Felix Bloch, Lev Landau, Max Born, and Richard Feynman), it was a significant step along the way to the final solution given in 1957 by John Bardeen, Leon N. Cooper and John R. Schrieffer, for which they received the Nobel Prize in Physics 1972.



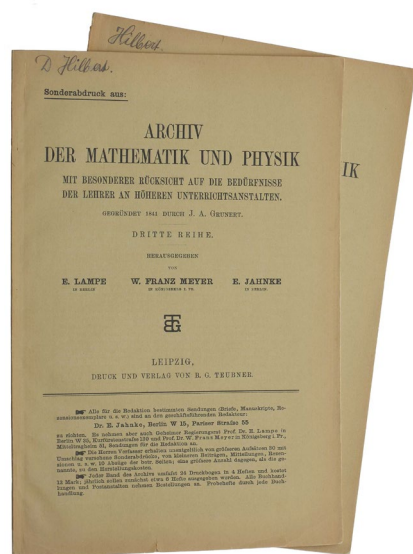
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Hilbert's problems

30. HILBERT, David. *Mathematische Probleme*. Leipzig: Teubner, 1901.

\$6,350

First complete publication, extremely rare offprint issue, of Hilbert's famous and enormously influential address to the International Congress of Mathematicians at Paris in 1900 in which he set forth a list of twenty-three problems that he predicted would be of central importance to the advance of mathematics in the twentieth century. Hilbert's paper was first published in *Nachrichten der Königl. Gesellschaft der Wissenschaften zu Göttingen, Mathematisch-physikalische Klasse 3* (1900), pp. 253-97, and reprinted with additions as the offered work. "Hilbert's problems came in four groups. In the first group were six foundational ones, starting with an analysis of the real numbers using Cantorian set theory, and including a call for axioms for arithmetic, and the challenge to axiomatise physics. The next six drew on his study of (algebraic) number theory, and culminated with his revival of Kronecker's Jugendtraum, and the third set of six were a mixed bag of algebraic and geometric problems covering a variety of topics. In the last group were five problems in analysis – the direction that Hilbert's own interests were going. He asked for a proof that suitably smooth elliptic partial differential equations have the type of solutions that physical intuition (and many a German physics textbook) suggest, even though it had been known since the 1870s that the general problem of that kind does not. He made a specific proposal for advancing the general theory of the calculus of variations" (Gray).



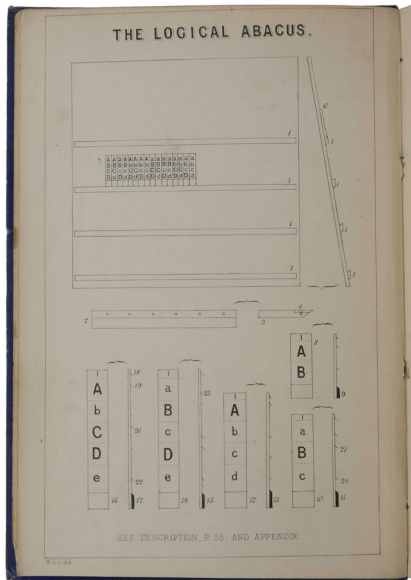
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The first machine to perform calculations at superhuman speed

31. JEVONS, William Stanley. *The Substitution of Similars. The True Principle of Reasoning, Derived from a Modification of Aristotle's Dictum.* London: Macmillan, 1869.

\$5,000

First edition, and a fine copy, of this rare work of computer prehistory containing the first illustration and detailed description of Jevons's 'logical abacus', a prototype computer that, with the addition of keys, levers and pulleys, became his 'logical piano'. "Ramon Lull was the first to use a mechanical device as an aid to reasoning. Lord Stanhope was the first to use a mechanical device for the solution of problems in formal logic. The next great step in the history of logic machines took place in 1869 when William Stanley Jevons, British economist and logician, produced the first working model of his famous logic machine. It was the first such machine with sufficient power to solve a complicated problem faster than the problem could be solved without the machine's aid" (Gardner, p. 90). "Jevons' logic of inference was dominated by what he called the substitution of similars, which expressed "the capacity of mutual replacement existing in any two objects which are like or equivalent to a sufficient degree." This became for him "the great and universal principle of reasoning" from which "all logical processes seem to arrange themselves in simple and luminous order." It also allowed him to develop a special equational logic, with which he constructed various truth-table-like devices for handling logical problems" (Biographical Dictionary of Mathematicians, p. 1161). The account of Jevons' logic machine in this book precedes the better known description published as 'On the Mechanical Performance of Logical Inference' in the *Philosophical Transactions* in 1870.



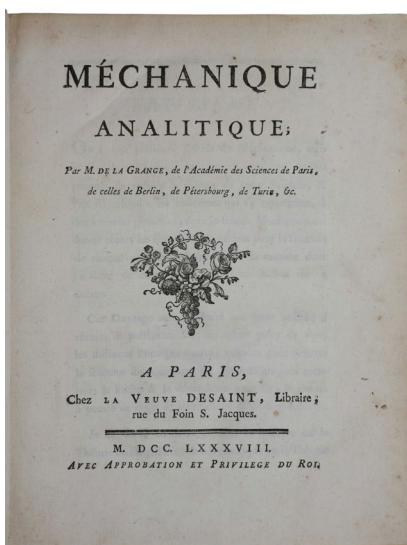
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Second only to Newton's Principia

32. LAGRANGE, Joseph Louis de. *Mécanique analytique.* Paris: Veuve Desaint, 1788.

\$14,500

First edition, and a fine copy, of "perhaps the most beautiful mathematical treatise in existence. It contains the discovery of the general equations of motion, the first epochal contribution to theoretical dynamics after Newton's *Principia*" (Evans). "Lagrange's masterpiece, the *Mécanique Analytique* (Paris, 1788), laid the foundations of modern mechanics, and occupies a place in the history of the subject second only to that of Newton's *Principia*." "With the appearance of the *Mecanique 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 ... [it] 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." (DSB). "In the preface of the book La Grange proudly points to the complete absence of diagrams, so lucid is his presentation. He regarded mechanics (statics and dynamics) as a geometry of four dimensions and in this book set down the principle of virtual velocities as applied to mechanics." (Dibner).



Grolier/Horblit 61; Evans 10; Dibner 112; Sparrow 120; Norman 1257.

