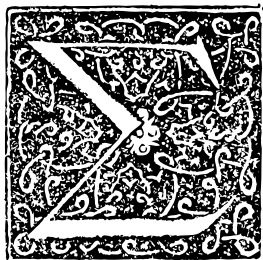


Rare and important books & manuscripts in science, by Christian Westergaard, M.Sc.



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(The descriptions in this list are abbreviated; full descriptions are available)



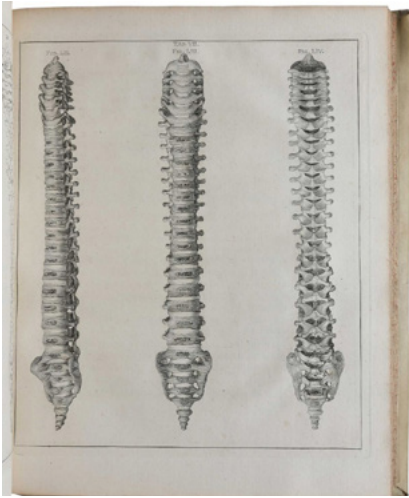
HUNDT: *Antropologium de hominis dignitate*, 1501.

Item no. 28

A classic work on osteology

1. **ALBINUS, Bernhard Siegfried.** *Icones ossium foetus humani*. Leiden: Verbeek, 1737.

\$3,200



First edition, in contemporary Dutch vellum, of this beautiful book with 32 plates by the master engraver Jan Wandelaar. “Albinus is particularly remembered for his descriptions of the bones, and this first edition of his treatise on fetal bones is one of his finest atlases. All of the fetal bones are illustrated with great detail and are finely lined in the sixteen plates and sixteen line drawings. (*Heirs of Hippocrates*). “These plates are also engraved by Wandelaar [as in his celebrated *Tabulae sceleti*, 1747]. The illustrations were engraved upon the plates directly from the preparations. The first bears the signature: ‘Wandelaar omnes ad exemplaria in aes incidit’. The other plates are not signed. There are altogether sixteen finished plates, containing a total of one hundred and sixty-three representations. Each one of these plates is supplemented by an identical outline-plate containing the same figures with letters

engraved upon them. The different bones are reproduced with an unsurpassed fidelity and delicacy” (Choulant). Albinus, the celebrated professor of anatomy and surgery in Leiden, was no doubt the best descriptive anatomist of his day and the pioneer of a new epoch in human anatomy. Besides his own writings he edited the works of Eustachio, Fabricius and Harvey. In collaboration with Herman Boerhaave he edited a new edition of Vesalius’ works (1725), in which the two-hundred-year-old woodcuts are beautifully copied on copperplates by the master engraver Jan Wandelaar.



The first book on orthopaedics

2. **ANDRY, Nicolas.** *L'orthopédie ou l'art de prevenir et de corriger dans les enfans, les difformités du corps*. Paris: Chez la veuve Alix; Lambert & Durand, 1741.

\$16,000



Rare first edition, and a very fine copy, of the “first book on orthopedics” (Garrison-Morton). A work “of supreme importance” (Bick). “Nicholas Andry coined the word *orthopaedics* in French as *orthopédie*, derived from the Greek words *orthos* (‘correct’ , ‘straight’) and *paidion* (‘child’), when he published *Orthopedie* (translated as *Orthopaedia: or the Art of Correcting and Preventing Deformities in Children*) in 1741. Though as the name implies it was initially developed with attention to children, the correction of spinal and bony deformities in all stages of life eventually became the cornerstone of orthopedic practice” (*Wikipedia*).

☛ Grolier/Medicine 42; Lilly, *Notable Medical Books* 113; Norman 55; *Heirs of Hippocrates* 697; Garrison-Morton 4301.



First anatomical illustrations printed in colour

3. **ASELLI, Gaspare.** *De lactibus sive lacteis venis quarto vasorum mesaraicorum genere novo invento...* Milan: Giovanni Battista Bidelli, 1627.

\$135,000



Exceptionally fine copy, untouched in original boards from the collection of Jean Blondelet, of the first scientific and systematic study of the lymphatic system, and the first book with anatomical illustrations printed in color. This is a rare book on the market: just three copies auctioned the past fifty years (Sotheby's 1992; the Haskell Norman copy 1998; Evans-Friedman copy 2001) – this copy much superior to all three. *Provenance:* rear paste-down with the marking of Blondelet, and with his preferred custom morocco box by Lobstein. “Jean Blondelet was probably the greatest, but least known, French collector of rare medical and scientific books in the 20th century.” (Jeremy Norman). “Aselli’s work was reprinted in Basel in 1628, in Leiden in 1640, and in Amsterdam in 1645 (the last in Adriaan van de Spiegel’s *Opera quae extant omnia*). In all of these later editions, the illustrations were reduced in size and printed in black only from copperplate engravings” (Grolier).



☛ Grolier, *One Hundred Books Famous in Medicine* 26; Norman 76; *Heirs of Hippocrates* 453; Lilly, *Notable Medical Books* 61; Garrison-Morton 1094.

A new method of physical diagnosis – thoracic percussion

4. **AUENBRUGGER, Leopold.** *Inventum novum ex percussione thoracis humani ut signo abstrusos interni pectoris morbos detegendi.* Vienna: Typis Joannis Trattner, 1761.

\$20,000



Very rare first edition, first issue, of one of the greatest of medical classics describing a new method of physical diagnosis - thoracic percussion, namely, tapping a patient's chest and determining from the resultant sound whether it was healthy or diseased, the “first advance in physical diagnosis since the age of Hippocrates ... The book remains one of the classics of medicine, anticipating the later developments in physical diagnosis of Rene Theophile Laennec and Wilhelm Roentgen in the nineteenth century and Willem Einthoven and Godfrey Hounsfield in the twentieth ... Two issues of Auenbrugger's book were printed in 1761, the first with leaf F8v blank and the second with errata on this page. A second edition was printed in 1763. In addition to the French translations, the book appeared in English in 1824 and in German in 1843” (Grolier/Medicine).

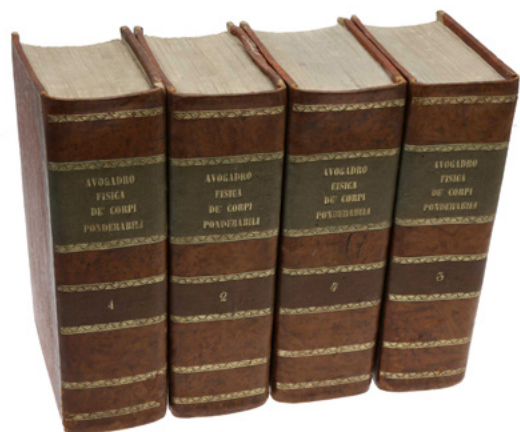


☛ Grolier, *One Hundred Books Famous in Medicine* 45; Lilly, *Notable Medical Books* 127; *Heirs of Hippocrates* 954; Norman 81; Garrison-Morton 2672.

The foundation work of physical chemistry

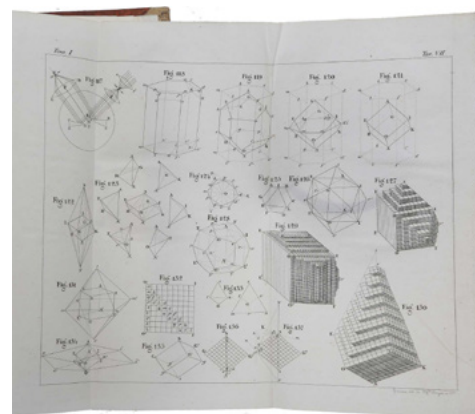
5. AVOGADRO, Amadeo. *Fisica de' Corpi Ponderabili ossia Trattato della Costituzione Generale de' Corpi del Cavaliere.* Turin: Stamperia Reale, 1837-1841.

\$26,500



First edition, and a very fine copy, of one of the great rarities of chemistry. This monumental work is the only large-scale publication of Avogadro (1776-1856), famous for his eponymous hypothesis (1811) that equal volumes of all gases at the same pressure and temperature contain the same number of molecules. Although his molecular hypothesis is widely considered to be Italy's great contribution to chemistry in the 19th century, his 1811 memoir was largely ignored for another half century, partly because it was published first in Italian (when Italy was at the periphery of scientific research) and subsequently only in minor French, German and English scientific journals.

Emil Offenbacher, the distinguished dealer who specialized in chemistry, wrote (cat. 39, item 4, 1986) "a complete set [of the present work] is today of great rarity". ABPC/RBH list just four other copies between the Honeyman sale (1978) and the present copy.

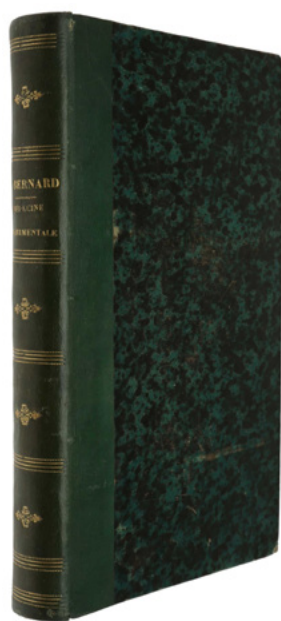


☛Norman 89; Honeyman 168; Sparrow, *Milestones of Science* 16 [1811 memoir].

"The greatest classic on the principle of physiological investigation" (G&M)

6. BERNARD, Claude. *Introduction à l'étude de la médecine expérimentale.* Paris; London; Madrid; New York; Leipzig: J.B. Baillière et fils; Hippolyte Baillière; C. Bailly-Baillière; Baillière Brothers; E. Jung-Treuttel, 1865.

\$2,500



First edition, the rare first issue by Crété, of Claude Bernard's most influential work (subsequent impressions from the stereotype plates were made by E. Martinet). "Probably the greatest classic on the principle of physiological investigation and of the scientific method as applied to the life science" (Garrison-Morton). "Intended as the prologue to a multi-volumes work on the principles of experimental medicine (which was never published), Bernard's masterly justification and exposition of the use of the experimental method in studying life phenomena has remained a classic of both scientific and experimental literature ... According to M. Roux-Dessarp, former president of Baillière et fils, the imprint of Crété on the verso of the half-title and at the foot of page 400 indicates a first impression. In the [three] copies owned by Dr. Norman, the Crété imprint accompanies Baillière's five-city imprint, while the Martinet imprint accompanies Baillière's three-city imprint [Paris-London-Madrid]" (Norman). Inserted in this copy is an autograph letter of recommendation from Bernard to an unnamed colleague on behalf of the son of his printer Baillière.



☛PMM 353 *En francais dans le texte* 288; G&M 1766.501; Grmek 29; *Heirs of Hippocrates* 1797; Osler 1511; Waller 951; Norman 206.

Honeyman copy

7. **BERNOULLI, Johann.** *Opera omnia, tam antea sparsim edita.* Lausanne & Geneva: Marci-Michaelis Bousquet, 1742.

\$7,500



An exceptionally fine and complete copy with both the portraits which are often lacking, from the collection of Robert B. Honeyman. “[Johann] Bernoulli published only one book, *Théorie de la manoeuvre des vaisseaux* (1714) and apart from this, his dissertation *De motu musculorum* (1694) and one or two minor pieces, all his work was contributed to journals (189 papers are collected here) or were first published in these volumes, i.e. 59 of his lectures and the *Hydraulica* in volume IV [appearing here for the first time in print], which was written in competition with his son Daniel.” (Roger Gaskell). “The first volume is primarily devoted to problems in geometry and the early calculus, but also contains papers on muscular mechanics, the resistance of solids, and a geometrical demonstration of the motion of pendulums and projectiles in resisting and unresisting media. Volumes two and three are almost totally devoted to problems of mechanics, the first of these containing his theoretical essay on the maneuvering of vessels and related papers, as well as numerous contributions on the analysis of trajectories. His discourse on the laws governing the communication of movement opens volume three, which also contains his essay on celestial mechanics. The last volume contains contributions on the curvature of elastic plates, his mechanico-dynamical propositions, and problems in dynamics. A very fine and completely unrestored set, housed in four fine custom half red morocco cases.

✶Honeyman 293 (this copy, sold for \$1,500 in 1978); Norman 217; Stanitz 55; Arnoud de Vitry 55.



Coloured catalogue of 2000 anatomical and pathological preparations

8. **BLEULAND, Jan.** *Otium academicum, continens descriptionem speciminum nonnullarum partium corporis humani et animalium subtilioris anatomiae ope in physiologicum usum præparatarum, aliarumque, quibus morborum organicorum natura illustratur.* Utrecht: Joh. Altheer, 1828.

