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Catalogue 182

Proofs

Science, Medicine, Natural History,

Engineering & Bibliography

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One of the Great Medical Teachers of the 16th Century

1. **ARGENTERIO, Giovanni.** *De Urinis Liber.* Woodcut arms on title. 92, [2] pp. 8vo, attractive calf-backed speckled boards, spine gilt, red morocco lettering piece on spine. Leipzig: J.C. Wohlfart, 1682. \$750.00

Second edition (1st ed.: Lyon, 1591) of a very popular work on urinalysis. Argenterio (1513-72), a native of Piedmont, practiced in Lyon and Antwerp before returning to Italy where he taught at Pisa, Naples, Rome, Mantua, and Torino. His fame as a teacher was great because he ventured to attack Galen and was almost Paracelsian in his attitudes.

Fine copy from the Solms ducal library at Lich.

♣ Hirsch, I, pp. 192-93. Osler 1835. Thorndike, VI, pp. 226-27.

2. **ARISTOTELES.** *Problemata.* Translated by Theodorus Gaza. [96] leaves (the 6th leaf a blank). 39 lines, Roman type. Capital strokes & paragraph marks in table supplied in red & blue. Folio (288 x 205 mm.), modern boards covered with 15th-century manuscript leaves, the front including the Commemorations on the Feast of the Holy Family Malachias 3:1 opening with illuminated initial E, the back cover with text from Mark 14 (several unimportant marginal wormholes). Mantua: J.

Vurster and J. Baumeister, [ca. 1473]. \$85,000.00

First edition of Aristotle's *Problemata*; this is one of the earliest of any of the texts by Aristotle to be published. The *Problemata* are a collection of scientific dissertations in the form of questions and answers ascribed to Aristotle in twenty chapters. Subjects include mathematics, meteorology, medicine, wine, botany, oceanography, vision, and color.

The text was translated by Theodorus Gaza (ca. 1400-1475), who fled from his native city of Thessalonica before its capture by the Turks in 1430. He was one of the leaders of the revival of learning in the 15th century. In 1447 he became professor of Greek in the new university of Ferrara, to which his fame soon attracted students from all parts of Italy. In 1450, at the invitation of Pope Nicholas V, he went to Rome, where he was for some years employed in making Latin translations from Aristotle and other Greek authors.

With the signature and notes of Tobias Faber, very probably the Lutheran minister who flourished ca. 1580 and was the author of *Theses Medicae* (Basel: 1580).

A fine copy and very rare; ISTC locates only three copies in the U.S. (Harvard, LC, and PML).

• Goff A-1030. Klebs 95.1. Stillwell 583.

3. ARMENGAUD, Aîné, Jacques Eugène. *Traité théorique et pratique des Moteurs hydrauliques. Comprenant les Notions préliminaires sur l'Hydraulique...* Numerous diagrams & tables in the text. viii, 500 pp. Large 4to, modern half-morocco & marbled boards (some foxing). [bound with]: *Planches*. 21 double-page lithographed plates (some foxing). 2 p.l. (title & table). Paris: chez l'Auteur, 1858. \$500.00

"Nouvelle édition, entièrement refondue." This was one of the major works on hydraulic and turbine engines of the period. Armengaud (1810-91), was an engineer and professor at the Conservatoire Impérial des Arts et Métiers. He was a prolific author who also wrote of mechanical drawing, industrial design, and metallurgy.

Very good copies. Ex Bibliotheca Mechanica.

4. (AUCTION CATALOGUE: ORRY DE FULVY, Jean Henri Louis). *Catalogue des Livres de feu M. Orry de Fulvy, Conseiller d'Etat, et Intendant des Finances; dont la Vente se fera en détail le 17 janvier 1752 à l'Hôtel de Beauvais, rue S. Antoine.* 2 p.l., 89 pp. 8vo, attractive antique calf-backed

marbled boards, spine gilt, green morocco lettering piece on spine. Paris: Musier, 1752. \$2500.00