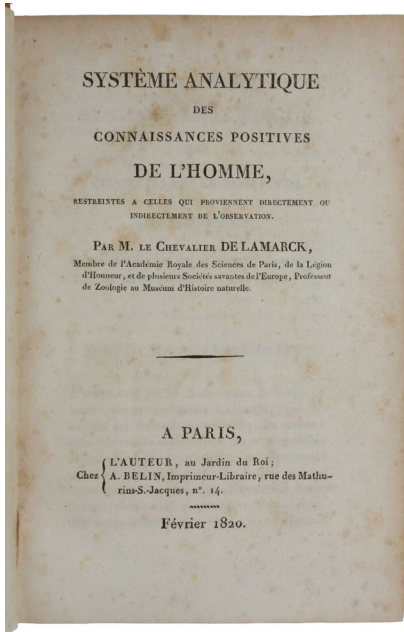
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Nonlinear Lamarckism

33. LAMARCK, Jean-Baptiste de. *Système analytique des connaissances positives de l'homme*. Paris: Belin, 1820.

\$4,500

First edition, very rare, of Lamarck's last book, important for containing his final thoughts on evolution. In this work Lamarck renounces the linear progression theory of species change propounded in his *Philosophie Zoologique* (1809) in favour of a branching tree theory much closer to that associated with Darwin some four decades later. "Unwilling to endorse the idea that fossils represented species that had all become extinct as the result of a global catastrophe, he concluded that the forms had changed over time. Having once concluded that species are mutable, he then called upon the familiar idea of the inheritance of acquired characters to explain the close relation between habits and forms... He invoked what he called the "power of life" or "the cause which tends to make organization increasingly complex" to account for the general, linear series that in his view best represented how the different animal classes were related to each other..." Gould describes how Lamarck's decision to make separate classes of the annelid and parasitic worms led him over time to give up his original commitment to a linear arrangement of the different animal classes and to adopt a truly branching scheme instead. Gould indicates that in the very last of his publications [the offered work] Lamarck reversed his decades-long belief that the "power of life" was greater than the influence of environmental circumstances, admitting to the contrary that the force of circumstances was ultimately stronger than nature herself ..." (DSB).



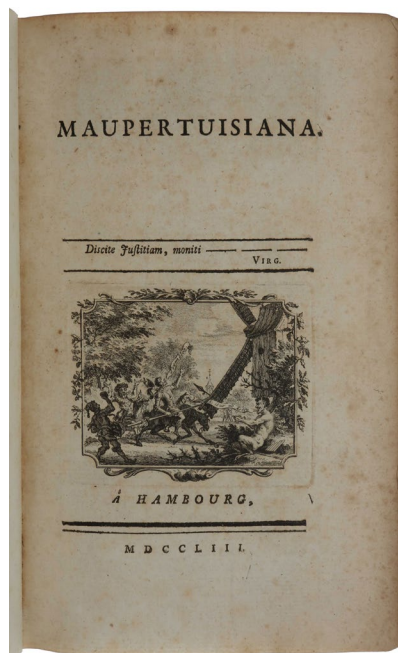
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Perhaps the ugliest of all the famous scientific disputes

34. MAUPERTUIS, Pierre-Louis; EULER, Leonhard; KÖNIG, Samuel; VOLTAIRE. *Maupertuisiana*. Hambourg, 1753.

\$7,500

Rare complete collection of sixteen pamphlets relating to the 'König affair,' the celebrated polemic on the principle of least action, "perhaps the ugliest of all the famous scientific disputes" (DSB). The texts in this collection are all in their first printed state with the exception of *Appel au public* (first printed in the *Nova Acta Eruditorum* for 1751) and (as always) *Diatribes de Docteur Akakia*. The König affair is of considerable importance in the history of physics, since the principle of least action "was clarified and underwent important developments at the hands of [William Rowan] Hamilton and [Carl Gustav Jacob] Jacobi in the 19th century ... [It] has come to play a fundamentally important part in twentieth-century Physics" (Wolf, *A History of Science, Technology, and Philosophy in the Eighteenth Century*, p. 69). Although initially a quarrel between Pierre-Louis Moreau de Maupertuis (1698-1759) and Johann Samuel König (1712-57), the dispute drew in, among others, Leonhard Euler (1707-83), Voltaire (1694-1778) and the 'philosopher King' Frederick II of Prussia (1712-86). Beginning as a narrow scientific priority dispute, it became a battleground of love and jealousy, patronage, academic freedom and the control of knowledge and of print.



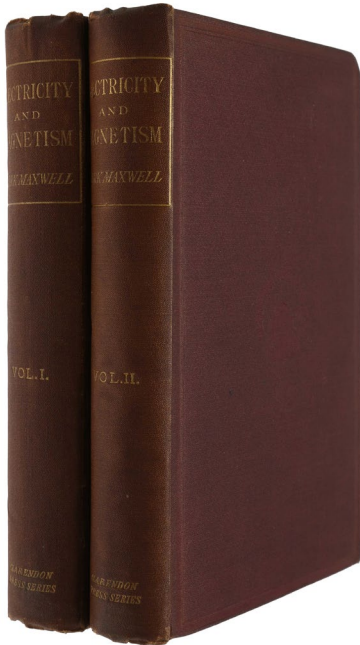
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PMM 355 - Light as a form of electricity

35. MAXWELL, James Clerk. *A Treatise on Electricity and Magnetism*. Oxford: Clarendon Press, 1873.

\$15,000

First edition, second issue, and an unusually fine copy, of Maxwell's presentation of his theory of electromagnetism, advancing ideas that would become essential for modern physics, including the landmark "hypothesis that light and electricity are the same in their ultimate nature" (Grolier/Horblit). "This treatise did for electromagnetism what Newton's *Principia* had done for classical mechanics. It not only provided the mathematical tools for the investigation and



representation of the whole electromagnetic theory, but it altered the very framework of both theoretical and experimental physics. It was this work that finally displaced action-at-a-distance physics and substituted the physics of the field" (ENMS). "From a long view of the history of mankind — seen from, say, ten thousand years from now — there can be little doubt that the most significant event of the 19th century will be judged as Maxwell's discovery of the laws of electrodynamics" (Feynman). "[Maxwell] may well be judged the greatest theoretical physicist of the 19th century... Einstein's work on relativity was founded directly upon Maxwell's electromagnetic theory; it was this that led him to equate Faraday with Galileo and Maxwell with Newton" (PMM). Both of the Norman copies of Maxwell's *Treatise*, one of which was J. J. Thomson's, were of the present second issue.

PMM 355; Grolier/Horblit 72; Norman 1666; *Landmark Writings in Western Mathematics* 44.

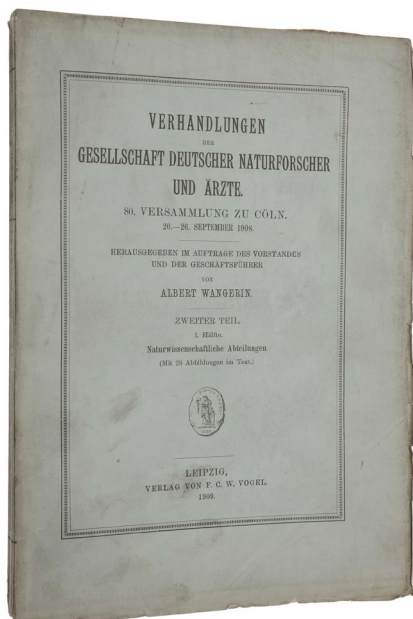
<http://sophiararebooks.com/4068>

Four-dimensional space-time

36. MINKOWSKI, Hermann. *Raum und Zeit*. Leipzig: F.W. Vogel, 1909.

\$2,500

First edition of Minkowski's famous lecture on his theory of four-dimensional space-time, the first published account of this theory to be illustrated with 'spacetime diagrams', which were widely used later by Stephen Hawking, Roger Penrose and others in the development of general relativity. "In 'Space and Time', read by Minkowski in Cologne only a few months before his death, he introduced the notion that made possible the expansion of the relativity theory of Einstein



from its specific (1905) to its general form (1916). Minkowski's space-time hypothesis was in effect a restatement of Einstein's basic principle in a form that greatly enhanced its plausibility and also introduced important new developments. Hitherto natural phenomena had been thought to occur in a space of three dimensions and to flow uniformly through time. Minkowski maintained that the separation of time and space is a false conception; that time itself is a dimension, comparable to length, breadth, and height; and that therefore the true conception of reality was constituted by a space-time continuum possessing these four dimensions" (PMM). "The laws of physics were written in the language of the geometry of this four dimensional space... Physics had become geometry, and it was a stunning achievement" (Gerber). "Raum und Zeit" was originally published in Vol. II (1909) of the *Verhandlungen of the Deutscher Naturforscher und Aertze* [offered here]; it was later reprinted in the *Jahresbericht der Deutschen Mathematiker Vereinigung*" (Norman). It is most commonly encountered in the separate (and later) printing from the *Jahresbericht* published as a tribute after Minkowski's sudden and tragic death.