\$18,500



First edition, extremely rare, of Bleuland's last work, the beautiful catalogue of the author's collection of more than 2000 anatomical and pathological preparations. “Jan Bleuland (1756-1838) taught anatomy, physiology and obstetrics to medical students, and to surgical apprentices and midwives surgery and obstetrics using the vernacular. He was personal physician to king Louis Napoleon. In the troublesome years 1811-1815, when the former university lead a poor existence, he did his utmost to preserve educational standards. Together with his very proficient collaborator Petrus Konig, he put together an anatomical collection of more than 2000 specimens. The collection was later acquired by the government for the Anatomical Museum in Utrecht, part of which is still on display. Bleuland wrote several superbly illustrated anatomical

works” (de Moulin, *A History of Surgery: with Emphasis on the Netherlands*, p. 186). AE/RBH record only a single copy (1984); COPAC records copies at Royal College of Surgeons and Wellcome only.

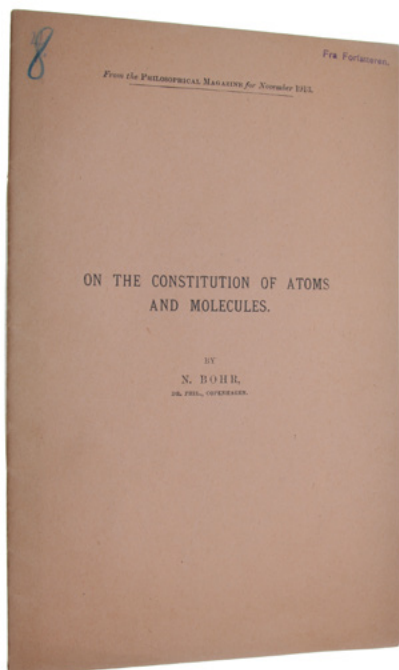
Wellcome II, 180; not in Waller.



The birth of modern atomic physics

9. BOHR, Niels Henrik David. *On the Constitution of Atoms and Molecules, I-III*. London: Taylor & Francis, 1913.

\$55,000



Extremely rare author's presentation offprints of his great trilogy, which constitutes the birth of modern atomic physics. "Bohr's three-part paper postulated the existence of stationary states of an atomic system whose behavior could be described using classical mechanics, while the transition of the system from one stationary state to another would represent a non-classical process accompanied by emission or absorption of one quantum of homogeneous radiation, the frequency of which was related to its energy by Planck's equation" (Norman). In the beginning of 1913 Bohr heard about Rydberg's remarkable discovery in spectroscopy. Rydberg's formula could represent the frequencies of the lines of the hydrogen spectrum in the simplest form in terms of two integers. As soon as Bohr saw this formula, he immediately recognized that it gave him the missing clue to the correct way to introduce Planck's law of quantum of action into the description of the atomic systems. The rest of the academic year was spent reconstructing the whole theory upon the new foundation and expounding it in a large treatise, which was immediately published as these three papers in the 'Philosophical Magazine'. It was in these papers that Bohr first gave his postulates of the orbital structure of the electrons and their quantized radiation. Bohr's atomic theory inaugurated two of the most adventurous decades in the history of science. In 1922 Bohr was awarded the Nobel Prize "for his services in the investigation of the structure of atoms and of the radiation emanating from them."

Entropy, probability and the second law of thermodynamics

10. BOLTZMANN, Ludwig. *Über die Beziehung zwischen dem zweiten Hauptsatze der mechanischen Wärmttheorie und der Wahrscheinlichkeitsrechnung, respective den Sätzen über das Wärmeleichgewicht*. Vienna: Karl Gerold, 1878.

\$2,500

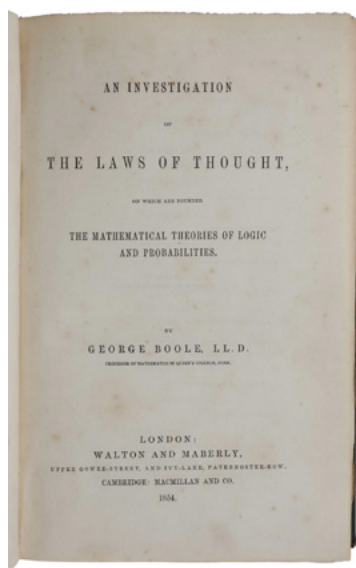


First edition in the original printed wrappers of the foundation work of statistical thermodynamics, containing the Boltzmann principle expressing the relation between entropy and probability. "This formula connects a thermodynamic or macroscopic quantity, the entropy, with a statistical or microscopic quantity, probability... These results gave rise to a paradox. If Newtonian mechanics held on the molecular level, interactions between particles had to be reversible, whereas thermodynamic changes on the macroscopic lever were irreversible. The answer to this 'reversibility paradox' lay in the statistical character of the second law" (*Oxford Companion to the history of modern science*). This work is fundamental to all subsequent developments in statistical mechanics and especially in quantum mechanics.

Boolean algebra

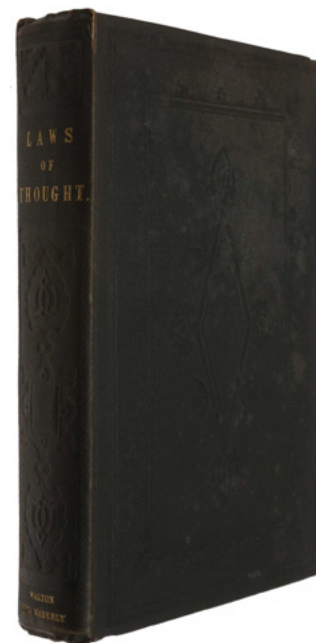
11. BOOLE, George. *An Investigation of the Laws of Thought, on which are founded the Mathematical Theories of Logic and Probabilities.* London, and Cambridge: Walton and Maberly; Macmillan & Co., 1854.

\$30,000



First edition, the rare first issue, of Boole's principal work, in which he gave the first detailed 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*, 224).

OOC 224 (1st issue, rebounded); Erwin Tomash B198 (2nd issue); Haskell Norman 266 (3rd issue).



The copy of Borelli's patron at the Tuscan court

12. BORELLI, Giovanni Alfonso. *De vi percussiois liber.* Bologna: Giacomo Monti, 1667.

\$15,000



First edition, an extraordinary association copy, of the first published book on the laws of percussion, and containing important hitherto unpublished material from the lectures of Galileo and Torricelli. This copy was a gift from Prince Leopold of Tuscany, Borelli's patron at the Tuscan court. Probably under the influence of Borelli, Leopold, together with his brother Grand Duke Ferdinand, founded the *Accademia del Cimento* where Borelli first presented much of the experimental work on which this text is based. "In this, Borelli's first book on mechanics, he quotes Galileo's youthful work on percussion, the fourth *Dialogo*, and lectures by Torricelli. As well as the detailed discussion of impact, the book

deals with the dynamics of falling bodies, vibration, gravity, fluid mechanics, magnetism, and pendular motion ... he gives the name resilience for the first time to a number of problems now classed under this name" (Roberts & Trent). This is "the earliest book on the laws of percussion, which undoubtedly influenced John Wallis who, in 1668, published his discovery of the laws governing the percussion of non-elastic bodies, and Christiaan Huygens, who deals with the percussion of elastic bodies in his treatise *De motu corporum ex percussione*, published in 1669" (Zeitlinger I, 174). Borelli regarded this work, together with his *De motionibus naturalibus* (1670), as necessary preparation for his masterpiece, *De motu animalium* (1680-81), on which he had worked since the early 1660s.



'One of the great books in the history of thought' (Fulton)

13. BOYLE, Robert. *Chymista scepticus vel dubia et paradoxa chymico-physica, circa spagyricorum principa, vulgo dicta hypostatica, Prout proponi & propugnari solent à Turba Alchimistarum. Cui pars premititur, alterius cujusdem dissertationis ad idem argumentum spectans.* Rotterdam: A. Leers, 1662.

\$17,500



First Latin edition, one of two issues, each published one year after the first English edition (the other was published at London, no priority established), of this milestone in the history of chemistry. "His most important work [where he] set down his corpuscular theory of the constitution of matter, which finally freed chemistry from the restrictions of the Greek concept of the four elements, and was the forerunner of Dalton's atomic theory" (Sparrow). "Boyle's most celebrated book is his Sceptical Chymist ... It contains the germs of many ideas elaborated by Boyle in his later publications" (Partington II, p. 496). This Latin edition is the second edition overall; both issues are very rare: we have been unable to locate any copy of either issue in auction records. OCLC lists six copies of the Rotterdam issue and four of the London issue in the US. This second edition is the earliest most collectors can reasonably expect to acquire: the last copy of the first edition sold at auction made £362,500 (The Library of the late Hugh Selbourne M.D., Part One, Bonham's London, 25 March 2015, lot 236).

☛ Dibner 39; Grolier/Horblit 14; Norman 299; PMM 141; Sparrow 27 (all for the first English edition); Fulton 27.

The earliest treatise on modern economics

14. CANTILLON, Richard. *Essai sur la Nature du Commerce en Général.* London [but Paris]: Fletcher Gyles, 1755.

\$135,000



The exceptionally fine La Rochefoucauld-Liancourt copy in untouched armorial binding. Cantillon is the "founding father of modern economics" (Rothbard) and the *Essai* has been declared "more emphatically than any other single work, the cradle of political economy" (Jevons), and "the most systematic statement of economic principles before the *Wealth of Nations*" (Roll). It "is notable for its model building, its analysis of market forces and the role of the entrepreneur, its outline of the circular flow of income, and its monetary theory. Cantillon was the first real model builder in economics" (ODNB). The book was chosen among the 400 most influential books ever written in French in the 1990 exhibition at the Bibliothèque Nationale, *En français dans le texte*, no. 159. *Provenance:* A superb copy bound at the time for François-Alexandre-Frédéric, duc de La Rochefoucauld-Liancourt, with his coat of arms gilt on sides and the armorial engraved ex-libris

of the Bibliothèque de Liancourt. A philanthropist, traveller, and statesman, the Duke de La Rochefoucauld-Liancourt was one of the leading figures of the end of the 18th century. As a liberal, he participated in the French Revolution from the outset, remaining loyal to the King. He fled France and found refuge in England before travelling to the United States. Back in France after the Revolution, he continued to promote his liberal ideas, helping the poor and creating a school. Two other copies with the coat of arms of the La Rochefoucauld family have appeared on the market in the last twenty years; they both came from the La Roche-Guyon branch of the family, but this copy is the only one with the Liancourt ex-libris, stating its provenance. It is difficult to imagine a better copy.



Early anatomy of the sense organs

15. CASSERI, Giulio Cesare. *Pentaestheseion, hoc est De quinque sensibus liber, organorum fabricam variis iconibus fideliter aere incisus illustratam, nec non actionem et usum, discursu anatomico & philosophico accurate explicata continens.* Venedig: Misserino, 1609.

\$45,000



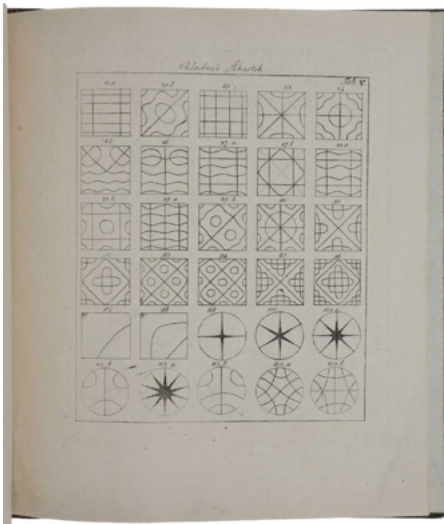
First edition, exceptionally rare, of Casserius' second important contribution to the comparative anatomy not only of the ear and the vocal organs, as in his more common work of 1600/01 [*De Vocis Auditusque Organis*], but also of the other four sense organs and especially of the eye. The very fine anatomical plates for which this book is noted are both drawn and engraved by the Swiss artist Joseph Maurer, a pupil of Tobias Stimmer who lived in Casserius' house. The 12 plates pertaining to the ear are the same as those of Casserius' earlier work; they constitute "the first accurate pictorial presentation of the internal ear" (Sellers, *Annals of Otology* 68). Those dealing with the other four sense organs are new. Among them, in the particularly important section dealing with the eye and vision (pp. 257-346) are the first pictorial representations of the conjunctival glands, later known as the Meibomian glands (cf. Garrison-Morton 1481). All the plates, according to Choulant-Frank, "are done with unusual care and are anatomically exact." Casserius' anatomy of the sense organs is of great importance in medical history, since for the first time he adds to a complete account of each human organ a full study of the same organ in various animal forms. Choulant-Frank never saw a copy of this first edition,

describing only the Frankfurt edition of 1622, with the same number of plates but "reduced and certainly executed by another artist. Some of them are even reversed and show much inferior workmanship".