The rare inventory auction catalogue of the library of Orry de Fulvy (1703-51). A member of a prominent noble family (his brother Philibert Orry, Comte de Vignori, a financier and government minister, was famously dissolute), Jean Henri Louis was a councillor to the Paris *parlement* and held other important government positions (see *N.B.G.*, Vol. 38, cols. 879-80). He established at the château of Vincennes, east of Paris, in 1740, a soft-paste porcelain factory. In 1745, the factory, under Charles Adam, Orry de Fulvy's valet, was granted a 20-year royal privilege to manufacture porcelain painted in the Meissen style with figures and gilding. Following Orry de Fulvy's death, the factory experienced financial difficulties but began a new phase in 1752 when Louis XV, King of France (1723-74) acquired one quarter of the shares. The factory was then renamed the *manufacture du roi* (royal manufactory) and was granted official permission to mark its pieces with the royal cipher of interlaced "L"s.

Fine copy. 196 multi-volume lots, listing about 1250 books. This copy has been priced throughout in a contemporary hand with numerous additional annotations.

✦ Grolier Club, *Printed Catalogues of French Book Auctions... 1643-1830*, 94. Peignot, p. 99.

The Gyroscope

5. **BARNARD, John Gross.** *Problems of Rotary Motion presented by the Gyroscope, the Precession of the Equinoxes, and the Pendulum.* Illus. in the text. 2 p.l., 48 pp. Folio, orig. printed wrappers (strengthened on verso with japan paper but still with some small losses at corners). Washington: Smithsonian, 1871. \$250.00

First edition, Smithsonian Contributions to Knowledge, No. 240. Barnard (1815-82), a graduate of West Point, served on the corp of engineers and worked on many projects during a long and successful career. "Contains the author's 'The Precession of the Equinoxes and Nutation and Resulting from the Theory of the Gyroscope,' 'On the Motions of Freely Suspended and Gyroscopic Pendulums, and on the Pendulum and Gyroscope as exhibiting the Rotation of the Earth,' and 'Internal Structure of the Earth considered as affecting the Phenomena of Precession and Nutation'."—Roberts & Trent, *Bibliotheca Mechanica*, p. 25.

Very good copy preserved in a green morocco-backed cloth box. Ex Bibliotheca Mechanica.

A Classic of Engineering

6. **BÉLIDOR, Bernard Forest de.** *Architecture Hydraulique, ou l'Art de conduire, d'élever, et de menager les Eaux pour les differens besoins de la Vie.* Three engraved frontis. (one is a port. of the author), 219 folding engraved plates, & many fine engraved headpieces. Titles printed in red & black. Four vols. Large 4to, cont. calf (heads of spines a little worn), spines gilt, contrasting leather lettering pieces on spines. Paris: C.A. Jombert, 1737-39-50-53. \$5750.00

First edition of the most widely used and influential engineering text of the 18th and early 19th centuries. It is "one of the earliest scientific books in the field of engineering. Concentrating on civil construction he considers transportation, shipbuilding, waterways and water supply, ornamental fountains, windmills and pumps, epitomizing their state on the eve of the Industrial Revolution."—Roberts & Trent, *Bibliotheca Mechanica*, p. 30.

This work "proved to be invaluable to architects, builders, and engineers. [It amounted] to rationalized engineering handbooks in which the man in charge of a construction might look up model specifications for a foundation or a cornice, a pediment or an arch; fine diagrams he could follow or adapt; and consult job analyses and work plans for dividing and directing the labor."—*D.S.B.*, I, p. 582.

This was the first work of its kind of make practical use of the integral calculus.

Attractive set. Bookplate and stamp on verso of each title of the "Bibliotheca Acad. Georgiae Augustae."

The First Engineering Manual Ever Published

7. **BÉLIDOR, Bernard Forest de.** *La Science des Ingénieurs dans la Conduite des Travaux de Fortification et d'Architecture civile.* Fine engraved frontis., engraved vignette at head of dedication, & 53 engraved plates. 9 p.l. (incl. frontis.), 80, 64, 96, 104, 80, 80, [8] pp. Large thick 4to, antique calf, reusing the old marbled endpapers, orig. red morocco lettering piece on spine. Paris: C.A. Jombert, 1739. \$1250.00

Second edition, a reprint of the 1729 first edition. This was the first engineering manual ever published and the text was reused in various editions and translations well into the 19th century. "The text is divided into six separately paged books. Timoshenko comments favorably on the contribution Béliidor makes to the selection of proper dimensions for retaining walls. This volume also contains his practical experiments on the flexure and rupture of beams, cited by Todhunter and Pearson . . .