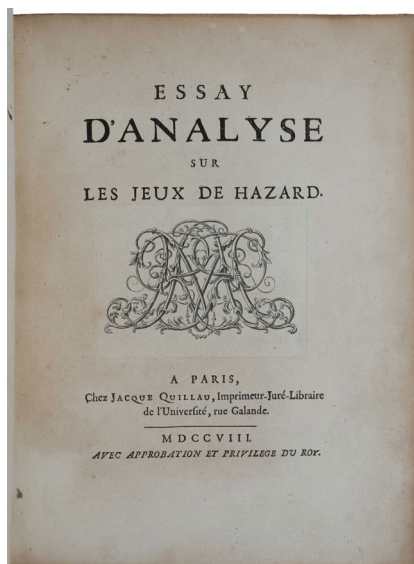
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Probability - large paper presentation copy inscribed by the author

37. [MONTMORT, Pierre Rémond de]. *Essay d'Analyse sur les Jeux de Hazard*. Paris: Jacque Quillau, 1708.

\$24,000

Exceptional copy of the first separately published textbook of probability. "In 1708 [Montmort] published his work on Chances, where with the courage of Columbus he revealed a new world to mathematicians" (Todhunter). "The Essay (1708) is the first published comprehensive text on probability theory, and it represents a considerable advance compared with the treatises of Huygens (1657) and Pascal (1665). Montmort continues in a masterly way the work of Pascal on combinatorics and its application to the solution of problems on games of chance. He also makes effective use of the methods of recursion and analysis to solve much more difficult problems than those discussed by Huygens. Finally, he uses the method of infinite series, as indicated by Bernoulli (1690)" (Hald). Based on the problems set forth by Huygens in his *De Ratiociniis in Ludo Aleae* (1657) (published as an appendix to Frans van Schooten's *Exercitationum mathematicarum*), the Essay spawned Abraham de Moivre's two important works *De Mensura Sortis* (1711) and *Doctrine of Chances* (1718). ABPC/RBH list just two copies of this first edition (Christie's 1981 and Hartung 1987). We are not aware of any other presentation copy, or any other large paper copy, of this work having appeared on the market, nor have we located any presentation copy in institutional collections. *Provenance*: Autograph inscription signed by Montmort: "Pour Monsieur le Président Cavalier par son très humble et très obéissant serviteur et très fidèle ami". The dedicatee is possibly the Parisian publisher Guillaume Cavalier (d. 1751).



<http://sophiararebooks.com/4102>

Newton's most often read and republished mathematical work

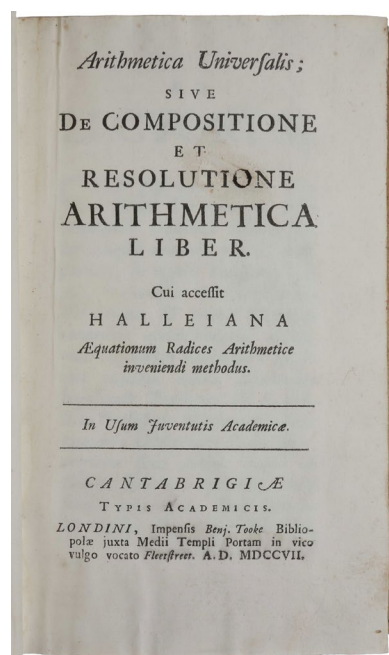
38. NEWTON, Isaac. *Arithmetica Universalis; sive de Compositione et Resolutione Arithmetica Liber*. Cambridge / London: Typis Academicus / Benjamin Tooke, 1707.

\$22,000

First edition of Newton's treatise on algebra, or 'universal arithmetic,' his "most often read and republished mathematical work" (Whiteside). "Included are 'Newton's identities' providing expressions for the sums of the i th powers of the roots of any polynomial equation, for any integer i [pp. 251-2], plus a rule providing an upper bound for the positive roots of a polynomial, and a generalization, to imaginary roots, of René Descartes' Rule of Signs [pp. 242-5]" (Parkinson, p. 138). About this last rule for determining the number of imaginary roots of a polynomial (which Newton offered without proof), Gjertsen (p. 35) notes: "Some idea of its originality ... can be gathered from the fact that it was not until 1865 that the rule was derived in a rigorous manner by James Sylvester." The final chapter, on the extraction of roots, is by Edmund Halley.

Babson 199; Wallis 277.

<http://sophiararebooks.com/4064>

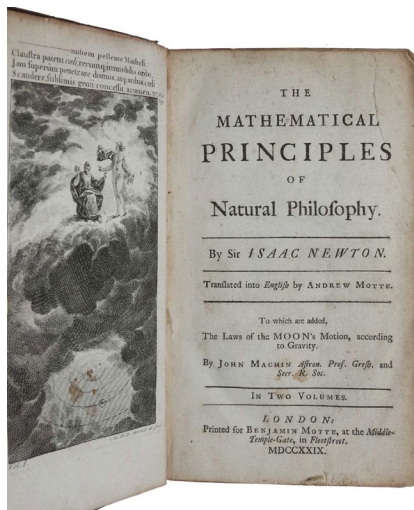


First edition in English of the Principia

39. NEWTON, Isaac. *The Mathematical Principles of Natural Philosophy*. London: Benjamin Motte, 1729.

\$85,000

The first edition was published in Latin in 1687 and “is generally described as the greatest work in the history of science. Copernicus, Galileo and Kepler had certainly shown the way; but where they described the phenomena they observed, Newton explained the underlying universal laws. The *Principia* provided the greatest synthesis of the cosmos, proving finally its physical unity. Newton showed that the important and dramatic aspects of nature that were subject to the universal law of gravitation could be explained, in mathematical terms, with a single physical theory. With him the separation of the natural and supernatural, of sublunar and superlunar worlds disappeared. The same laws of gravitation and motion rule everywhere; for the first time a single mathematical law could explain the motion of objects on earth as well as the phenomena of the heavens. The whole cosmos is composed of inter-connecting parts influencing each other according to these laws. It was this grand conception that produced a general revolution in human thought, equaled perhaps only by that following Darwin’s *Origin of Species*... [Newton] is generally regarded as one of the greatest mathematicians of all time and the founder of mathematical physics” (PMM). A very good copy in contemporary English calf, not re-backed.



Babson 20; Norman 1587; Wallis 23.