The foundation work of the science of acoustics

16. CHLADNI, Ernst Flourens Friedrich. *Die Akustik.* Leipzig: Breitkopf & Härtel, 1802.

\$15,000



First edition of the foundation work of the modern science of acoustics. "Chladni (1756-1827), professor of physics in Breslau, was the first to reduce the general association between vibration and pitch to a tabular basis, and thus to lay the foundation of the modern science of acoustics. His first results were first reported in *New Discoveries in the Theory of Sound*, 1787, and were greatly enlarged upon in *Acoustics*, 1802. He spread sand on plates made of metal and glass, which were fixed in clamps. He then applied a violin bow to the edge of each plate and recorded the patterns produced thereby in the sand. These figures are still known by Chladni's name" (PMM).

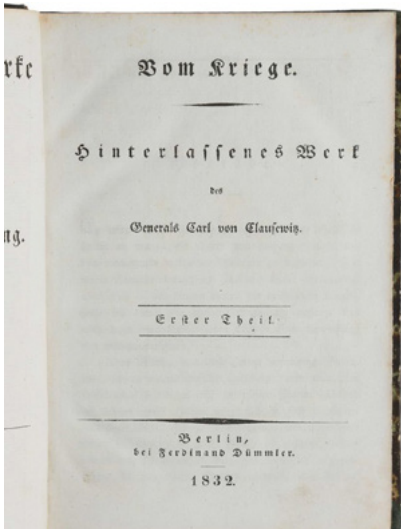
☛ PMM 233b; Honeyman 688; Sparrow, *Milestones of Science* 38.



PMM 297 - The philosophy of war

17. **CLAUSEWITZ, Carl von.** *Hinterlassene Werke über Krieg und Kriegführung.* Berlin: Ferdinand Dümmler, 1832-1837.

\$65,000



Very scarce complete set of Clausewitz’s writings on warfare, with all 10 volumes in fine contemporary uniform bindings, which includes the celebrated *Vom Kriege* (PMM 297), appearing in the first 3 volumes. “These thousand pages of ‘On Warfare’ occupy a unique position among military writings of any age and nation. The book is less a manual of strategy and tactics, although it incorporates the lessons learned from the French revolutionary and Napoleonic wars, than a general inquiry into the interdependence of politics and warfare and the principles governing either or both. War, Clausewitz maintained, must always be regarded ‘as a political instrument’; for war, his most famous aphorism runs, ‘is nothing but politics continued by different means’. Consequently, he scorns the notion of ‘the harmful influence of politics upon the conduct of war’, since blame, or praise, must be attached to politics itself. If the course of

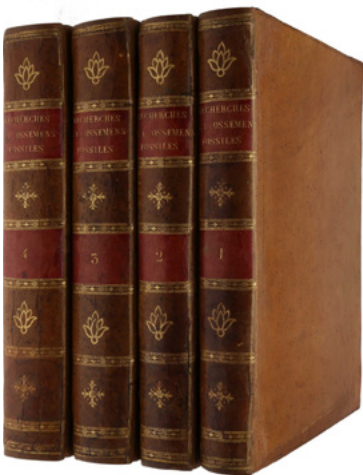


politics is sound, political influence on the conduct of war can only be advantageous: ‘The French revolutionary victories over twenty years resulted mainly from the faulty politics of the opposing governments’... the book was published by his widow and won immediate recognition as the most profound exposition of the philosophy of war - a place that has never been disputed.” (*Printing and the Mind of Man*).

The “inauguration of vertebrate paleontology” (Grolier/Horblit)

18. **CUVIER, Georges L.C., Baron.** *Recherches sur les ossemens fossiles de quadrupèdes, où l’on rétablit les caractères de plusieurs espèces d’animaux que les révolutions du globe paroissent avoir détruites.* Paris: Deterville, 1812.

\$15,000



First edition, the Haskell F. Norman copy, of the “inauguration of vertebrate paleontology” (Grolier/Horblit). “In the 1790s Cuvier began publishing a series of papers on fossils that laid the foundations of modern paleontology. These were reissued, in revised form, in *Ossemens fossiles*, prefaced by the important “Discours préliminaire,” setting forth Cuvier’s influential geological theory of “revolutions” in the earth’s history (later given the misleading label of “catastrophism”), and by an enlarged version of Cuvier and Alexandre Brongniart’s joint stratigraphical memoir, first published in 1808. Cuvier believed, in opposition to Lamarck, that species were fixed and basically inalterable – the idea of species transmutation was inadmissible, as every organism consisted of parts whose action and form were logically connected to the integration of the whole, and any modification would seriously endanger that necessary balance. His concept of geological “revolutions,” which he believed to be a regular and

natural part of the earth’s history, was used to explain the mass extinction of species from previous epochs” (Norman).



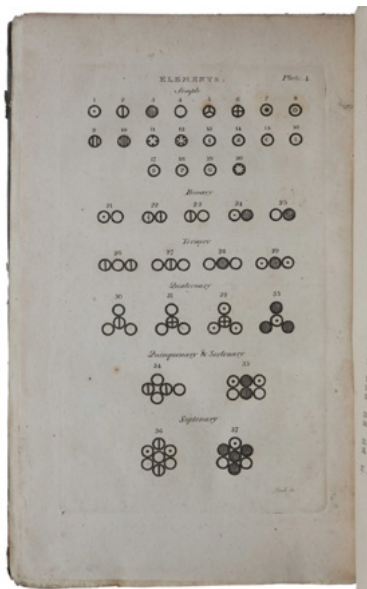
☞Dibner, *Heralds of science* 91; *En français dans le texte* 224; Grolier/Horblit 206; Nissen ZBI 1011; Norman 56 (this copy)

PMM 261 - Uncut in the original boards

19. DALTON, John. *A New System of Chemical Philosophy*. Manchester: S. Russell for R. Bickerstaff; Russell & Allen for R. Bickerstaff; Executives of S. Russell for G. Wilson, 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).



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

Lewis Carroll's annotated proof copy of his game 'Lanrick' - one of two copies known

20. [DODGSON, Charles Lutwidge, pseud. Lewis CARROLL]. *Four sets of instructions for the game Lanrick invented by Dodgson. Comprising the first two printings of the game (16 January & 20 February 1879), the first with Dodgson's autograph additions and corrections, together with the second "official" edition [July 1881], and a cyclostyled copy of Dodgson's autograph instructions for the game (25 October 1880).* [N.p. N.p.], 1879-81.

\$18,000



A unique collection comprising four extraordinarily rare documents relating to Dodgson's invention of Lanrick, a chessboard game for two players. 1) First edition, dated 16 January 1879, with the title *A Game for Two Players*. Only one other copy of this earliest printing is known, that in the Parrish collection (see Williams & Green, *The Lewis Carroll Handbook*, 1970, no. 135). Dodgson records the receipt of ten proof copies on 11 February 1879, "in nearly its final state, I hope". The sheet is annotated by Dodgson, who added the game's title, and made corrections in manuscript in his customary violet ink: "Lanrick. 'The muster-place be Lanrick mead'"; Rule 1 was altered from "The men are set alternately, on any border-squares" to "The Players set their men, in turn, on any border squares". 2) Second edition, dated 20 February 1879. This variant is unknown to bibliographers (no other copy recorded). The alterations made by Dodgson to the first issue are printed here. 3) "Second" (i.e., fifth? – see below) edition, inscribed presentation copy from Dodgson to Agnes Smith, with "July 1881" inscribed to verso in violet ink (presumably in Dodgson's hand). The "second" edition appeared in the August 1881 edition of Charlotte Yonge's *Monthly Packet*. 4) A cyclostyled copy of the manuscript for the game, dated 25 October 1880, and written by Dodgson in violet ink.

Two rare works of pre-Vesalian anatomy

21. DRYANDER, Johannes; MUNDINUS. *Anatomiae, hoc est, corporis humani dissectionis pars prior ... ; [with:] Anatomia Mundini, ad vetustissimorum, erundemque aliquot manu scriptorium, codicum fidem collate, iustoq(ue) suo ordini restitute.* Marburg: Eucharius Cervicornus, 1537; 1541.

\$125,000



A very attractive sammelband, from the library of Jean Blondelet, comprising two rare illustrated works of pre-Vesalian anatomy, in their original untouched vellum binding: the enlarged second edition of Dryander's *Anatomia capitis humani* (1536), the first significant analysis of the anatomy of the head (the first edition is a notorious rarity), united with his edition of the *Anathomia* of Mundinus, known as the “restorer of anatomy” for his innovative dissection practice. The illustrations are, with those of Berengario, the best that were published before



Vesalius' *Fabrica* in 1543 (Lind, p. 297). This copy of the *Anatomiae* is remarkable for having the folding table, which is almost always lacking. The second work is the finest illustrated edition of the first book devoted to anatomy (and the first to incorporate new knowledge gained since antiquity). His illustrations, based on actual dissection, whether his own or others currently in circulation, make “Dryander's illustrated anatomical works ... an important milestone of anatomical illustration” (Persaud). It is particularly appropriate to find these two works bound together, because Dryander began his translation of Mundinus at the end of the *Anatomiae*, so the second work can be viewed as a continuation of the first.

“One of the finest woodcut books of the French Renaissance”

22. ESTIENNE, Charles. *De dissectione partium corporis humani libri tres. Un cum figuris, & incisionum declarationibus, Stephano Riverio Chirurgo compositis.* Paris: Simon de Colines, 1545.

\$95,000



Exceptionally large copy, with all pinholes preserved (from the Norman collection), of “one of the finest of all anatomical treatises (*Heirs of Hippocrates*). The *Dissectione* is the first published work to include illustrations of the whole external venous, arterial, nervous systems, and is regarded as “one of the finest woodcut books of the French Renaissance, in which science and art are ideally merged” (Schreiber), and “the most magnificent anatomical atlas of

the sixteenth century, next to Vesalius' *Fabrica* (Hagelin). This copy dwarfs in size any other copy we have been able to obtain measurements of, even the noble copy of Prince-Bishop of Würzburg, described in Hagelin's *Rare and Important Medical Books*.



☛Norman 728 (this copy); *Heirs of Hippocrates* 256; Garrison-Morton 378; Lilly, *Notable Medical Books* 33; Stillwell 626; Hagelin 26.

First complete edition of Euclid

23. EUCLID. *Euclidis Megare[n]sis philosophi Platonici mathematicaru[m]...* [Colophon:] Venice: Joannes Tacuinus, 25 October 1505.

\$55,000

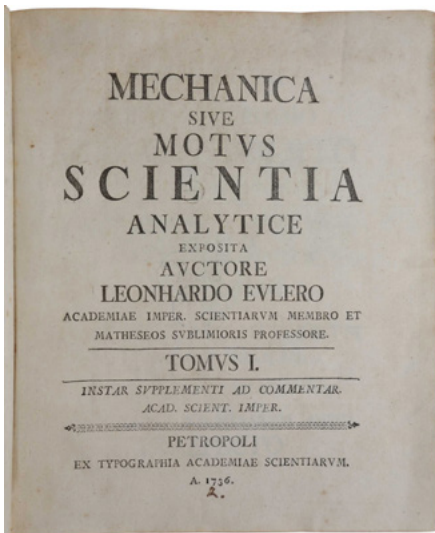


First edition of Euclid's Elements based directly on a Greek text, and the first complete edition, including the first complete printings of Euclid's Optics, Catoptrics, Phenomena and Data (extracts had appeared in 1501 in Giorgio Valla's encyclopaedia *De expetendis, et fugiendis rebus opus*). "A very important edition ... appeared in 1505 printed at Venice by Joannes Tacuinus. It was a translation into Latin from a Greek text by Bartolommeo Zamberti ... The volume itself is a first-rate example of the Venetian book of the time ... In the Venetian Euclids of 1482, 1505 and 1509 the art of book production reached the meridian" (Thomas-Stanford). This is the third edition overall, after the 1482 *editio princeps* (a Latin translation from an Arabic source), and its 1491 reprint. "Four events seem to have been the most outstanding in determining the course of the Elements in the sixteenth and succeeding centuries: (1) the publication of the medieval version of Campanus of Novara, initially as the first printed Euclid at Venice (1482) by Erhard Ratdolt, and at many other places and dates in the ensuing 100 years; (2) a new Latin translation from the Greek by Bartolomeo Zamberti in 1505; (3) the *editio princeps* of the Greek text by Simon Grynaeus at Basel in 1533; (4) another Greek-Latin translation made in 1572 by Federico Commandino. The publications resulting from these four versions show their effect in almost all later translations and versions, be they Latin or vernacular" (DSB). This edition is much rarer than the first: only four copies have appeared at auction in the last 50 years.