"The first two books treat of mechanics as they apply to the engineering and

construction of foundations, walls, and vaults, and the third book deals with the properties of materials and their use. Book four treats the construction of military and civil structures, with sections on the strength and resistance of wood and of iron. Book five concerns itself with applied decoration, and is illustrated with a number of plates of the classical orders. Finally, book six explains the technique by which plans are drawn."—Roberts & Trent, *Bibliotheca Mechanica*, pp. 30-31.

Fine fresh copy. Ex Bibliotheca Mechanica.

8. BENEDICT, Francis Gano & CATHCART, Edward Provan. *Muscular Work. A metabolic Study with special Reference to the Efficiency of the Human Body as a Machine.* Frontis. & 10 illus. in the text. Numerous tables in the text. vi, [1], 176, [1] pp. 8vo, orig. printed wrappers (spine largely perished). Washington, D.C.: Carnegie Institution, 1913. \$250.00

First edition of this classic work on metabolism and physical fitness. Benedict (1870–1957), was an American nutritionist who developed a calorimeter and a spirometer used to determine oxygen consumption and measure metabolic rate.

Very good copy, preserved in a calf-backed box. Ex Bibliotheca Mechanica.

♣ Garrison-Morton 657.

Walking

9. BENEDICT, Francis Gano & MURSCHHAUSER, Hans. *Energy Transformations during Horizontal Walking.* One plate. Numerous tables & illus. in the text. 100 pp. 8vo, orig. printed wrappers. Washington, D.C.: Carnegie Institution, 1915. \$150.00

First edition of this famous treatise on the metabolism of the human body while walking.

Fine copy, preserved in a calf-backed box. Ex Bibliotheca Mechanica.

10. BICKER, Georg. *Materia Medica Practica annexis selectioribus quibusdam Medicamentorum connubiis et formulis.* 4 p.l., 134, [2] pp. 8vo, cont. speckled sheep, contrasting leather lettering piece on spine. Bremen: G.L. Förster, 1778. \$1500.00

First edition and very rare. Bicker (1754-1823), took his medical degree at Göttingen and returned to his native city of Bremen where he practiced for many years. This book contains detailed instructions for pharmaceutical preparations.

Fine and fresh copy.

♣ Hirsch, I, p. 523.

11. **BIOT, Jean Baptiste.** *Traité de Physique expérimentale et mathématique*. 22 folding engraved plates & 5 folding printed tables. 2 p.l., lxvi, 538, [1] pp. ; 2 p.l., 551, [1] pp. ; 2 p.l., 516 pp.; 2 p.l., 780, [1] pp. Four vols. 8vo, cont. black-grey paste-paper boards, intertwined "CA" with a crown on top stamped in gilt on each upper cover, red leather lettering piece on each spine. Paris: Deterville, 1816. \$1500.00

First edition. This work "constitutes a comprehensive account of contemporary physics, including not only recent original research by himself (e.g. on polarization) but also the recent and often unpublished work of his associates, particularly Laplace, Gay-Lussac, and Dulong."—*D.S.B.*, II, p. 134. There is much on electricity.

Fine set. Ex Bibliotheca Mechanica.

♣ Roberts & Trent, *Bibliotheca Mechanica*, p. 38—"In volume one of this extensive survey of mathematics and experimental physics, Biot treats the theory of elasticity, adopting the Newtonian hypothesis of molecular construction. He also considers s'Gravesande's experiments on the elasticity of fibers and Coulomb's work on torsion and rotary oscillation of bodies. In the second volume he considers sound, referring to Chladni's *Traité d'acoustique* on the vibration of plates, and discusses the theory of elasticity and its practical applications. The third volume concerns magnetism and optics, continuing the discussion of optics in the fourth volume together with a presentation of heat theory which includes an essay on steam engines . . .