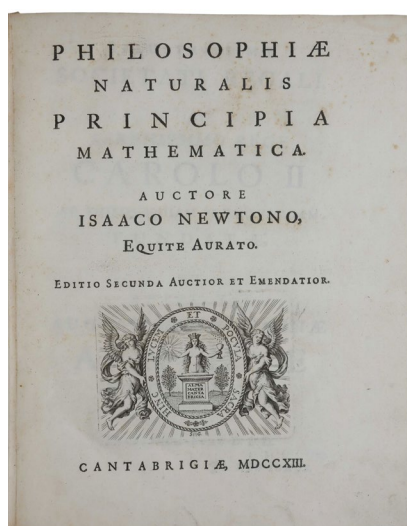
<http://sophiararebooks.com/3907>

A fine copy in unrestored contemporary binding.

40. NEWTON, Isaac. *Philosophiae naturalis principia mathematica*. Cambridge: [University Press], 1713.

\$36,000

The important second edition of “the greatest work in the history of science” (PMM). Published twenty-six years after the first, this second edition of Newton’s *Principia* was printed at the Cambridge University Press, which Richard Bentley had recently revived. Edited by Roger Cotes (1682-1716), it contains his important preface in which he attacks the Cartesian philosophy “and refutes an assertion that Newton’s theory of attraction is a *causa occulta*” (Babson). There is also a second preface by Newton, and substantial additions, the chapters on the lunar theory and the theory of comets being much enlarged. But the most important addition is the *Scholium generale*, which appears here in print for the first time. “The General Scholium, added to the *Principia* in 1713, is probably Newton’s most famous writing ... In this text, Newton not only challenges the natural philosophy of Descartes, counters criticism levelled against him by Leibniz and appeals for universal gravitation and an inductive method, but he embeds a subversive attack on the doctrine of the Trinity, which he believed was a fourth-century corruption of Christianity” (*The Newton Project*).



Babson 12; Wallis 8.

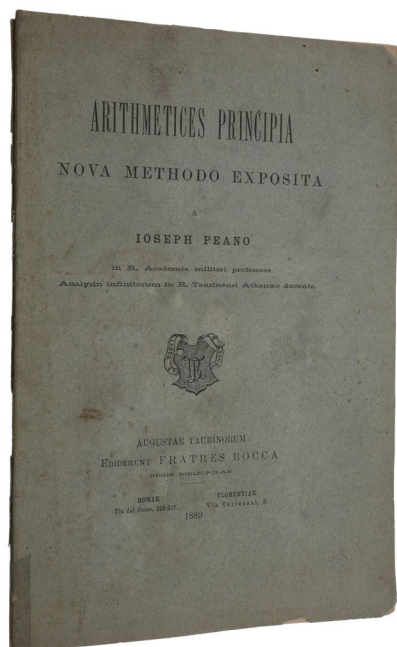
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The Peano axioms for arithmetic

41. PEANO, Guiseppe. *Arithmetices principia nova methodo exposita*. Turin: Bocca Brothers, 1889.

\$14,000

First edition, very rare in any condition but especially so in the original printed wrappers, of Peano's most important work, which contains the first statement of the famous 'Peano axioms' for the natural numbers and which remains of seminal importance to mathematics and mathematical logic. "Peano's most important contribution to the development of the theory and practice of the axiomatic method was his system of axioms for the arithmetic of the natural numbers...



On the basis of his axiomatization, Peano constructed the entire theory of natural numbers. In particular, he showed how the elementary theorems of arithmetic can be obtained from his axioms" (Styazhkin). "... with the publication of *Arithmetices principia, nova methodo exposita*, Peano not only improved his logical symbolism but also used his new method to achieve important new results in mathematics; this short booklet contains Peano's first statement of his famous postulates for the natural numbers, perhaps the best known of all his creations. His research was done independently of the work of Dedekind, who the previous year had published an analysis of the natural numbers, which was essentially that of Peano but without the clarity of Peano. *Arithmetices principia* made important innovations in logical notation, such as \hat{I} for set membership and a new notation for universal quantification. Indeed, much of Peano's notation found its way, either directly or in a somewhat modified form, into mid-twentieth-century logic" (DSB).

Landmark Writings in Western Mathematics 47.

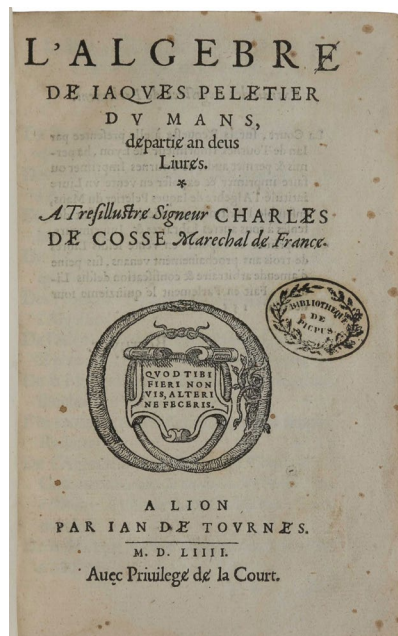
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The first printed book on algebra in French

42. PELETIER DU MANS, Jacques. *L'Algèbre*. Lyon: Jean de Tournes, 1554.

\$12,500

First edition, very rare, of "the first printed book on algebra in French and the richest among vernacular books on algebra" (Cifoletti). Peletier believed that French was the perfect instrument for the sciences and "wrote *L'Algèbre* in French in his own orthographic style. He adopted several ingenious ideas from Stifel's *Arithmetica integra* (1544) and showed himself to have been strongly influenced by Cardano. He was the first mathematician to recognize relations between the



coefficients and roots of equations" (DSB). Peletier's innovative mathematical symbolism can be seen as anticipating the introduction of symbolic algebra by François Viète (1540-1603) in his *In artem analyticem isagoge* (1591). Peletier's "principal innovation resides in the introduction of as many symbols as there are unknowns in the problem, as well as in the fact that the unknowns in the problem correspond to the unknowns in the equations, in contrast to what was being suggested by, for example, Cardan and Stifel" (Cifoletti). Only three copies have appeared at auction in the past fifty years: Macclesfield (18th century calf, "a few headlines shaved"), Honeyman (a reimboitage with new endpapers), and the Norman copy (this copy). The only other copy we know of in commerce was offered by Amélie Sourget in 2014, bound with a later edition of Peletier's *L'Arithmétique* (1584) (Cat. 5, no. 3, €29,000).

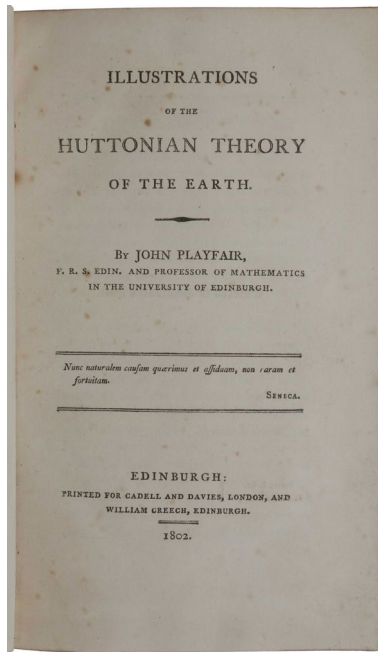
Provenance: Bibliothèque de Picpus (stamp on title and at end); Haskell F. Norman.