First treatise on mechanics using calculus methods

24. EULER, Leonhard. *Mechanica sive motus scientia analytice exposita...* Petersburg: Academy of Sciences, 1736.

\$17,500



First edition. "The distinguishing feature of Euler's investigations in mechanics as compared to those of his predecessors is the systematic and successful application of analysis. Previously the methods of mechanics had been mostly synthetic and geometrical; they demanded too individual an approach to separate problems. Euler was the first to appreciate the importance of introducing uniform analytic methods into mechanics, thus enabling the problems to be solved in a clear and direct way. Euler's concept is manifest in both the introduction and the very title of the book, *Mechanica sive Motus Scientia analytice exposita*" (DSB). *Mechanica* won the praise of many leading scientists of the time: Johann Bernoulli said of the work that "it does honour to Euler's genius and acumen," while Lagrange in his own *Mécanique analytique* acknowledges Euler's mechanics to be "the first great work where Analysis has been applied to the science of motion."

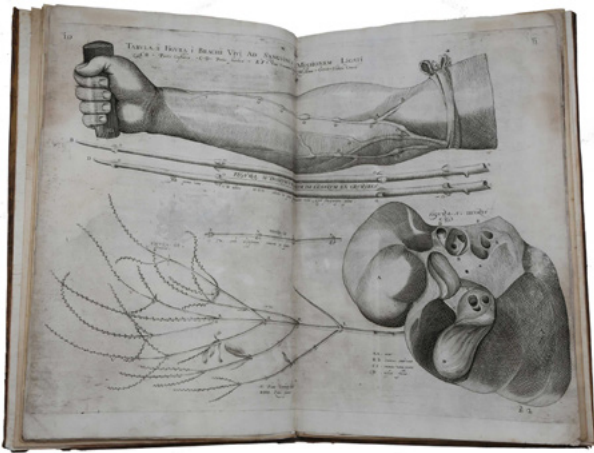


DSB IV: 479-80; Parkinson, *Breakthroughs*, p. 154; Poggendorff I: 689; Roberts and Trent, pp. 103-4; Timoshenko, *History of Strength of Materials*, p. 29.

‘A crucial precursor of Harvey’s discovery’

25. FABRICI, Girolamo (FABRICIUS AB AQUAPENDENTE, Hieronymus). *De venarum ostioliis*. Padua: Lorenzo Pasquati, 1603.

\$85,000



First edition, very rare first separate issue (see below), “of the first systematic study of the structure, distribution and position of the venous valves. Although the valves of the veins had been observed previously by G.B. Canano and Amato Lusitano, Fabrici studied them anew on the basis of his own observations. Perhaps because he analyzed anatomical structures in terms of their purpose, he interpreted the function of the valves as slowing down the influx of blood in order to distribute it more evenly to the various parts of the body. Although Fabrici’s analysis was in part erroneous, *De venarum ostioliis* became his most influential work, in that it inspired his student, William Harvey, to conceptualize the circulation of the blood” (Norman). “The sumptuously printed folios which Fabricius published in 1603-1604 were issued separately, and unbound.

Though they escaped Choulant’s notice, they are among the rarest and most beautiful works in the history of anatomical illustration. The plates are magnificent; in fact nothing on their scale had been seen since the days of Vesalius” (Franklin). The work is most often found bound as part of Fabricius’ *Opera anatomica* (1625), without a separate title page. Franklin cites only the Royal College of Surgeons, the Royal College of Physicians, the Radcliffe Library (Oxford) and the New York Academy of Medicine – all copies bound up under the 1625 general title but with the 1603 title preserved – and a copy without separate title in the library of the Royal Society of Medicine. AE/RBH list only 6 copies since 1950.

☛Garrison-Morton 757; Grolier/Medicine 27B; Krivatsy 3831; Norman 750; Waller 2886.

‘The source of all modern methods in mathematical physics’

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

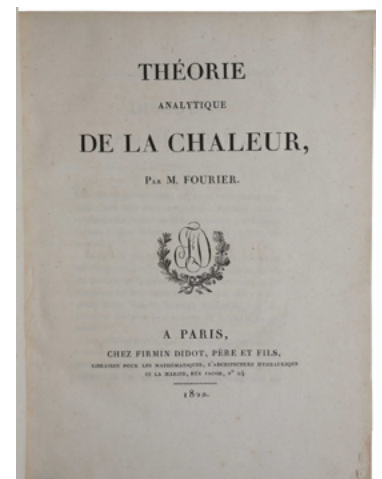
\$32,000



First edition 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). “There is no doubt that today this book stands as one of the most daring, innovative, and influential works of the nineteenth century on mathematical physics” (González-Velasco, p. 428).

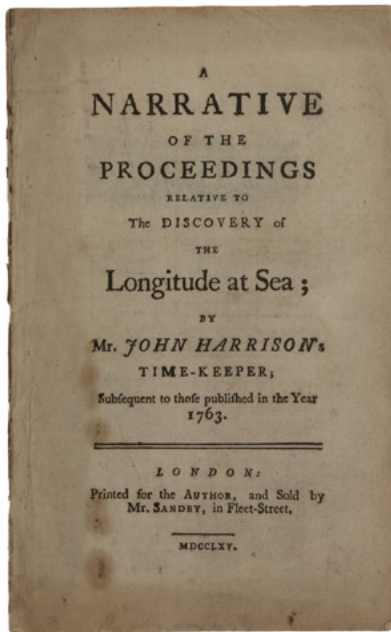
☛Dibner 154; Evans 37; Sparrow 68; *Landmark Writings in Western Mathematics* 26; Norman 824; *En Francais dans le Texte* 232.



Harrison's claim to the longitude prize

27. [HARRISON, John and James SHORT]. *A Narrative of the Proceedings relative to the Discovery of the Longitude at Sea; by Mr. John Harrison's Time-Keeper; Subsequent to those published in the Year 1763.* London: Printed for the Author, and Sold by Mr. Sandby, 1765.

\$75,000



First edition of this extremely rare work in which Harrison defended the success of his chronometer H4, and staked his claim to be awarded the full “Longitude Prize” of £20,000. Harrison had been working on the problem of longitude for over three decades by the time he published this work, one of the most important of the pamphlets produced in the course of the longitude affair. H4 had first been properly tested in 1761, when Harrison’s son William took it with him on a voyage to Jamaica in the ship Deptford for a sea-trial. Although the trial was a triumph that exceeded the demands of the Longitude Act, Harrison’s claim to the Prize was not accepted, and he was forced to undertake another trial of H4 in 1764. Again accompanied by William, on this occasion H4 computed the longitude of Barbados within 9.8 geographical miles, exhibiting accuracy three times greater than that required by the Act. Despite this success, the board still refused to issue the award, in some part due to resistance from the Astronomer Royal Nevil Maskelyne, an advocate of the cheaper lunar distance method. Faced with another refusal, Harrison had the present appeal to the Board of Longitude printed. The self-published pamphlet was presumably printed in an extremely limited edition for private circulation to members of the Board. The National Maritime Museum did not have a copy of the pamphlet until 2003, when it acquired the papers of the 2nd Viscount Barrington,

a member of the 18th-century Board of Longitude. ABPC/RBH list only three copies in the past 40 years, including the Streeter copy (in a modern binding) (Christie’s 16/17 April 2007, \$114,000).

One of the earliest works with anatomical illustrations

28. HUNDT, Magnus. *Antropologium de hominis dignitate, natura et proprietatibus, de elementis, partibus et membris humani corporis.* Leipzig: Wolfgang Stöckel, 1501.

\$165,000



First edition, an outstanding copy in an untouched contemporary binding from the collection of Jean Blondelet, of one of the earliest works with anatomical illustrations, which “includes the first illustrations of the viscera in a printed book” (GM). This is a very rare book on the market: ABPC/RBH lists just the Norman copy, Christie’s 1998 \$85,000 modern binding; Swann Galleries 1979 \$8,600 modern binding; Sotheby’s 1974 \$6,000 disbound. “The *Antropologium* ... contains four large and several small woodcuts, which are accepted among the earliest of anatomical illustrations that are a little more than schematic representation. His work contains illustrations of the internal organs but without images of bones or muscles and this work seems to be the most comprehensive representation of all the internal parts up to that time. One of those illustrations shows the trachea on the right side of the neck, passing downward to the lungs; on the left side the oesophagus is represented. In the thorax are seen the lungs and the heart. The pericardium has been opened and the stomach and intestines are figured crudely. In addition, a figure of the uterus depicting the anatomy of the uterus with seven cells (*Figura matricis*) is noted. These illustrations also give a clear idea of pre-

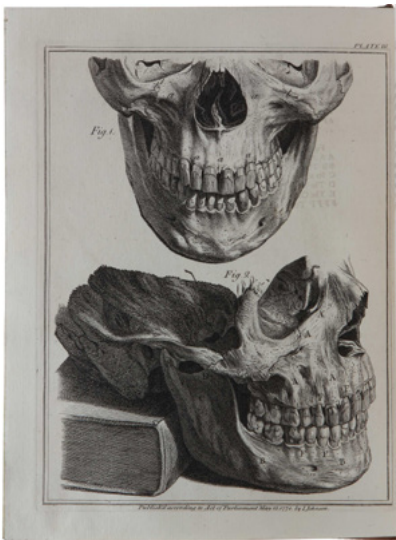
Berengarian anatomy and seem to be the aggregate of the views entertained in the fifteenth century as to the position and shape of the anatomic parts” (Gurunluoglu et al, ‘The history and illustration of anatomy in the Middle Ages,’ *Journal of Medical Biography* 21 (2013), 219-229).

Norman 1115; Garrison-Morton 363.3; Stillwell 664; Flamm 15; Choulant-Frank pp. 125-126; Wellcome 3362a (lacking last 4ff).

'Basic to all modern dentistry'

29. HUNTER, John. *The Natural History of the Human Teeth*. London: J. Johnson, 1771.

\$12,500



An exceptionally fine copy of “the first scientific study of the teeth and basic to all modern dentistry” (*Heirs of Hippocrates*). “Hunter’s work on the structure and diseases of the teeth began a new era for dentistry in England, placing what had been an empirical art upon a basis of careful scientific observation, and providing a foundation for further research. In the *Natural history*, Hunter gave detailed accounts of the anatomy and physiology of the oral cavity and jaw, introduced the modern scientific nomenclature for the teeth, established the tooth’s construction of bone, pulp and enamel, and examined the processes of tooth development in fetuses and children” (Norman). “In a busy life devoted to research, teaching, and the practice of surgery, Hunter found time to study the structure, development, and diseases of the teeth and to collect and arrange a series of dental specimens... In [the present] book, Hunter classified the teeth in the system still used today and was the first to state definitely that the human teeth ‘are never more than thirty-two.’ He traced their development in the fetus and the child and established

their structure of pulp, bone, and enamel. At the end of the book are descriptions of devices to correct malocclusion and even suggestions for a method of transplantation” (Lilly).

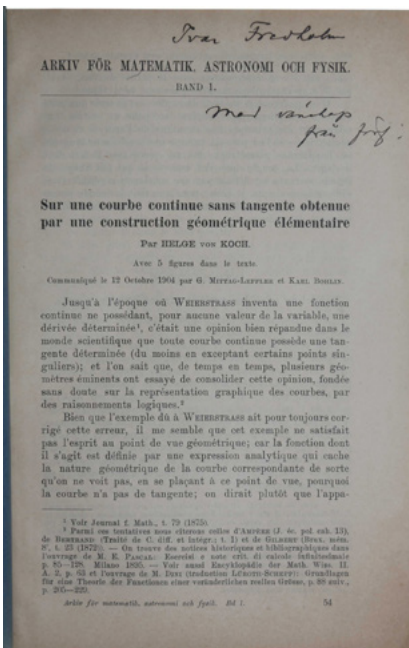


Norman 1116; Lilly, *Notable Medical Books* 131; *Heirs of Hippocrates* 968; Garrison-Morton 3675.

The first geometric fractals

30. KOCH, Helge von. *Sur une courbe continue sans tangente, obtenue par une construction géométrique élémentaire*. Stockholm: P.A. Norstedt & Soner, 1904.

\$3,850



First edition, extremely rare offprint issue, inscribed by the author to the great Swedish mathematician Ivar Fredholm (the founder of functional analysis). Koch’s paper contains the first examples of geometric fractals, the famous ‘Koch curve’ and ‘Koch snowflake’. The term ‘fractal’ was coined much later, by Benoit Mandelbrot in his 1975 book *Les objets fractals, forme, hasard et dimension*. Today, fractals have found a bewildering variety of applications in both the arts and sciences (fractal patterns have been found in the works of Jackson Pollock).