"Biot's work on heat is quoted by Fourier in his *Théorie analytique de la chaleur* and by Sadi Carnot in his *Réflexions sur la puissance motrice de feu*; Poisson made reference to his work in *Mémoire sur l'équilibre et le mouvement des corps élastiques* and *Mémoire sur les problèmes des ondes*."

"The Most Important Lapidary of the 17th Century"

12. **BOODT, Anselm Boetius de.** *Gemmarum et Lapidum Historia, Qua non solum Ortus, Natura, Vis & Precium, sed etiam Modus quo exiis, Olea, Salia, Tinctura, Essentia, Arcana & magisteria Arte Chymica confici possint, ostenditur*. Woodcut printer's device on title (repeated on verso of final leaf), 31 woodcuts in the text, & two large folding printed tables. 8, [12], 294, [16] pp. 4to, cont. vellum over semi-stiff boards (a bit warped). Hanau: Wechel, 1609. \$16,500.00

First edition of Boodt's fundamental manual on mineralogy and gemology. This is a very fine copy in a contemporary binding, lower cover stamped in blind: "H.H.H.D. 1614."

"In his *Gemmarum et Lapidum Historia* Boodt made the first attempt at a

systematic description of minerals, dividing the minerals into great and small, rare and common, hard and soft, combustible and incombustible, transparent and opaque. He uses a scale of hardness expressed in three degrees and notes the crystalline forms of some minerals (triangular, quadratic, and hexangular). Boodt criticizes some of the views of Aristotle, Pliny, Paracelsus, and others. . . He also mentions atoms. He enumerates about 600 minerals that he knows from personal observation, and describes their properties, values, imitations, and medical applications. There are also tables of values of diamonds according to their size and a short description of the polishing of precious stones. Boodt cites nineteen authors and, besides the minerals known to him, gives a list of 233 minerals whose names he knows from Pliny and Bartholomeus Anglicus, among others."—*D.S.B.*, II, p. 293.

Some of the fine woodcuts illustrate polishing machinery. There are nine chapters on the properties and uses of the magnet and lodestone.

A fine and fresh copy. Bookplates of Franz, Graf Lamberg and Joseph A. Freilich.

• Adams, *The Birth and Development of the Geological Sciences*, p. 161—"The most important lapidary of the seventeenth century and exerted a widespread influence." Partington, II, pp. 101-02. Sinkankas 778. Thorndike, VI, pp. 318-24. Wheeler Gift Cat. 120 & 120a—(later eds.).

13. BOSSUT, Charles. *Essai sur l'Histoire Générale des Mathématiques. .* Engraved frontis. port. of the author. xii, 394 pp., one leaf of errata; 2 p.l., 426 pp. Two vols. 8vo, cont. paste-paper wrappers (some fraying, spines partly perished), uncut. Paris: Louis, 1802. \$1000.00

First edition of this very popular history which is still of value today. The section on ancient mathematics is particularly successful. This work treats pure mathematics as well as mechanics, hydrodynamics, astronomy, optics, and acoustics. At the end is a long discourse on the life and works of Pascal (Bossut edited Pascal's writings).

A very good set, preserved in a calf-backed box. Ex Bibliotheca Mechanica.

• *D.S.B.*, II, pp. 334-35.

14. BOURGOIS, Simeón. *Mémoire sur la Résistance de l'Eau au Mouvement des Corps et particulièrement des Batiments de Mer. . .* Three folding engraved plates (some foxing). 2 p.l., ix, 248 pp. Large 4to, modern morocco-backed marbled boards (some foxing, perforated stamp of the Franklin Institute on blank portion of title), spine gilt. Paris: A.

Bertrand, [1857]. \$650.00

First edition. "Bourgois opens his memoir by giving the theory of fluid resistance, a lengthy account of Beaufoy's experiments with submerged bodies, followed by the experiments conducted on floating bodies by Beaufoy and by Bossut, d'Alembert, and Condorcet. The balance of the book consists of data deriving from experiments conducted by the British and French navies on both wooden ships and steam boats."—Roberts & Trent, *Bibliotheca Mechanica*, p. 49.

Bourgois (1815-87), spent his career in the French navy.