<http://sophiararebooks.com/4026>

'Of this great classic it is impossible to speak too highly'

43. PLAYFAIR, John. *Illustrations of the Huttonian Theory of the Earth.* Edinburgh: Caddell and Davies; Creech, 1802.

\$10,000



First edition, a beautiful copy in contemporary binding, of “one of the most conspicuous landmarks in the progress of British geology” (DSB). “Of this great classic it is impossible to speak too highly. For precision of statement and felicity of language it has no superior in English scientific literature.” (Evans). “Playfair’s exposition and development of James Hutton’s Uniformitarian theory of the earth was largely responsible for the theory’s acceptance. Playfair believed Hutton’s theory to be a qualitative revolution in thought — the geologic equivalent of Newton’s *Principia* — but felt that its scientific principles were too much obscured by Hutton’s difficult prose and preoccupation with natural theology. Divorcing Hutton’s science from his religious ideas, Playfair presented the essential elements of Uniformitarianism in a clear, elegant and readable manner, reinforcing them with many original observations and reflections of his own. He recognized the importance of unconformity (lack of continuity between strata in contact) as a manifestation of the geological cycle, a concept at the heart of Hutton’s theory... Playfair also gave many terms their modern geological meaning, and introduced important new phrases, such as “geological cycle,” into scientific literature” (Norman).

Grolier/Horblit 52b; Evans 66; Norman 1717; Parkinson, 241; PMM 247n.

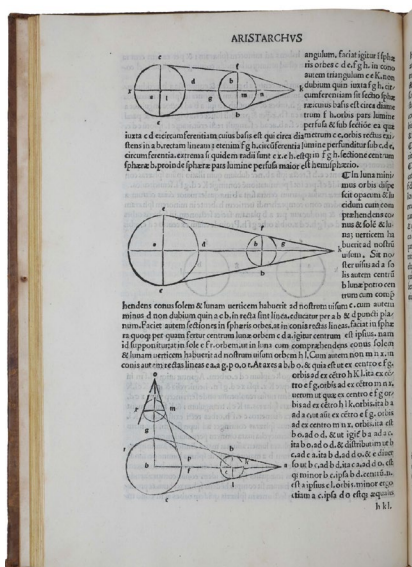
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First editions by Rhazes, Galen, Aristarchus, Aristotle, and others

44. RHAZES, ARISTARCHUS, EUCLID, ARISTOTLE, GALEN et al. (Giorgio VALLA, tr.). *Giorgio Valla Placentino interprete.* Venice: Simon Bevilaqua, 30 September 1498.

\$48,500

First edition, very rare, of this remarkable collection of twenty-two Greek texts translated by Giorgio Valla, most on scientific subjects from mathematics and music to medicine, with the majority of the texts appearing here in print for the first time. Among the most notable such ‘firsts’ in this volume are: *De pestilentia*, the most important work of the great



Persian physician Rhazes, the first medical description of smallpox and the most important early work on epidemiology – Rhazes’ explanation for why the disease does not strike the same individual twice is the first theory of acquired immunity; 5 works by Galen; the only extant work by Aristarchus of Samos, who proposed a heliocentric cosmology almost two millenia before Copernicus; book XIV of Euclid’s *Elements*, generally ascribed to Hypsicles, the first 13 books having been printed 6 years earlier; *De astrolabio*, by Nicephorus Gregoras, on which were based several later texts on the astrolabe, notably those of Apianus and Stöffler; and Aristotle’s *Poetics*, the most comprehensive work on literary theory and criticism surviving from the classical period, which played a foundational role in the history of scholarship. Edward Rosen has shown that Copernicus read Valla’s collection, using in his *Commentariolus* the data on the orbital period of Mars given in Valla’s translation of Cleomedes’ *De mundo* printed here. ABPC/RBH list only one other copy (disbound).

Provenance: The Earls of Macclesfield.

<http://sophiararebooks.com/3994>

The discovery of X-rays

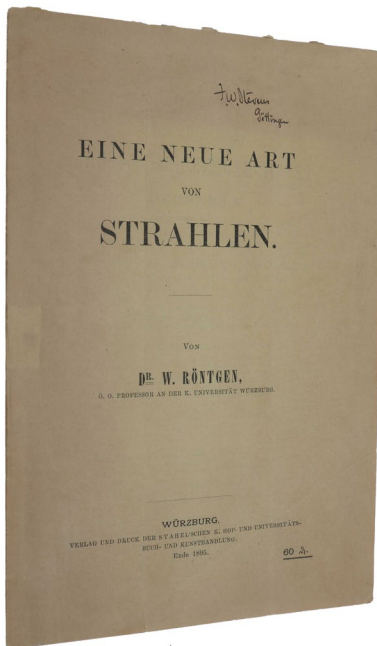
45. RÖNTGEN, Wilhelm Conrad. *Eine neue Art von Strahlen.* Würzburg: Universitäts-Buch und Kunsthandlung, 1895.

\$17,000

First edition, first issue, and a fine copy of the very rare offprint. The discovery of X-rays was the most important contribution to medical diagnosis in a century, and a key to modern physics. Röntgen announced his discovery in the present paper, which described the rays' photographic properties and their amazing ability to penetrate all substances, even living flesh. Although he was unable to determine the true physical nature of the rays, Röntgen was certain that he had discovered something entirely new, a belief soon confirmed by the work of other scientists such as Becquerel, Laue and the Curies. For his discovery, Röntgen was awarded the Nobel Prize in physics for 1901" (Norman). "The discovery by Professor Röntgen of a new kind of radiation from a highly exhausted tube through which an electric discharge is passing has aroused an amount of interest unprecedented in the history of physical science" (J.J. Thomson). There were five separate printings (the offered being the first), of this offprint in the space of two months.

Dibner 162; Grolier/Horblit 90; PMM 380; Evans 46; Garrison & Morton 2683.

<http://sophiararebooks.com/4106>



The first book devoted exclusively to the structure of an animal other than man

46. RUINI, Carlo. *Dell' Anatomia e dell' infermita del cavallo.* Bologna: Heirs of Giovanni Rossi, 1598.

\$95,000

First edition, the highly scarce first issue, of "one of the great rarities of early zootomical literature" (Cole), with illustrations considered comparable to those in Vesalius' *Fabrica*. "The unusual rarity of the first edition [i.e., first issue] might be partially explained by the fact that a portion of the sheets of the first edition were reissued the following year by Gaspare Bindoni in Venice. Copies of this second issue, which is also rare, contain a cancel title and a different dedication leaf, changing the dedication to Ceasar, Duke of Vendôme, natural son of Henri IV" (Norman). "His book is the first devoted to the anatomy of an animal, and is one of the finest achievements of the heroic age of Anatomy" (Singer). "At the hands of Ruini the subject of equine anatomy jumped at a single bound from the blackest ignorance to relative perfection, the degree of which it is difficult to exaggerate" (Smith). "As the author of the first book devoted exclusively to the structure of an animal other than man, Ruini ranks among the founders of both comparative anatomy and veterinary medicine" (Norman).

Provenance: From the library of Jean Blondelet. "Jean Blondelet was probably the greatest, but least known, French collector of rare medical and scientific books in the 20th century." (Jeremy Norman).

Dibner 186 (second issue); GM 285; Mortimer (Italian) 448; Norman 1858.

<http://sophiararebooks.com/3989>



The earliest detailed map of the moon and the first illustration of a telescope

47. SCHEINER, Christoph. *Disquisitiones mathematicae, de controversiis et novitatibus astronomicis.* [Bound after:] TANNER, Adam. *Astrologia Sacra*. Ingolstadt: Eder for Elisabeth Angermaria, 1614 & 1615.