The first example of a fractal was the ‘Cantor set,’ introduced by Georg Cantor in 1883, but this was not a genuine curve. Modifying Cantor’s construction, Koch started with a straight line segment, erected an equilateral triangle with base the middle third of the original segment, and then erased that middle third; this produces a shape with four line segments; the same construction is now applied to each of these four segments; the Koch curve is the result of iterating this process indefinitely. It has the properties essential to fractals: it is self-similar, in the sense that any part of it, when magnified, looks the same as part of the original curve; and it has ‘fractional’ dimension – $\log 4/\log 3 = 1.26186$ – between a curve (dimension 1) and a plane (dimension 2).

The invention of the stethoscope

31. LAËNNEC, René Théophile Hyacinthe *De l'auscultation médiate ou traité du diagnostic des maladies des poumons et du coeur fondé principalement sur ce nouveau moyen d'exploration*. Paris: J.-A. Brosson et J.-S. Chaudé, 1819.

\$7,500



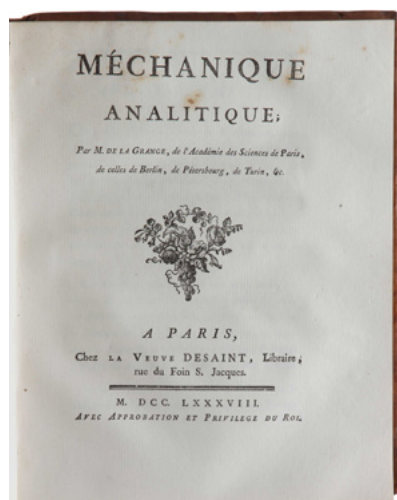
First edition, first state, with the original cancellandum leaf a*2, of Laennec's invention of the stethoscope, which represented "the greatest advance in physical diagnosis between Auenbrugger's percussion and the discovery of X-rays" (PMM). "The stethoscope is as familiar a symbol of the modern physician as was the urine-glass of his medieval predecessor. It was invented by the French physician R. T. H. Laennec and is described in his 'Treatise on Mediate Auscultation' ... Laennec also knew of Auenbrugger's epoch-making discovery of percussion (*Inventum novum*, 1761), which enabled doctors to determine whether the thoracic organs were normal or diseased by tapping the thorax. One day in 1816, observing some children tapping a hollow wooden log at one end and listening to the transmitted sound at the other, Laennec conceived the idea of the stethoscope" (*ibid.*). "Using this new instrument, he investigated the sounds made by the heart and lungs and determined that his diagnoses were supported by the observations made during autopsies ... Laennec is considered the father of clinical auscultation and wrote the first descriptions of bronchiectasis and cirrhosis and also classified pulmonary conditions such as pneumonia, bronchiectasis, pleurisy, emphysema, pneumothorax, phthisis and other lung diseases from the sounds he heard with his invention. Laennec perfected the art of physical examination of the chest and introduced many clinical terms still used today" (Roguin, 'Rene Theophile Hyacinthe Laennec (1781–1826): The Man Behind the Stethoscope,' *Clinical Medicine and Research* 4 (2006), 230-235).

☛PMM 280; Grolier/Medicine 57; Dibner 129; Lilly, *Notable Medical Books* 173; Norman 1253; *Heirs of Hippocrates* 1364; Garrison-Morton 2673, 3219, 3614.

Lagrange's two greatest works

32. LAGRANGE, Joseph Louis de. *Mécanique analytique*. [Bound with:] *Théorie des fonctions analytiques*. Paris; Paris: Veuve Desaint; Imprimerie de la République, 1788; 1797.

\$20,000



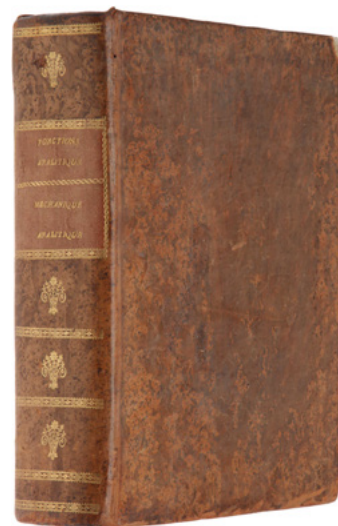
First edition of Lagrange's two most important works contemporarily bound. The *Mécanique* is "perhaps the most beautiful mathematical treatise in existence. It contains the discovery of the general equations of motion, the first epochal contribution to theoretical dynamics after Newton's *Principia*" (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*."

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

"The year 1797 ... saw the appearance of the famous work of Lagrange, *Théorie des fonctions analytique*, ... This book developed with care and completeness the characteristic definition and method in terms of

'fonctions dérivés,' based upon Taylor's series, which Lagrange had proposed in 1772... Lagrange's *Théorie des fonctions* was only one, but by far the most important, of many attempts made about this time to furnish the calculus with a basis which would logically modify or supplant those given in terms of limits and infinitesimals." (Cajori).

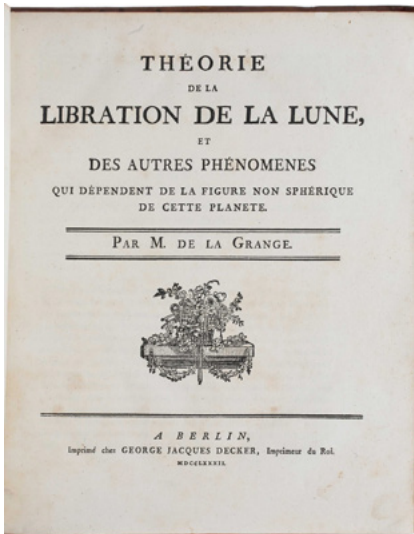
☛Norman 1258; *Landmark Writings in Western Mathematics* 16; Barchas 1198; Honeyman 1881; Stanitz 250.



The first general proof of the 'Lagrange equations' of motion

33. **LAGRANGE, Joseph-Louis.** *Théorie de la libration de la lune et des autres phénomènes qui dépendent de la figure non sphérique de cette planète.* Berlin: George Jacques Decker, 1782.

\$20,000



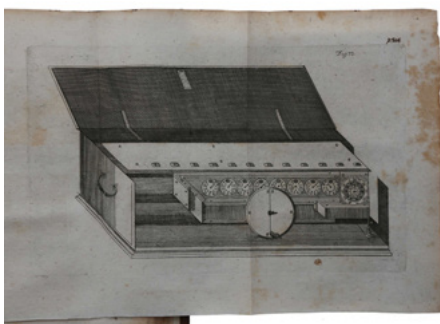
First edition, extremely rare separately-paginated offprint, of this work in which Lagrange introduced the potential function of a system of gravitationally-interacting bodies and gave the first proof of his general laws of motion, now called the 'Lagrange equations,' which were to play a central role in his masterpiece, *Mécanique Analytique* (1788). "Lagrange's work on the libration of the Moon was significant mainly because of the mathematical tools he used to study it, rather than for the results themselves. In his treatment of this particular problem from celestial mechanics, he derived general equations that have served as the basis for the study of dynamical systems ever since" (Linton, *From Eudoxus to Einstein*, p. 320). The present work was published in *Nouveaux memoires de l'Académie des sciences et belles-lettres* (Berlin), 11 (1782), pp. 203-309. OCLC lists copies of this offprint at Berlin and Utrecht only (no copies in US).



A milestone in computer history

34. **LEIBNIZ, Gottfried Wilhelm.** *Brevis descriptio machinae arithmeticae, cum figura.* Berlin: Johann Christian Pape, 1710.

\$40,000



First edition, rare, of Leibniz's description of his famous calculating machine, the first stepped-drum calculator, and the first machine that could perform multiplication and division. "Leibniz studied Morland's and Pascal's various designs and set himself the task of constructing a more perfect and efficient machine. To begin with, he improved Pascal's device by adding a stepped-cylinder to represent the digits 1 through 9 ... In 1694, Leibniz built his calculating machine, which was far superior to Pascal's and was the first general purpose calculating device able to meet the major needs of mathematicians and bookkeepers" (Rosenberg, *The Computer Prophets*, p 48). "[He] invented a device now known as the Leibniz wheel and still in use in some machines . The mechanism enabled him to build a machine which surpassed Pascal's in that it could do not only addition and subtraction fully automatically but also multiplication and division. Leibniz's device enabled his machine to perform the operation of multiplication automatically by repeated additions. His idea was apparently re-invented in 1820 by Charles Xavier de Colmar" (Goldstine, *The Computer from Pascal to Neumann*, p. 7). Although Leibniz demonstrated his machine before the Royal Society and elsewhere, no description of it appeared in print until in the present form. It is contained in the first volume of the journal of the Berlin Academy of Science, which Leibniz founded. Although the volume is naturally present in some institutional holdings, it is absent from many, and is very rare on the market.



Ravier 305; Parkinson, *Breakthroughs*, p. 113.

Important treatises on the kidney, red blood corpuscles, Hodgkin's disease, ...

35. **MALPIGHI, Marcello.** *De viscerum structura exercitatio anatomica.* Bologna: Giacomo Monti, 1666.

\$32,500



Very rare first edition, and a beautiful copy uncut in original boards from the collection of Jean Blondelet, of this classic which includes Malpighi's famous treatise on the kidney, *De renibus premium*, in which he described the uriniferous tubules as well as the 'Malpighian bodies', which have perpetuated his name. The book also includes the first description of Hodgkin's disease... "The great detail and clarity of Malpighi's description was unsurpassed until Bowman [1842]" (Garrison-Morton). "This collection of anatomical treatises contains Malpighi's account of the Malpighian bodies (glomeruli) of the kidney (in 'De renibus'), his observation of red blood corpuscles (in 'De

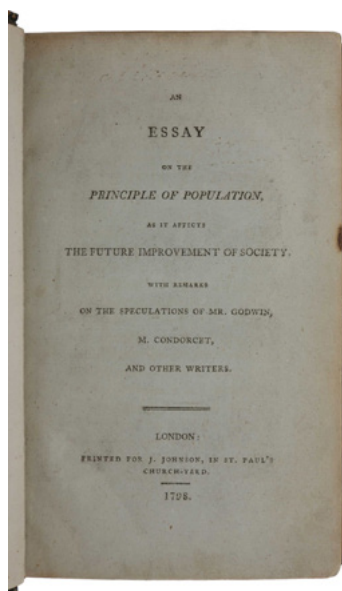
polypo cordis"), and the first description of Hodgkin's disease (in 'De liene'). Malpighi's studies of the kidney gave support to his iatromechanical theory of glands as secretion machines; he concluded that the glomeruli were in direct contact with both arteries and veins, and postulated a similar connection between the glomeruli and urinary vessels. In his treatise on heart polyps, Malpighi demonstrated that the polyps consisted of coagulum found in normal blood; it was while examining a clot of coagulum under the microscope that Malpighi observed a number of red 'atoms' (corpuscles) in the interstices of the coagulum fibers" (Norman). The last copy at auction that was untouched in a contemporary binding was the Friedman copy (Sotheby's New York, Nov 16, 2001, lot 121, \$49,625).

☞Norman 1427; Friedman 121; Pincus 175; Garrison-Morton 535 & 1230.

The foundation of modern economics

36. **[MALTHUS, Thomas Robert].** *An Essay on the Principle of Population, as it Affects the Future Improvement of Society. With Remarks on the Speculations of Mr. Godwin, M. Condorcet, and Other Writers.* London: J. Johnson, 1798.

\$225,000



First edition, rare, of this foundation work of modern economics, and the seed for Darwin's theory of natural selection. "Malthus' *Essay* was a crucial contribution to Darwin's thinking about natural selection when he returned in 1836 from the *Beagle* voyage. In July 1837 Darwin began his "Note book on Transmutation of Species," in which he wrote: "In October 1838, that is, fifteen months after I had begun my systematic enquiry, I happened to read for amusement "Malthus on Population," and being well prepared to appreciate the struggle for existence ... it at once struck me that under these circumstances favourable variations would tend to be preserved and unfavourable ones to be destroyed. The result would be the formation of a new species" (*Life and Letters*, I, 83). Later, in the *Origin of Species*, he wrote that the struggle for existence "is the doctrine of Malthus applied with manifold force to the whole animal and vegetable kingdoms; for in this case there can be no artificial increase of food, and no prudential restraint from marriage" (p. 63). "Without doubt the great watershed in the development of Darwin's evolutionary theory came with his reading of Malthus. Not only did Malthus provide a vital missing element, but it served to precipitate other, equally necessary, elements into their proper place in Darwin's thought. With but the one notable exception of 'divergence',

from 1838 onwards Darwin was able to work with a clear formulation of his theory of natural selection" (Vorzimmer, 'Darwin, Malthus, and the Theory of Natural Selection,' *Journal of the History of Ideas* 30 (1969), p. 542). AE/RBH list only nine copies in non-rebacked contemporary bindings in the last 40 years.