Very good copy. Signature of Henry Harding on title. Ex Bibliotheca Mechanica.

15. **(BRAHE, Tycho).** *Tycho Brahe's Uraniborg and Stjerneborg on the Island of Hveen.* Drawings by Charles Christensen. Text by Francis Beckett. [Facing title in Danish]. Nine plates & numerous illus. in the text. 3 p. l., 43 pp. Large folio, orig. printed boards. Copenhagen: A. Marcus; London: Oxford University Press, 1921. \$150.00

First edition of this important source book for Brahe's time on the island of Hven. Fine copy. Ex Bibliotheca Mechanica.

16. **BRISSEAU, Mathurin Jacques.** *Traité Élémentaire ou Principes de Physique, fondés sur les connoissances les plus certaines, tant anciennes que modernes, & confirmés par l'expérience.* 46 folding engraved plates. lxxxiv, 418 pp.; 3 p.l., 511 pp.; 3 p.l., 584 pp. Three vols. 8vo, cont. mottled calf (some rubbing), spines gilt, red & green leather lettering pieces on spines. Paris: Moutard, 1789. \$1950.00

First edition of one of the most successful physics textbooks of the 18th century; it was so highly esteemed throughout Europe that it went through two further editions in French and was translated into Russian (1801-02) and Georgian (1812).

This work, which was the result of Brisson's courses in physics given at the Collège de Navarre, describes the basic laws of motion, hydrodynamics, gases, light and optics, astronomy, magnetism, and electricity. The excellent plates illustrate many of the laws of physics, various instruments, and experiments.

Brisson (1723-1806), was a close collaborator of Lavoisier and successor of Nollet to the chair of experimental physics at the Collège de Navarre. He was an important and influential disseminator of the theories of physics through his teaching and writings.

Very good set. Ex Bibliotheca Mechanica.

• D.S.B., II, pp. 473-75. Roberts & Trent, *Bibliotheca Mechanica*, p. 53.

The Theory of Bending

17. [BUELFINGER (or BUELLFINGER or BILFINGER), Georg Bernhard]. *De Causa Gravitatis Physica Generali Disquisitio Experimentalis quae Praemium à Regia Scientiarum Academia promulgatum, retulit: anno 1728*. Two folding engraved plates. 1 p.l., 40 pp. 4to, modern wrappers. Paris: C. Jombert, 1728. \$1500.00

First edition and very rare; OCLC records no copy in the U.S. Büllfinger (1693-1750), was professor of mathematics at Tübingen. He later was appointed professor of experimental and theoretical physics at St. Petersburg by Peter the Great. He wrote many scientific treatises.

"These experiments conducted in St. Petersburg, were designed to check Galileo's and Mariotte's theories of bending. Büllfinger finds the latter theory better for explaining the experimental results. He also found that Hooke's law was not borne out by the experiments and suggests a parabolic relation . . . where "m" is a constant to be determined experimentally."—Roberts & Trent, *Bibliotheca Mechanica*, p. 55.

Fine copy preserved in a box. Ex Bibliotheca Mechanica.

♣ Poggendorff, I, 189-90.

Telford's Caledonian Canal

18. (CALEDONIAN CANAL). An important and extensive consecutive run of the first 53 *Reports* issued regarding the construction and maintenance of the Caledonian Canal. With eleven further printed documents concerning the canal (see below). 11 large & folding engraved maps & one large folding lithographed map, each finely hand-colored. 66 vols. Folio, orig. printed wrappers, or stitched as issued, or preserved in modern wrappers. London: 1803-58. \$12,500.00

"The Caledonian Canal, carving its way from sea to sea through the Great Glen of Scotland and its chain of lochs, was the most ambitious undertaking of its age and one of the greatest achievements of modern engineering history. Its locks, including 'Neptune's Staircase', were by far the biggest then built, the summit canal at Laggan exceeded in scale almost all the more famous cuttings of the railway age, and steam bucket dredgers, which were to revolutionize building in water, were first used in its construction . . .