\$48,000

First edition, in a beautiful contemporary binding, of Scheiner's very rare work containing the second earliest map of the moon – but the first to give topographical details – as well as the first illustrations of a telescope. It builds upon Scheiner's 1612 discovery of sunspots, made using a telescope he built himself, which led to his famous controversy with Galileo. This work discusses almost all the astronomical issues then current, especially those brought about by the newly invented telescope. There is an extensive argument against the notion of an infinite universe, illustrated by a striking full-page woodcut on p. 17 of 'Chaos infinitum ex atomis' surrounding the sphere of fixed stars. This is followed by a detailed examination of the Copernican heliocentric theory, as well as the Tychonic system, which he supported, and that of Fracastoro; the systems are illustrated by three large diagrams. Then follow discussions of the moon (including its 'secondary light'), the sun (with a full examination of sunspots), and the planets. On p. 58 is an extraordinary map of the moon, with craters and other features labelled and listed, including Mare Crisium, Mare Tranquilitatis, Mare Foecunditatis, Mare Nectaris and the crater Aristoteles. The only earlier maps of the moon are those published in Galileo's *Sidereus Nuncius* (1610), but these are "apparently but schematic views of what Galileo saw with his telescope, for none of the features recorded on them can be identified with certainty with any known formation" (Kopal).



<http://sophiararebooks.com/4126>

An important work in the history of the telescope

48. SCHYRLAEUS DE RHEITA, Anton Maria. *Oculus Enoch et Eliae, sive radius sidereomysticus...* Antwerp: Hieronymus Verdussen, 1645.

\$58,500

First edition of this very rare and influential work in the history of the telescope, a remarkable copy, uncut in the original interim boards. Rheita "introduced a number of crucial improvements in his work, leading to a real breakthrough in telescope design. First, Rheita suggested a new and much better method of polishing lenses, leading to a strong reduction of deviations; secondly (and even more importantly), he found that a compound ocular, composed of three or four lenses, resulted in a much better quality than using only a single (compound) ocular" (Van Helden). "This new polishing technique, together with the compound eyepiece, allowed for longer and longer telescopes, and the astronomical discoveries that went along with it, during the second half of the 17th century... Rheita's design of telescopes became known throughout Europe, mostly through telescopes produced by Wiesel in Augsburg." (*Biographical Encyclopedia of Astronomers*). "We can consider Schyrl de Rheita and Johannes Wiesel as the founders of technical optics. Only with the new manufacturing technology, which they developed, did the telescope change from an imperfect device into an efficient instrument of research" (Willach). The only other copies recorded by ABPC/RBH in the last 50 years are the Honeyman and Macclesfield copies (the latter sold Sotheby's, October 25, 2005, lot 1849, £21,600 = \$38,119).



<http://sophiararebooks.com/4027>

The first accurate anatomical illustrations of the fetus in utero

49. SMELLIE, William. *A Sett of Anatomical Tables, with Explanations, and an Abridgement, of the Practice of Midwifery, with a View to Illustrate a Treatise on that Subject, and a Collection of Cases.* London: [D. Wilson], 1754.

\$8,500

First edition, a very fine copy, of Smellie's great obstetrical atlas, "which is very rare and is said to have been issued in only 100 copies" (*Heirs of Hippocrates*). "The plates in this classic of obstetrical illustration are far superior to any that had appeared before. They give everywhere a masterly representation, true to nature, of the relations of the parts of mother and child, and have perhaps contributed more to spreading correct ideas of labor than all the books that have ever been written on the subject" (Grolier/Medicine). "When Smellie's Theory and Practice of Midwifery was published, Jan van Rymdyk had already completed a series of twenty-six anatomical illustrations for use in Smellie's obstetrical lectures, and in an advertisement published at the end of the work, Smellie announced his intention to publish these drawings in an atlas to be paid for by subscription. The atlas was published two years later, with the number of plates increased to thirty-nine, eleven of which had been supplied by Pieter Camper, professor of medicine at Francker in the Netherlands. Smellie was the leading forceps practitioner in London, and several of the plates illustrate the use of this instrument in various presentations of the fetus. These engravings are the first accurate anatomical illustrations of the fetus in utero." (Norman).



Grolier/Medicine 43b; Norman 1955; *Heirs of Hippocrates* 522.

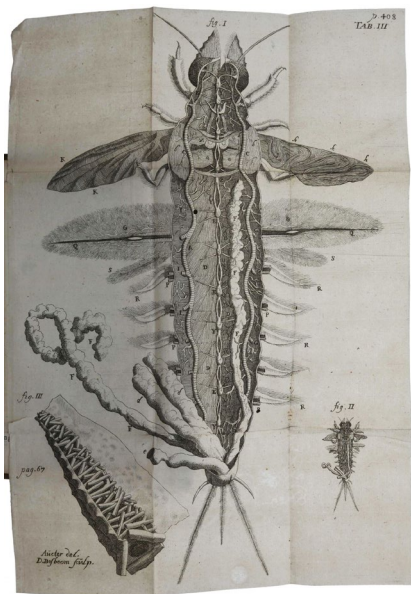
<http://sophiararebooks.com/4019>

The best early representations of the dissection of an insect

50. SWAMMERDAM, Jan. *Ephemeris Vita.* Amsterdam: Abraham Wolfgang, 1675.

\$11,000

First edition, very rare and a fine copy, of Swammerdam's treatise on the life-cycle and anatomy of the mayfly, containing his first published descriptions and illustrations of the internal anatomy of an insect. "His *Ephemeris Vita* contains some very remarkable pieces of minute anatomy. The figures, drawn by himself, are the best early representations of the dissection of an insect" (Hagströmer Library). "In his last work, on the may-fly, Swammerdam gave the first complete account of metamorphosis... much in his descriptions was not superseded before the nineteenth century... on a visit to Paris he repeated before a meeting at Thévenot's house his dissection of the may-fly, and an offer was made to tempt him to Florence" (Hall). In 1669 Swammerdam had published his *Historia insectorum generalis*, which contained many beautiful illustrations of insects, but did not attempt to describe their minute anatomy. "A comparison of his investigations contained in *Historia insectorum* (1669) and those that appeared in his next major published work, on the may-fly (*Ephemeris Vita*, 1675), shows that a series of fundamental changes had taken place in Swammerdam's science. Most importantly, he began to study the internal structures of insects using microscopy, dissection, and careful experimentation. Also, like Malpighi, he presented his vision to the world via some stunning drawings, in which the component anatomical parts are treated as separate, isolated, and often utterly strange objects, without reference to size or function ... Swammerdam was carrying out relatively crude dissections of large insects in the second half of the 1660s... However, prior to 1669 he never put the two skills together" (Cobb).