☞Norman 1431; PMM 251; Garrison-Morton 1693; Kress B 3693;

Established obstetrics as a science

37. MAURICEAU, François. *Des maladies des femmes grosses et accouchées. Avec la bonne et veritable methode de les bien aider en leurs accouchemens naturels, & les moyens de remedier à tous ceux qui sont contre-nature, & aux indispotions des enfans nouveau-nés.* Paris: Chez Jean Henault, Jean d'Houry, Robert de Ninville, Jean Baptiste Coignard, 1668.

\$8,500



First edition, the copy of Maurice Villaret, of the book which “established obstetrics as a science” (G&M). This was the outstanding textbook of the time, the first important textbook of obstetrics for nearly sixty years (since that of Jacques Guillemeau in 1609), and the first important obstetrical text to be published in five vernacular languages as well as Latin. “Perhaps the first obstetric text in the modern sense, Mauriceau’s *Maladies des femmes grosses et accouchees* established obstetrics as a science and as a separate medical specialty. Through its various



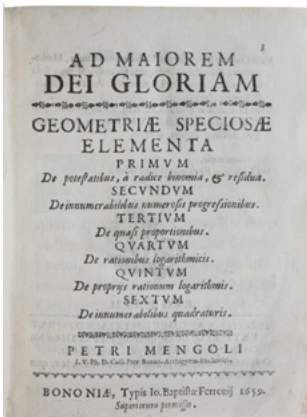
translations, it exercised a dominant influence on seventeenth-century obstetrical practice” (Grolier/Medicine).

✎ Grolier, *One Hundred Books Famous in Medicine* 33; Lilly, *Notable Medical Books* 85; Norman 1461; Garrison-Morton 6147.

Anticipating Newton and Leibniz

38. MENGOLI, Pietro. *Geometriae Speciosae Elementa.* Bologna: Giovanni Battista Ferroni, 1659.

\$22,500



Extremely rare first edition, a fine copy from the library of Pietro Riccardi, of this important work on limits of geometrical figures. In this work Mengoli “set up the basic rules of the calculus thirty years before Newton and Leibniz. Both of these were influenced by his contribution, in the case of Leibniz the influence was direct as he read Mengoli’s work while in the case of Newton he knew of it indirectly through studying Wallis.” (MacTutor History of Mathematics). “In the ‘*Geometriae speciosae elementa*’ (1659), Mengoli set out a logical arrangement of the concepts of limit and definite integral that anticipated the work of 19th-century mathematicians. In establishing a rigorous theory of limits, he considered a variable quantity as a ratio of magnitudes and hence needed to consider only positive limits. He then made the following definitions: a variable quantity that can be greater than any assignable number is called ‘quasi-infinite’; a variable quantity that can be smaller than any positive number is ‘quasi-nil’; and a variable quantity that can be both smaller than any

number larger than a given positive number a and greater than any number smaller than a is ‘quasi- a .’ Using these precise concepts of the infinite, the infinitesimal, and the limit, and working from simple inequalities valid between numerical ratios, he demonstrated the properties of the limit of the sum and the product, and showed that the properties of proportions are conserved also at the limit. The proofs obtain when such limits are neither 0 nor ∞ for this case Mengoli set out the properties of the infinitesimal calculus and the calculus of infinites some thirty years before Newton published them in his ‘*Principia*.’ OCLC records just one copy in the US (New York Public Library).



The first summations of infinite series, anticipating Leibniz

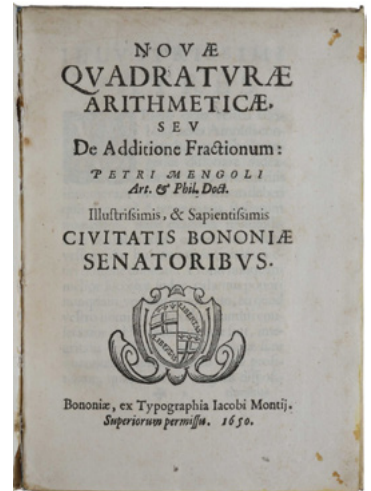
39. MINGOLI, Pietro. *Novae quadraturae arithmeticae, seu de additione fractionum*. Bologna: Giacompo Monti, 1650.

\$20,000



First edition, a fine copy from the library of Robert Honeyman, of this extremely rare and highly original work in which Mengoli gives the first recognizably modern treatment of infinite sequences and series, in the process becoming the first to sum infinite series that are not geometric progressions (these had been treated by Archimedes). Among other general theorems about series, Mengoli proves that a necessary condition for the convergence of a series is that n th term tends to zero as n tends to infinity; he also proves that if the partial sums of a series of positive terms are bounded then the series is convergent. He establishes the divergence of the harmonic series $1 + 1/2 + 1/3 + 1/4 + \dots$ some forty years before Jacques Bernoulli, to

whom the discovery is sometimes mistakenly attributed, and by an argument still used in textbooks. He also proves the convergence of the alternating series $1 - 1/2 + 1/3 - 1/4 + \dots$, anticipating Leibniz. Apart from its intrinsic interest, this treatment of series was a necessary precursor to Mengoli's work on quadratures (finding the areas of geometrical figures) which is begun in the present work and continued in his *Geometria speciosae* (1659) in which Mengoli "set up the basic rules of the calculus thirty years before Newton and Leibniz. Both of these were influenced by his contribution, in the case of Leibniz the influence was direct as he read Mengoli's work, while in the case of Newton he knew of it indirectly through studying Wallis" (MacTutor History of Mathematics). OCLC lists three copies in US (Brown, Burndy, Columbia); only one other copy located in auction records.



The first separately published textbook of probability

40. [MONTMORT, Pierre Rémond de]. *Essay d'Analyse sur les Jeux de Hazard*. Paris: J. Quilau, 1708.

\$12,000



First edition, and a fine 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, *History of the Theory of Probability*, p. 78). "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, *A History of Probability and Statistics and*

their Applications before 1750, p. 290). "Montmort's book on probability, *Essay d'analyse sur les jeux de hazard*, which came out in 1708, made his reputation among scientists" (DSB). 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), as well as Jacob I Bernoulli's celebrated *Ars Conjectandi* (1713). ABPC/RBH list just two copies of this first edition.



A founding work of modern geology

41. MURCHISON, Sir Roderick Impey. *The Silurian System, Founded on Geological Researches in the Counties of Salop, Hereford, Radnor, Montgomery, Caermarthen, Brecon, Pembroke, Monmouth, Gloucester, Worcester, and Stafford; With Descriptions of the Coal-Fields and Overlying Formations.* London: John Murray, 1839.

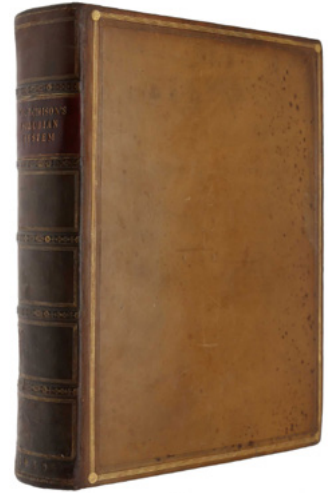
\$13,000



First edition, complete with the very rare hand-coloured engraved folding three-sheet geological map. This work is considered to be Murchison's masterpiece, placing him among the founders of modern geology. For the first time, the succession of fossiliferous formations below the Old Red Sandstone was shown in great detail: their fossils were enumerated, described, and figured. This work made it possible to trace fossils back millions of years, thus giving new insight into the formation of the Earth and its various living organisms. "Although the map is a rarity today, every copy of the text was published with a map" (Thackray, 'Murchison's Silurian

System (1839); *Journal of the Society for the Bibliography of Natural History* 9 (1978), p. 69). "Murchison's work was primarily responsible for undermining Lyell's 'steady-state' uniformitarianism: the uniformity of the Silurian fauna demonstrated the greater uniformity of the global climate in Silurian times, and the temporal sequence of fossil faunas and floras over all stratigraphical systems supported a directional interpretation of the history of life" (Norman).

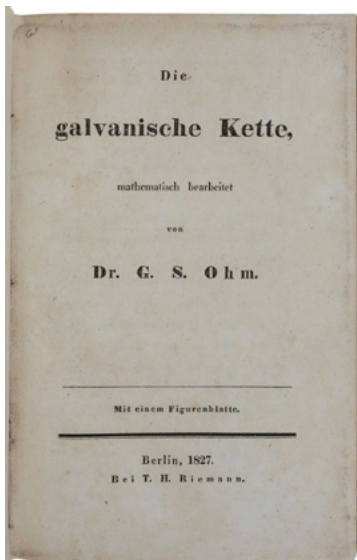
☛ Dibner, *Heralds of Science* 97; Norman 1569; Ward & Carozzi 1620



Ohm's law

42. OHM, Georg Simon. *Die galvanische Kette, mathematisch bearbeitet.* Berlin: J.G.F. Kniestädt for T.H. Riemann, 1827

\$29,500



First edition, very rare complete copy, of "Ohm's great work" (DSB), containing the fully-developed presentation of his theory of electricity, including Ohm's Law. The present copy not only retains the errata leaf R1, often lacking, but also the one-leaf publisher's list R2, which is almost always missing (the Dibner, Horblit/Evans, Norman, Waller and Wellcome copies, and the copy described by Grolier Science, all lack it). "Ohm's great contribution – 'The Galvanic Chain Mathematically Calculated' – was to measure the rate of current flow and the effects of resistance on the current. 'Ohm's law' – that the resistance of a given conductor is a constant independent of the voltage applied or the current flowing (that is, $C = E/R$, where C = current, E = electromotive force and R = resistance) – was arrived at theoretically by analogy with Fourier's heat measurements (1800-14)" (PMM). Although copies of this book appear with some regularity on the market, we have found only three absolutely complete copies, as here, at auction since 1938. The Elihu Thomson copy, sold Christie's New York, 1999 (\$11,500), was subsequently offered by Jonathan Hill, who wrote (Cat. 131, No. 71), "I have had a good number of copies of this book and this is the first to have the leaf of ads".

☛ PMM 289; Dibner 63; Horblit 81; Norman 1607; Sparrow, *Milestones of Science*, 154; Wheeler Gift Cat. 835.

His chef d'oeuvre

43. PARÉ, Ambroise. *Cinq livres de chirurgie*. [Bound with:] *Traicté de la peste*. Paris: André Wechel, 1572; 1568.

\$235,000



Very rare first editions of these important works, unrestored in contemporary binding. “The *Cinq livres* contains all new material. It had been called by several serious writers Paré’s chef d’oeuvre, in it appears the first description of the fracture of the head and of the femur. Secondly, it is the first appearance of the whole teaching of bandages, fractures, and dislocations which has come down to us from the ancients, broadened by Paré’s own experience ... It is undoubtedly one of his most important works” (Doe 19). Since 1916 ABPC has recorded the sale of only two copies: one in 1963 in New York, and another (incomplete) in 1981 in London. The second work, *Traicté de la peste*, was written from direct experience of the plague: “Having passed the winter of 1564-65 on tour in Provence with Catherine de’ Medici and the young king Charles IX, where the ravages of a plague epidemic, added to poverty and general misery, were painfully apparent, Paré was requested by the queen mother to make whatever knowledge he possessed of the disease available to the world. He therefore puts into a book his ideas as to its cause, transmission, and treatment, and says he writes only of what he has seen by long experience during his three years at the Hôtel-Dieu, his travels, his practice in Paris, and his own slight attack while he was serving his internship. This is one of Paré’s most systematic treatises; for its careful symptomatology and thorough description of treatment, it deserves to rank among the best of his writings” (Doe 14). Durling 3526.



Pavlov’s dogs

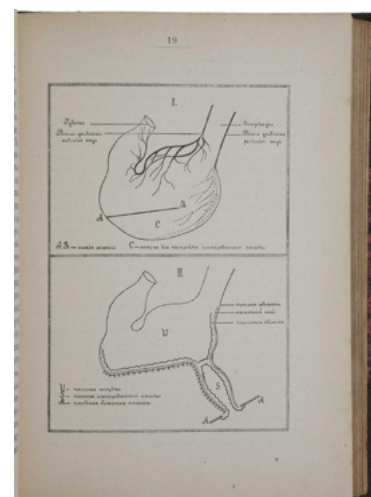
44. PAVLOV, Ivan Petrovitch. *Lektsii o rabotie glavnikh pishtshevaritelnykh zhelyos*. St. Petersburg: I. N. Kushnereff & Ko., 1897.