"A survey for a ship canal had been carried out by James Watt as early as 1773 and another by John Rennie in 1793, but it needed the increasingly serious poverty in the Highlands, together with the Napoleonic Wars to get such a project underway with its promise of employment for the poor and protection for British vessels. In 1801, as part of his report on what public works might

discourage emigration, Telford did a preliminary survey included in the report from the Committee on the Survey of the Coasts of Scotland present in this collection. However, from 1802 until his death in 1814, William Jessop was to be equally involved. Acts of Parliament were passed in 1803 and 1804 and construction began...

"But the unprecedented scale of the work coupled with the wild countryside through which it passed and the consequent lack of communications, meant that it was very much more expensive, both in time and money, than originally estimated. The Commissioners were forced, therefore, to open the Canal prematurely in 1822 before its technical problems were properly overcome and by 1839 it was in a highly dilapidated condition. After a Parliamentary Enquiry, it was restored and opened to traffic in 1847...

"The Commissioners' Reports were published annually (except for 1826) until 1920, and convey a vivid picture of the progress of the work and the many difficulties encountered. John Rickman, Secretary to the Commissioners until 1829, was responsible for the first twenty-five, marshalling the facts to give a résumé of each year's activities, setting a precedent of excellence which continued throughout...

"In addition, the reports all contain details of men employed, wind and weather conditions, expenditure, and of course the engineering reports. From 1803-13 these were produced jointly by Jessop and Telford and from 1814-23 by Telford alone (following Jessop's death); after the opening of the Canal, the resident engineer was responsible...

"Many contain handsome engraved maps and further material such as letters from resident engineers in charge of the various sections; the 18th Report includes a description of an ancient silver chain found during excavation and the 20th contains details of the opening ceremonies. From 1817 the Commissioners took over the repair and maintenance of the Crinan Canal, details of which appear from the 14th Report onwards...

"Rickman wrote to Southey of the Reports, '... my history of it in the Annual Reports is the first regular history of the formation of a canal, and a history, which with the adaptation of the appendices, those of workmen and of accounts, I do not fear will ever be equalled.'"—Julia Elton, *B. Weinreb Cat.* 50, 42.

Accompanying the 53 Reports are the following, including the government report containing Telford's preliminary survey, some of the reports from the Committee appointed in 1839 to consider the Canal's future, bills and other parliamentary documents:

1. *Third Report from the Committee on the Survey of the Coasts, &c. of Scotland. Caledonian Canal.* 14 June 1803.
2. *List and Copy of Notices of Claims made in Respect of alledged Injuries and Damages occasioned by the Caledonian Canal...* 27 Feb 1826.
3. *Report from the Select Committee on the Caledonian and Crinan Canals: together with the Minutes of Evidence, and Appendix.* 21 Aug 1839.
4. *Copy of a Letter addressed to the Lords Commissioners of the Treasury by Mr.*

Munro, on the Subject of the Caledonian Canal, dated 13th December 1839; and Treasury minute thereon. 20 Jan 1840.

5. Copies of any further Correspondence or Memorial addressed to the Lords Commissioners of the Treasury on the subject of the Proposed Transfer of the Caledonian Canal to a Joint Stock Company. 23 March 1840.

6. Report from Select Committee on the Caledonian Canal; with the Minutes of Evidence. 18 June 1840.

7. A Bill to authorize the Commissioners of Her Majesty's Treasury to grant a Lease of the Caledonian Canal for a Term of Years, and to regulate the future Management thereof. 2 July 1840.

8. A Bill intituled an Act to Authorize the Commissioners of Her Majesty's Treasury to grant a Lease of the Caledonian Canal for a term of years, and to regulate the future management thereof. 20 July 1840.

9. Copy of a Report recently made to the Treasury, by Captain Sir W. E. Parry, R.N. on the Caledonian Canal. 3 March 1842.

10. Report from the Select Committee on the Caledonian Canal; together with the Minutes of Evidence and Appendix. 2 May 1842.

11. A Bill intituled an Act for incorporating the Commissioners of the Caledonian Canal, and for vesting the Crinan Canal in the said Commissioners. 3 Aug 1848.

12. A Bill to amend the Acts relating to the Caledonian and Crinan Canals, and to make further Provision for the Accommodation of the Traffic thereon. 17 July 1857.