<http://sophiararebooks.com/4049>

The first book devoted entirely to plastic surgery

51. TAGLIACCOZZI, Gaspare. *De curtorum chirurgia per insitionem, libri duo.* Venice: Gaspare Bindoni, 1597.

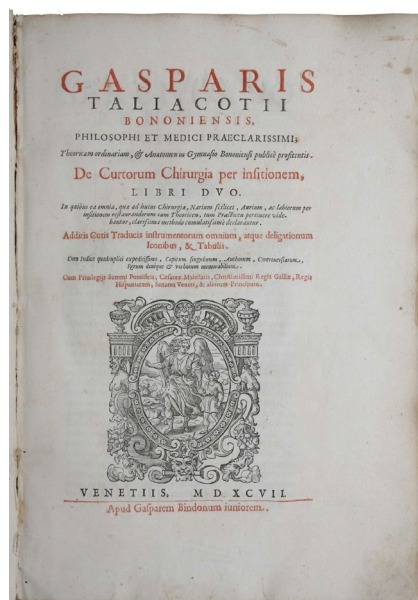
\$125,000

First edition, first issue, one of five known large and thick paper copies, of the first book devoted entirely to plastic surgery. Only two of these are in private hands: the present copy, in a contemporary binding, and the Norman copy, which is an ex-library copy in modern binding. "This work," "Concerning the surgery of the mutilated by grafting," is a classic in the history of plastic surgery and is especially noteworthy for its description of rhinoplasty. Rhinoplasty had been practiced

in ancient India and, in the thirteenth century, by a family of itinerant Sicilian surgeons who kept the operation a family secret. The volume is divided into two parts: the first, "Theory of the art of plastic surgery," is about the structure, function, and physiology of the nose; and the second part, "Practice of the art," describes and illustrates the instruments and operative procedures for restoration of the nose, lip, and ear. Tagliacozzi also fully discussed the complications, such as hemorrhage and gangrene, that often occurred during these operations. The numerous full-page woodcuts are well-executed and illustrate many of the techniques described in the text. The immediate popularity of the work caused it to be pirated by another Venetian printer" (*Heirs of Hippocrates*). Rhinoplasty was much in demand in the sixteenth century and later, both as a remedy for the grotesque deformity of 'saddle nose' caused by syphilis, and for injuries resulting from duels.

GM 5734; *Heirs of Hippocrates* 379; Mortimer (Italian) 488; Norman 2048.

<http://sophiararebooks.com/3995>



OCLC lists seven copies in US, the majority incomplete

52. TARTAGLIA, Niccolò. *Three bookes of colloquies concerning the arte of shooting.* London: Harrison, 1588.

\$48,500

First edition in English, very rare with all the plates, of the first three books of Tartaglia's 1546 *Quesiti et Inventioni Diverse*, dealing with ballistics and expanding and correcting the treatment in his 1537 *Nova Scientia*, the first systematic treatise on the subject. The appendix of the translator Cyprian Lucar is compiled from writings on gunnery by contemporary authors. "Tartaglia proved both mathematically and experimentally that the trajectory of a missile fired from a cannon

was a curved line throughout, thus contradicting the 'impetus' theory derived from Aristotle's *Physics*, which stated that a projectile's trajectory was described by two straight lines united by a curved line (Tartaglia was the first Renaissance scientist to point out serious flaws in the *Physics*). Tartaglia demonstrated that from the beginning of its flight, a projectile was affected by gravity, which, along with wind resistance, caused its forward velocity to lessen while increasing the speed of its fall. Tartaglia also observed a relationship between the speed of projection and the speed of fall: the greater the initial speed, the less the gravitational influence. Through experimentation, he determined that the maximum cannon range, at any given initial speed, was obtained with a firing elevation of forty-five degrees" (Norman). Designed as a handbook for practicing military men, copies of this work were often damaged through use, perhaps in the field, and few complete examples survive. ABPC/RBH list only three other copies, and no other complete copy since 1968. OCLC lists seven copies in US, the majority incomplete.

<http://sophiararebooks.com/4103>



Large paper copy

53. VOLTAIRE, François-Marie Arouet. *Éléments de la Philosophie de Neuton*, Amsterdam: Etienne Ledet, 1738.

\$15,000

First edition, first issue, extremely rare large and thick paper copy, and in a beautiful contemporary binding, of Voltaire's only scientific work. "Owing to Descartes' great influence and Newton's dispute with Leibnitz, the spread of his [Newton's] thought on the continent took about fifty years. One of his greatest champions in France was Voltaire (1694-1778), whose *Éléments de la Philosophie de Neuton*, 1738, was widely read" (PMM). Voltaire "presented Newton as the discoverer of the true system of the world and the destroyer of the errors of Cartesianism" (Norman). The work is dedicated to Voltaire's mistress, the Marquise du Châtelet, who provided the first French translation of Newton's *Principia*. Two issues of this first edition are known, printed for the publishers Etienne Ledet and Jacques Desbordes, of which the Ledet issue is generally accepted to be the first. ABPC/RBH list only two large paper copies in the last 80 years. One of these was the Norman copy, the second (Desbordes) issue, in a later binding and described as being 'large and thick paper' in the Norman library catalogue, although it only measured 215 x 132 mm, compared to 227x137 mm for the present copy.



Babson 120; Wallis 155; Norman 2165.

<http://sophiararebooks.com/4104>

Discovery of the structure of DNA

54. WATSON, J. D. & CRICK, F. H. C. 'Molecular Structure of Nucleic Acids'; WILKINS, M. H. F., STOKES, A. R. & WILSON, H. R. 'Molecular Structure of Deoxypentose Nucleic Acids'; FRANKLIN, R. E. & GOSLING, R. G. 'Molecular Configuration in Sodium Thymonucleate'. Three papers in a single offprint from *Nature*, 1953. [With:] CRICK, F.H.C. *The Structure of the Hereditary Material*. Offprint from *Scientific American*, 1954. [With:] CRICK, F.H.C. *Nucleic Acids*. Offprint from *Scientific American*, 1957. London; San Francisco: Macmillan; Freeman, 1953; 1954; 1957.

\$25,000

A fascinating collection of materials relating to the discovery of the structure of DNA, headed by the rare three-paper offprint which "records the discovery of the molecular structure of deoxyribonucleic acid (DNA), the main component of chromosomes and the material that transfers genetic characteristics in all life forms. Publication of this paper initiated the science of molecular biology. Forty years after Watson and Crick's discovery, so much of the basic understanding of medicine and disease has advanced to the molecular level that their paper may be considered the most significant single contribution to biology and medicine in the twentieth century" (Grolier/Medicine). The double helix describing the molecular structure of DNA has not only reshaped biology, it has become a cultural icon, represented in sculpture, visual art, jewellery, and toys. In 1962, Watson, Crick, and Wilkins shared the Nobel Prize in Physiology or Medicine "for their discoveries concerning the molecular structure of nucleic acids and its significance for information transfer in living material." *Provenance*: Stephen Neidle, CRC Biomolecular Group, King's College, London. The offered materials include a typed letter signed from Wilkins to Neidle.