\$20,000



A fine copy, in contemporary Russian binding, of this famous work on digestive juices by the demonstrator of the ‘conditioned reflex’. “Mouthwatering is a familiar experience and may be induced without the sight or smell of food. The sounds of a table being laid for lunch in another room may induce salivation in man, and the rattle of a dish in which its food is usually served will cause similar reaction in a dog. “By detailed analysis of such facts as these Pavlov made great contributions to our knowledge of the physiology of digestion in a series of lectures delivered in St Petersburg and published in the following year [i.e., the offered work]. In the course of these lectures he described the artificial

stomach for dogs used by him to produce for the first time gastric juices uncontaminated by food. Further experiments led him to the conclusion that salivation and the flow of gastric juice ensuing upon the sight or smell of food was due to a reflex process. This simple form of reaction he called first a ‘psychic’, later an ‘un-conditioned’, reflex. Reflex action was familiar to physiologists, but it had never been invoked to explain such a complicated process ...” (PMM).



☛PMM 385; Grolier/Horblit 83; Dibner 135; Grolier/Medicine 85; Lilly, *Notable Medical Books* 24.

Textual foundation of psychiatry

45. PINEL, Philippe. *Traité médico-philosophique sur l'aliénation mentale mentale, ou la manie*. Paris: Chez Richard, Caille et Ravier, An IX [1800-01].

\$3,800



First edition, a fine copy, of “one of the foremost medical classics, giving as it did a great impetus to humanitarian treatment of the insane” (Garrison). Philippe Pinel’s *Traité médico-philosophique sur l'aliénation mentale mentale, ou la manie*, which presented the textual foundation of psychiatry, stands as the first great publication of the nineteenth century in clinical medicine, and at the same time as one of the paradigmatic expressions of the medical and scientific revolution that was taking place in the late eighteenth and early nineteenth centuries. “In his *Traité*, Pinel departed from past interpretations of mental illness, which placed it within a supernatural or spiritual, rather than a somatic, realm, and accepted the mentally ill as legitimate patients in the domain of medicine. According to Pinel, the manifestations of insanity, including disturbed reason, inappropriate thought, bizarre behavior, and exaggerated passions, represented phenomena of natural history and its pathology that could be studied like those of any other medical or surgical condition” (Grolier/Medicine).



☛Grolier/Medicine 54; Lilly, *Notable Medical Books* 155; Norman 1701; *Heirs of Hippocrates* 1070; Garrison-Morton 4922.

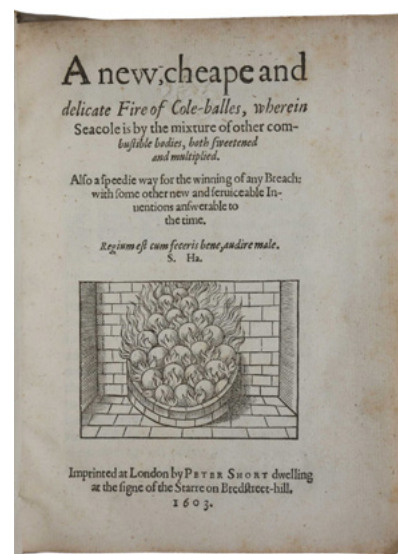
Making coke from coal - essential to the industrial revolution

46. PLAT, Sir Hugh. *A new, cheape and delicate Fire of Cole-balles, wherein Seacole is by the mixture of other combustible bodies, both sweetened and multiplied*. London: Peter Short dwelling at the signe of the Starre on Bredstreet-hill, 1603.

\$12,500



First edition, the superb Macclesfield copy bound in contemporary vellum gilt, of this important work by “Elizabethan London’s most curious student of nature” (Harkness, p. 8), which first introduced the process of making coke from coal, a technological innovation that proved crucial in the industrial revolution. This is an extremely rare book – indeed, this is probably the only surviving perfect copy (see below). “The technique of making coke from coal [was] suggested in 1603 by Hugh Plat as a process similar to making charcoal from wood” (Osborne, p. 234). “Coke’s superior crushing strength allowed blast furnaces to become taller and larger. The ensuing availability of inexpensive iron was one of the factors leading to the industrial revolution” (Newgera, p. 89). “Plat’s approach to his many collaborators and the natural knowledge they shared with him was rigorous, and prefigures in significant ways ... the scientific method” (Harkness, p. 214). “ESTC locates copies at British Library [lacks A1], Bodleian [lacks A1, ex Juel-Jensen], Birmingham University [lacks A1]; Marsh’s Library Dublin [missing], Glasgow University [apparently lacking one leaf – presumably A1 - as pagination is given as 30 pp.], Folger [sheet A frayed, affecting title & text; ex Sion College], Huntington [lacks A1]; no other copy located in auction records.”

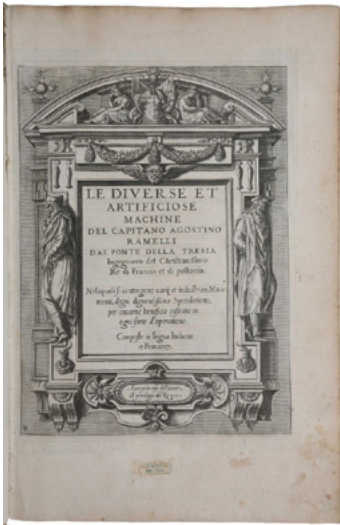


rigorous, and prefigures in significant ways ... the scientific method” (Harkness, p. 214). “ESTC locates copies at British Library [lacks A1], Bodleian [lacks A1, ex Juel-Jensen], Birmingham University [lacks A1]; Marsh’s Library Dublin [missing], Glasgow University [apparently lacking one leaf – presumably A1 - as pagination is given as 30 pp.], Folger [sheet A frayed, affecting title & text; ex Sion College], Huntington [lacks A1]; no other copy located in auction records.”

An exceptionally fine copy with distinguished provenance

47. **RAMELLI, Agostino.** *Le diverse et artificiose machine.* Paris: for the author, 1588.

\$280,000



First edition of one of the most important books on the science and technology of machines in the renaissance, and one of the most famous illustrated books of the sixteenth century – a tour de force of book design. This is a splendid copy in contemporary French gilt vellum, ruled in red, and entirely untouched. We are not aware of a copy of similar quality on the market since the Norman-Freilich copy (sold Sotheby's 2001, \$291,750). *Provenance:* Françoise d'Espinau de Bretagne, first wife of Henri de Schomberg, comte de Nanteuil (1604 gift inscription on front free endpaper); Princes of Liechtenstein (stamp on title); Otto Schäfer (sold Sotheby's 1995, £38,900). A fundamental book in the history both of technology and of book design, and “one of the most elegantly produced of all technological treatises” (Norman). The scientific import of Ramelli's work resides in his demonstration of “the unlimited possibilities of machines. For example, the dozens of water-powered pumps and mills shown in his treatise clearly demonstrated that non-muscular power could be substituted for horse- or human-power in any mechanical task requiring continuous or repetitive application of force, and the portrayal of over twenty types of water pump ... destroyed

the notion that there were necessary limits to the configuration or arrangement of a machine” (*ibid.*)

☞Dibner, *Heralds of Science* 173; Norman 1777; Mortimer French 452; Wellcome 5323; Adams R52; Cockle 788.



The foundation of modern neurology

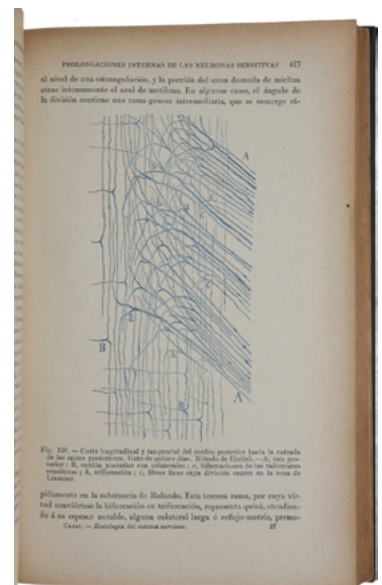
48. **RAMÓN Y CAJAL, Santiago.** *Textura del sistema nervioso del hombre y de los vertebrados.* Madrid: Nicolás Moya, 1899-1904.

\$25,000



A fine copy of the very rare first edition. “This monumental work sets out the cytological and histological foundations of modern neurology. Ramón y Cajal's research confirmed the neuron doctrine; his classification of neurons provided a histological basis for cerebral localization. His descriptions of the cerebral cortex are still the most authoritative.” (GM). Only eight hundred copies were printed of this work, ABPC list just one copy; the Hardman copy bought by Norman in 1981 (but not offered again at the Norman sale). “The work of Santiago Ramón y Cajal provided the foundation for present concepts of the cellular composition of the nervous system. Improving and refining existing histological techniques and developing new ones of his own, he demonstrated the microscopic anatomy of the brain as it had never before been seen, and correlated the cellular structures of the brain, nerves, and spinal cord with their functions, giving neurophysiology for the first time a firm anatomic base. Utilizing his remarkable skill as an artist and draftsman, Cajal was able, through the illustrations in his books, to convey to the scientific world what was revealed of the nervous system through his microscope ... Cajal and Golgi shared the Nobel Prize in Physiology or Medicine in 1906 [“in recognition of their work on the structure of the nervous system”]” (Grolier/Medicine).

☞Grolier, *One Hundred Books Famous in Medicine* 86; Garrison-Morton 1293.1.



Three 15th century astronomy texts - printed in colour

49. SACROBOSCO, Johannes; REGIOMONTANUS, Johannes; PEURBACH, Georg. *Sphaerae mundi compendium soeliciter inchoat. [Sphaera mundi; Disputationes contra Cremonensia deliramenta; Theoricae novae planetarum]*. Venice: Erhard Ratdolt, 1482.

\$38,500



First printing, rare, of this assembly of basic texts of pre-Copernican astronomy, an exceptional copy in an untouched contemporary binding (this book, and its several fifteenth-century reprints, are almost always found in 19th or 20th century bindings). This is also the first book to use illustrations printed in colour from more than one block, a cornerstone in the history of colour printing (Graff) - the book is often catalogued incorrectly as having contemporary hand-

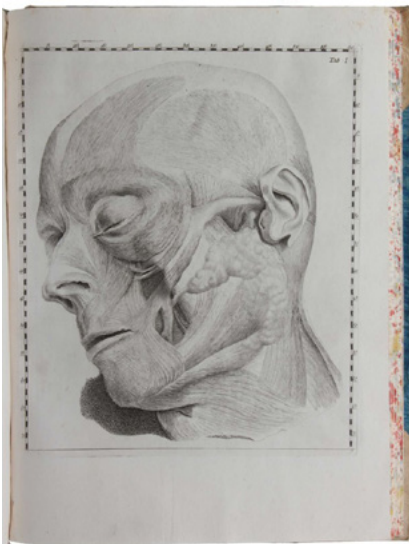


colouring. Sacrobosco's *De sphaera mundi* was the first printed astronomical book, a synthesis of Ptolemy and his Arabic commentators, and accepted as the most authoritative astronomical textbook of its time. The tract by Regiomontanus is a critique of the *Theoricae planetarum communis*, the anonymous 13th-century university textbook usually attributed to Gerard of Cremona. It is followed by Peurbach's *Theoricae novae planetarum*, composed around 1454, which became the standard astronomical text for over a century and a half. ABPC/RBH list only four complete copies in the past 50 years.

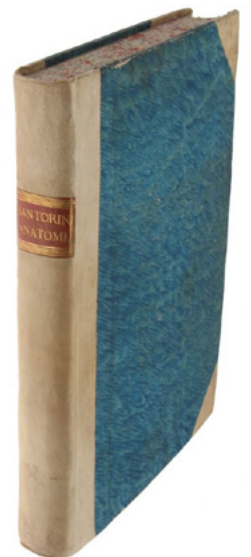
One of the finest anatomies of the eighteenth century

50. SANTORINI, Giovanni Domenico. *Anatomici summi septemdecim tabulae quas nunc primum edit atque explicat iisque alias addit de structura mammarum et de tunica testis vaginali*. Parma: [Giambattista Bodoni], 1775.

\$7,500



First edition, and a very fine copy. "The book is one of the finest anatomies of the eighteenth century because of its excellent illustrations and comprehensive commentary." (*Heirs of Hippocrates*). It is also one of the rarest of the few medical books printed at the celebrated Bodoni Press in Parma, as well as one of the few medical books issued by a private press. "Santorini was generally acknowledged as the outstanding anatomist of his time. Many corrections and discoveries in the detailed anatomy of the different organs of the human body go back to Santorini. Even today a facial muscle (risorius), a pair of cartilages (comicula) of the larynx, the emissary veins of the skull, and a part of the superior and inferior turbinates of the ethmoid are named after Santorini" (Hagelin, *Rare and Important Medical Books*, p. 112).