13. A Bill intituled an Act to amend the Acts relating to the Caledonian and Crinan Canals, and to make further Provision for the Accommodation of the Traffic thereon. 27 July 1857.

This is an exceptionally long run, and allows anyone interested in engineering or economics to gain an intimate knowledge of one of the greatest engineering projects of modern times.

In very fine and fresh condition, preserved in four drop-back boxes.

☛ Payne, *The Canal Builders*, pp. 129-31.

19. CANFIELD, Thomas Hawley. [Drop-title]: *Deep Waterways. Subject of a Talk at the Algonquin Club last Evening. Hon. Thomas H. Canfield speaks of the Vast Amount of Business on the Great Lakes and of the value to Burlington of a Ship Canal. (From the Burlington Free Press).* [16] pp. 12mo, stitched as issued. N.p.: n.d [OCLC gives a date of 1890; a contemporary note in pencil on the title states "March 1896"]. \$750.00

First book edition and rare. Canfield (1822-97), a native of Arlington, Vermont, was, by 1850, involved in railroad construction and lake and rail transportation between Montreal, Vermont, and New York. His most important project was probably the construction of the Northern Pacific Railroad. He was tireless in promoting the opening of routes for the transportation of the agricultural and

mineral products of the West to New England, by way of the Great Lakes, St. Lawrence River, and Vermont railroads and canals.

Fine copy, preserved in a box. Ex Bibliotheca Mechanica.

Stahl Regarded Him as his Best Student

20. CARL, Johann Samuel. *Lapis Lydius Philosphico-Pyrotechnicus ad Ossium Fossilium docimasiam Analytice demonstrandam adhibitus et per multa Experimenta Chymico-Physica in lucem publicam missus.* Engraved vignette on title. 16 p.l., 168 pp. 8vo, attractive antique half-calf & speckled boards, spine gilt, red morocco lettering piece on spine. Frankfurt am Main: J.M. à Sande, 1703. \$4500.00

First edition and extremely rare; OCLC locates no copy in the U.S. Carl (1676-1757), “went to Halle and studied medicine with Frederic Hoffmann and Stahl, and obtained his licence in 1699. He then became physician of the Count of Isenberg-Stolberg, of the Count of Wittgenstein, and in 1736 of the King of Denmark . . . He was one of the most devoted and distinguished pupils of Stahl, whose lectures he edited, and he wrote a number of works in support of Stahl’s doctrines.”—Ferguson, I, p. 145—(no copy in Young collection). According to Partington (II, p. 659), Stahl regarded Carl as his best student.

The present book describes a series of chemical experiments on fossils, metals, and minerals.

Fine copy from the Solms ducal library at Lich.

Matthew Boulton’s Copy

21. CAVALLO, Tiberius. *A Treatise on the Nature and Properties of Air, and other Permanently Elastic Fluids. To which is prefixed, an Introduction to Chymistry.* Three folding engraved plates of apparatus & a folding table. xii, 835, [9] pp. Large 4to, cont. sheep-backed marbled boards (some rubbing & minor wear to spine), spine gilt, red morocco lettering piece on spine. London: Printed for the Author, 1781. \$2500.00

First edition, Matthew Boulton’s copy with the later bookplate. With this book, “Cavallo switched his attention to the physics of the atmosphere and to the constitution of ‘permanently elastic fluids.’ Again his strengths appeared in instrumentation — an improved air pump and a modified eudiometer — and in smoothing the way for others. This time his course of self-instruction . . . was a judicious examination of contemporary work, particularly Priestley’s, presented from a nondogmatic phlogistic point of view. He always retained a lively interest in pneumatic physics and chemistry, whose applications to

ballooning and to medicine became subjects of two later books."—*D.S.B.*, III, p. 153. Cavallo, while accepting the phlogiston theory, quotes Lavoisier's views as well.

In this work, Cavallo also describes extensions of the experiments of Ingen-Housz on the influence of light on the growth of plants.

Cavallo (1749-1809), the son of a Neapolitan physician, did all his scientific work in England and became a member of the Royal Society in 1779.

A very good copy with a most appropriate provenance of this work concerned with chemistry, hydrostatics, and pneumatics. Dedicated to Sir Joseph Banks. Ex Bibliotheca Mechanica.