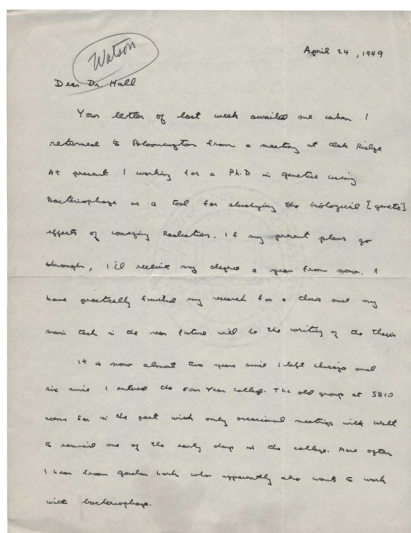
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Rare early ALS from one of the co-discoverers of the structure of DNA

55. WATSON, James D. Autograph Letter Signed ("Jim Watson"), 24 April 1949 to Dr. Hall. 2 pages.

\$22,500

An early letter by James Watson (b. 1928) as a young doctoral student, written to a former professor on his plans to spend the summer at Cold Spring Harbor Laboratory with Max Delbrück – whose work on phage genetics helped form one of the keys that led to the discovery of the structure of DNA. Watson shared with Francis Crick (1916-2004) and Maurice Wilkins (1916-2004) the 1962 Nobel Prize in Physiology or Medicine “for their discoveries concerning the molecular structure of nucleic acids and its significance for information transfer in living material”. At Indiana, Watson began working for his doctorate in 1948 under Luria’s direction. “Watson’s thesis was on the effect of x rays on the rate of phage lysis (a phage, or bacteriophage, is a bacterial virus). The biologist Max Delbrück and Luria—as well as a number of others who formed what was to be known as “the phage group”—demonstrated that phages could exist in a number of mutant forms. A year earlier Luria and Delbrück had published one of the landmark papers in phage genetics, in which they established that one of the characteristics of phages is that they can exist in different genetic states so that the lysis (or bursting) of bacterial host cells can take place at different rates. Watson’s Ph.D. degree was received in 1950, shortly after his twenty-second birthday” (DSB). One of the most prominent teachers in the department of biology at Indiana at the time was Walter Konetzka (1923-92), possibly the ‘Walt’ referred to in the present letter.



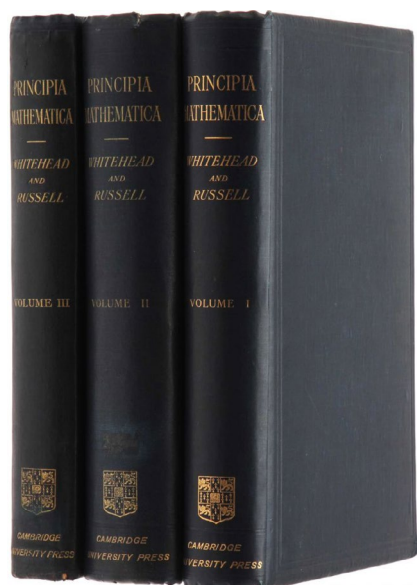
<http://sophiararebooks.com/4150>

One of the greatest rarities of modern mathematics

56. WHITEHEAD, Alfred North & RUSSELL, Bertrand. *Principia mathematica*. Cambridge: University Press, 1910, 1912; 1913.

\$110,000

First edition of all three volumes of this monumental work. Complete sets of the first edition are very rare on the market. Probably named after Isaac Newton’s great work, *Principia Mathematica* was Whitehead and Russell’s detailed account of their ‘logician’ thesis that mathematics could be derived solely from logical concepts and by logical methods...[It] has had an influence, direct and indirect, of near Newtonian proportions upon the spheres of its chief influence: mathematical logic, set theory, the foundations of mathematics, linguistic analysis and analytical philosophy” (Grattan-Guinness). “Whether they know it or not, all modern logicians are the heirs of Whitehead and Russell” (Palgrave). “After the failure of Frege’s *Grundgesetze*, due to Russell’s paradox, it was the *Principia Mathematica* of Whitehead and Russell which first successfully developed mathematics within a logical framework” (ibid.). The first volume of *Principia Mathematica* was published in December 1910 in an edition of 750 copies, priced 25 shillings; volumes II and III had a print run of only 500 copies, and were priced at 30 shillings and 21 shillings, respectively. A fourth volume, dealing with applications to geometry, was written by Whitehead alone, but was not published.



Landmark Writings in Western Mathematics 16; Garden Ltd. 219; Norman 1868.

<http://sophiararebooks.com/3562>

An extremely fine copy

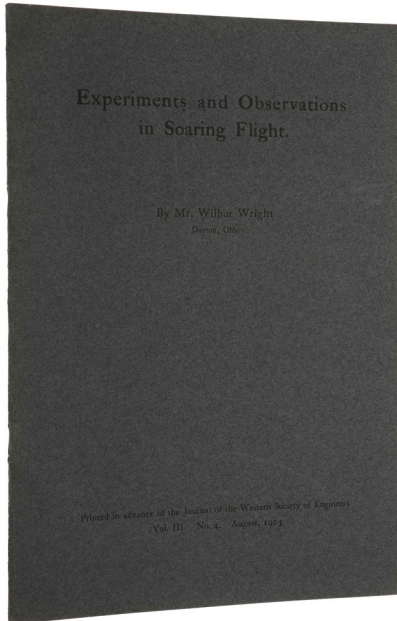
57. WRIGHT, Wilbur. *Experiments and Observations in Soaring Flight*. [Chicago: 1903].

\$25,000

First edition, the rare offprint issue, and a virtually mint copy, of Wilbur Wright's second report of his and Orville's flying experiments. This is the first account of the Wrights' experiments with motorized gliders. The brothers made their first powered flight (852 feet in 59 seconds) on 17 December 1903, six months after this report was read before the Western Society of Engineers. "Of the work described in their second paper Wilbur later testified in 1912: 'This was the first time in the history of the world that lateral balance had been achieved by adjusting wing tips to respectively different angles of incidence on the right and left side ... We were the first to functionally employ a movable vertical tail in a flying aeroplane. We were the first to employ wings adjustable to respectively different angles of incidence in a flying aeroplane. We were the first to use the two in combination in a flying aeroplane'" (Norman 2267). "There was slight public interest but in 1908 they won the Michelin trophy in Paris and in the following year contracted to supply an airplane for the U. S. Army. The flight by Bleriot across the English Channel in 1909 brought the world's attention to the possibilities of flight, and in a few years man rose to the use of the air as an additional medium of transportation" (Dibner).

Dibner 185 (journal issue); Norman 2267.

<http://sophiararebooks.com/4144>



The Wright brothers' first publication on aeronautics

58. WRIGHT, Wilbur. *Some Aeronautical Experiments*. [Chicago: Octave Chanute, 1901].

\$48,000

First edition, the very rare offprint issue, and a fine copy of the Wright brothers' first published report of their trial flights with motorless gliders at Kitty Hawk. "The Wright brothers' first publication on aeronautics, and the work that made their experiments with motorless gliders known to the world. Wilbur Wright's paper describes the brothers' progress over three seasons of glider flight, during which they mastered the art of flight control and solved the problem of wing warp drag by the addition of a vertical rear rudder. Wright made this address to the Western Society of Engineers at the urging of Octave Chanute, who was to a large degree responsible for encouraging the Wright brother's early work; the paper is prefaced by some remarks by Chanute discussing the possibility of motorized flight using a new lightweight steam or gas engine. Chanute was so certain of this paper's significance that he ordered 300 copies of the offprint, 150 of which he sent to colleagues in the United States and abroad, and 150 of which he sent to the Wright brothers for their own use" (Norman). Of the 300 copies of the offprint printed, few seem to have survived (doubtless due to their fragile nature), and only three other unrestored copies are recorded as sold at auction by ABPC/RBH (the Norman copy – Christie's 29 October 1998, \$48,300 – was rebacked).

<http://sophiararebooks.com/4143>