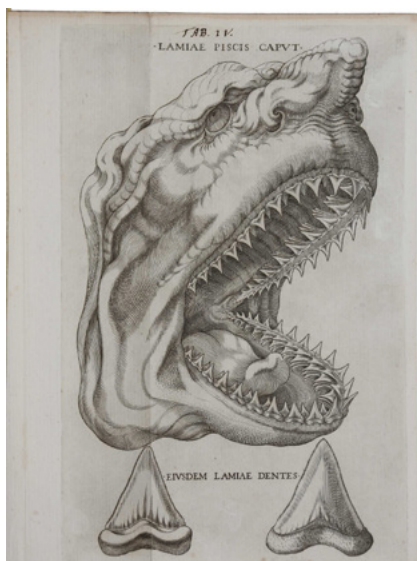


Norman 1888; Garrison-Morton 399.1; *Heirs of Hippocrates* 788; Pincus 248.

Geology, muscle mechanics and the female ovum

51. STENSEN, Niels (Nicolaus Steno). *Elementorum Myologiae Specimen, seu musculi descriptio geometrica. Cui accedunt canis carchariae dissectum caput, et dissectus piscis ex canum genere..* Florence: [Joseph Cocchini], 1667.

\$16,000



First edition of “the first outline of a scientific theory of the development of the earth” (Norman). This is one of the most remarkable of the scientific classics because it made seminal contributions to three quite distinct fields: myology, embryology and geology. In addition to being “The earliest geological treatise” (Garboe, quoted in Garrison-Morton), this work laid the foundation of muscle mechanics, and contains the first recognition of the egg-producing function of the female ovary. The myological and embryological sections of the present work appear as appendices because the manuscript of the main work was prepared in the spring and summer of 1666, before the famous dissection of a shark that so deeply influenced his scientific career (Kardel & Maquet, p. 159).

G&M 577. Lilly, *Notable medical books*, p. 79. Norman 2012; NLM/Krivatsy 11432; Osler 4021; Waller 9223. Cobb, *Generation*, 2006; Garboe, *Nicolaus Steno and the foundation of exact geology and crystallography*, 1954; Garboe, *The earliest geological treatise (1667) by Nicolaus Steno*, 1958; Kardel & Maquet (eds.), *Nicolaus Steno: Biography and Original Papers of a 17th Century Scientist*, 2012.

Exceptionally rare sixteenth-century work on navigation

52. STEVIN, Simon. *Limenheuretica [Greek], sive porluum investigandorum ratio. Metaphraste Hug. Grotio Batavo.* Leiden: Ex officina Plantiniana apud Christophorum Raphelengium. Academiae Lugduno-Batavae Typographum. 1599.

\$35,000



First Latin edition, extremely rare, of Stevin's important contribution to the art of maritime position finding by use of the compass and its deviation, published at the same time as the original Dutch edition (*De Havenvinding*). “In a short treatise entitled *De Havenvinding*, [Stevin] approached the subject of determining the longitude of a ship, a problem that was not fully solved until the nineteenth century. Several previous authors had suggested that longitude might be determined by measuring the deviation of the magnetic needle from the astronomical meridian... Since the determination of latitude was well known, such a measurement would allow the sailor to chart longitudinal position against the latitudinal circle ... Stevin, in his booklet, gave a clear explanation of this method; he differed from Petrus Plancius and Mercator in that he did not rely upon a priori conceptions of the way in which geomagnetic deviation depends upon geographical position... His method was sound, although as data began to accumulate it became clear that the magnetic elements were subject to secular variation. The problem was at last solved more simply by the invention of the ship's chronometer” (DSB). Christoffel Raphelengius was granted the privilege to print the work, in any language, on 18 March 1599. The dedication of this Latin

translation, which was entrusted to the young and highly precocious Hugo Grotius, whose father Jan had been a long-standing associate of Stevin's, is dated 1 April 1599. An English translation was prepared by Edward Wright on the advice of Richard Hakluyt, with dedication dated 23 August, while a French edition entitled *Le Trouve Port* without preface or dedication. All editions of Stevin's work are of exceptional rarity, only two copies, one of the French edition and one of the English, have sold at British and American auctions in over 50 years. OCLC lists no copy in America.

Spontaneous generation rejected

53. SWAMMERDAM, Jan. *Historia insectorum generalis; ofte, algemeene verhandeling der bloedloose dierkens*. Utrecht: Merinardus van Dreunen, 1669.

\$11,500



The very rare first edition of Swammerdam's important entomology work in which he "rejected spontaneous generation and proposed that the process of decay in organic matter was the result of living organisms" (Dibner on the later reworked edition of this work by Boerhave from 1737, i.e., *Bybel der natuure*). The *Biblia natura*, Swammerdam's major work, was published fifty-seven years after his death by Herman Boerhaave, who assembled it from unpublished manuscript materials integrated with a slightly revised version of Swammerdam's *Historia insectorum generalis* (1669) [the offered work]" (Norman). "The 1669 *Historia* was devoted to the overthrow of the idea of

metamorphosis, as its title explains: 'General Account of the Bloodless Animals, in Which Will be Clearly Set Forward the True Basis of their Slow Growth of Limbs, the Vulgar Error of the Transformation, Also Called Metamorphosis, Will be Effectually Washed Away, and Comprehended Concisely in Four Distinct Orders of Changes, or Natural Budding Forth of Limbs.'

☛Garrison-Morton 294; Barchas 2018. See Dibner 191; Norman 2037; Sparrow 187 for the later *Bybel der Natuure*.

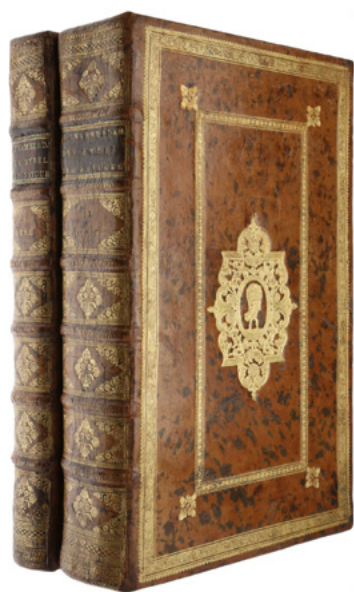


Luxurious copy bound by 'The Necklace Bindery'

54. SWAMMERDAM, Jan. *Bybel der Natuure...* Leiden: Isaak Severinus, Boudewyn & Pieter Vander Aa, 1737-38.

\$38,000

First edition, a magnificent copy in a spectacular contemporary binding from "The Necklace Bindery", of "the finest collection of microscopical observations ever produced by one worker. The book is consulted by naturalists to this day. Some of the figures have never been excelled" (Singer).



Binding: Spectacular contemporary marbled calf from "The Necklace Bindery" at Leiden (so called by Storm van Leeuwen because of the characteristic rectangular border surrounding the central cartouche on the covers), "one of the most distinguished Leyden workshops of the 18th century [that] played a decisive role in the field of luxury binding", spine richly gilt in compartments all edges gilt. See *Dutch Decorated Bookbinding in the Eighteenth Century*, 2006, II-A, p. 260-278.

☛Dibner, *Heralds of Science* 191; Norman 2037. Sparrow, *Milestones of Science* 187



The first full account of the minute anatomy of the ear

55. VALSALVA, Antonio Maria. *De Aure Humana Tractatus, in quo integra ejusdem auris fabrica, multis novis inventis, & iconismis illustrata, describitur; omniumque ejus partium usus indagatur. Quibus interposita est musculorum uvulae, atque pharyngis nova descriptio, et delineatio.* Bologna: Constantino Pisari, 1704.

\$7,500



Rare first edition, and a fine copy, of “the first full account of the minute anatomy of the ear” (Norman). “This remarkable book became a standard on the subject for over a century” (*Heirs of Hippocrates*). “The ‘Treatise’ is arranged in six chapters. The first three are anatomic and deal with the parts of the ear; the last three are physiologic and explain the functions of these parts. The auricle and auditory meatus, the tympanum and middle ear, and the labyrinth and inner ear are discussed. Chapter 2 includes Valsalva’s report, promised on the title page, of the musculature of the uvula and pharynx; these are depicted on separate plates. The ten illustrations are good line engravings, of which the most striking are those of the nerves and blood vessels of the outer ear, the carotid artery, the semicircular canals, and the structure of the whole ear” (Lilly).

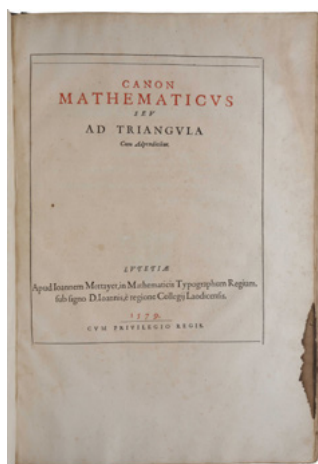
☛Norman 2125; Lilly, *Notable Medical Books* 101; Garrison-Morton 1546; *Heirs of Hippocrates* 729.



The birth of algebraic trigonometry and the first use of decimals

56. VIÈTE, François. *Canon mathematicus seu ad triangula.* Paris: Jean Mettayer, 1579.

\$240,000



First edition, first issue, and an exceptionally fine copy bound in contemporary brown morocco gilt, of the first published work by the greatest mathematician of the sixteenth century, “the first mathematician of his age to think occasionally as mathematicians habitually think today” (Bell, *The Development of Mathematics*, p. 99). Viète “constructed trigonometrical tables, derived from those of Rheticus, and described them in his earliest work on mathematics, *Canon mathematicus seu ad triangula*, Paris, 1579, which was used by Napier. Besides a detailed account of the solution of triangles, it contains a celebrated account of the relation between $\sin nx$ and $\sin x$... All his books were published privately at his own expense for distribution to his friends and are therefore notably rare” (PMM). This is Viète’s most important book, after his epochal *In artem analyticem Isagoge* (1591), which founded modern algebra. In addition to being the foundation work of algebraic trigonometry, the *Canon mathematicus* is the first work to use, and advocate the use of, decimal fractions, six years before Simon Stevin (1548-1620) published *De Thiende*, the work widely credited

with introducing the use of decimals: on page 17 of this work, Viète wrote: “Finally, sexagesimals and sixties are to be used sparingly or never in mathematics, and thousandths and thousands, hundredths and hundreds, tenths and tens, and similar progressions, ascending and descending, are to be used frequently or exclusively.” OCLC lists copies at Berkeley, Brown, Burndy, Harvard, NYPL and Stanford in US. ABPC/RBH list only the Honeyman, Norman, Macclesfield and Horblit/Richard Green copies, all these copies, except Norman’s, were in later bindings.

☛Dibner, *Heralds of Science* 105; *En Français dans le Texte* 71; PMM 103n; Norman 2151.



“The most significant contribution to biology and medicine in the 20th century”

57. WATSON, J. D. & CRICK, F. H. C. *Molecular Structure of Nucleic Acids: A Structure for Deoxyribose Nucleic Acid*; 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*. [In *Nature*, Vol. 171, No. 4356, April 25, 1953]. Complete issue of *Nature* in original printed wrappers.

\$28,500



First edition, in the form in which it first appeared, and signed by Francis Crick, of one of the most important scientific papers of the twentieth century. Watson & Crick's paper “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, p. 362). 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.” These three papers were issued together in offprint form under the general title “Molecular Structure of Nucleic Acids,” but the journal issue offered here preceded the offprint and is actually much rarer on the market.

☛ Grolier, *One Hundred Books Famous in Medicine*, 99; Dibner, *Heralds of Science*, 200. Garrison-Morton 256.3; Judson, *Eighth Day of Creation*, pp. 145-56.

Coined the term ‘neurology’

58. WILLIS, Thomas. *Cerebri anatome: cui accessit nervorum descriptio et usus*. London: Typis Ja. Flesher, Impensis Jo. Martyn & Ja. Allestry, 1664.

\$42,000



First edition, first issue, and an exceptionally fine copy, of “the most complete and accurate account of the nervous system which had hitherto appeared, and the work that coined the term ‘neurology’ (GM). “Thomas Willis was one of a number of remarkable scientists and doctors who flourished at Oxford in the mid-seventeenth century. Dispersed among the colleges of Oxford, these talented investigators coalesced into a loosely organized “club” or invisible college that helped define and disseminate a new experimental philosophy and that served as the informal prototype of the Royal Society. The legacy of William Harvey was crucial to science and medicine in Oxford, and anatomical investigations were central to programs of research in these subjects; as a physician and one of the charter members of the Oxford club, Willis played a leading role in shaping those programs. His *Cerebri anatome* remapped the brain and described the cranial, spinal, and involuntary nervous systems so accurately and thoroughly



that it remained the standard work in its field until well into the nineteenth century. Willis himself was probably the first to use the term ‘neurology’” (Grolier/Medicine).

☛ Grolier, *One Hundred Books Famous in Medicine* 32A; Lilly, *Notable Medical Books* 77; Norman 2243; Garrison-Morton 1378; *Heirs of Hippocrates* 538.



ASELLI: *De lactibus sive lacteis venis*, 1627

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