♣ Cole 236. Duveen, pp. 127-28. Partington, III, p. 300.

With a Funeral Oration by Stahl

22. CELLARIUS, Salomon. *Origines et Antiquitates Medicae*. Fine engraved frontis. port. of the author. 7 p.l. (incl. frontis. port.), 62, [4] pp. 8vo, attractive antique calf-backed speckled boards, spine gilt, red morocco lettering piece on spine. Jena: J. Bielk, 1701. \$750.00

First edition. Cellarius (1676-1700), showed early promise as a historian concerned with the beginnings of medicine but died at a tragically young age. This is his only book, issued by his father, Christoph Cellarius, the philologist, librarian, and professor of history and eloquence at the University of Halle.

The great chemist, Stahl, has contributed a funeral oration on pages 52-59.

Fine copy from the Solms ducal library at Lich with their early stamp title.

♣ Hirsch, II, p. 862.

23. CHAPMAN, William. *Report on the Harbour of Scarborough; and on the Means Necessary for its Improvement*. One folding engraved plan of the harbor (a little foxed). 32 pp. Small 4to, attractive modern half-calf & marbled boards, spine gilt, red morocco lettering piece on spine. Scarborough: G. Broadrick, 1800. \$1350.00

First edition and very rare; OCLC locates no printed copy. Chapman (1749-1832), an intimate of Watt and Boulton, was one of the leading civil engineers of his time. He was in charge of the construction of the Kildare Canal and consulting engineer to the grand canal of Ireland. In conjunction with Rennie, he was engineer of the London Docks and of the south dock and basin at Hull. Chapman was also responsible for improving many harbors.

Fine copy of a nice provincial imprint. Faint stamp on second leaf of the Free

Public Library of Wigan. Ex Bibliotheca Mechanica.

• *D.N.B.*, IV, pp. pp. 57-58.

The Physics of Music

24. CHLADNI, Ernst Florens Friedrich. *Über die Longitudinalschwingungen der Saiten und Stäbe.* 14 pp. Small 4to, cont. boards (binding a little worn & rubbed). Erfurt: G.A. Keyser, 1796.

\$2500.00

First edition and a work of very great rarity; while the other two books by Chladni on acoustics are well known (see *Printing & the Mind of Man* 233 for both), the present monograph on the existence of longitudinal waves in bars is very little known.

“In addition to his analysis of surface vibrations, Chladni studied the vibrations of cylindrical and prismatic rods. For the latter, he again used the sand figure method. He deduced the velocity of sound in solids from the pitch that a long rod of a given material produces when made to vibrate longitudinally.”—*D.S.B.*, III, p. 258.

Minor dampstaining but a nice copy of an exceptionally scarce book, preserved in a cloth box. Bookplate and stamp of the Berlin Gesellschaft naturforschender Freunde with another old library stamp on title. Ex Bibliotheca Mechanica.

• *New Grove Dictionary of Music*, Vol. 4, p. 290—“Chladni also demonstrated the existence of longitudinal waves in bars; these waves correspond to sounds markedly discordant with the common transverse waves, and therefore a chime must be so supported and struck as to prevent them from being excited.” Poggendorff, I, 439-40.

“The Foundation of the Modern Science of Acoustics”

25. CHLADNI, Ernst Florens Friedrich. *Die Akustik...* Engraved vignette port. of the author on title & eleven plates. 2 p.l., [iii]-xxxii, 304 pp., 1 leaf, 305-310 pp. Large 4to, cont. boards (some wear & occasional foxing). Leipzig: Breitkopf & Härtel, 1802.

\$4750.00

First edition. “Chladni, 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 reported in ‘New Discoveries in the Theory of Sound’, 1787, and were greatly enlarged 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."—*Printing & the Mind of Man* 233b.

A good and large copy. In the collation given by *N.U.C.*, the vignette on the title-page is counted as plate XII. Ex Bibliotheca Mechanica.

• Roberts & Trent, *Bibliotheca Mechanica*, p. 70—"the consummation of Chladni's classical researches in the theory of sound . . . Timoshenko credits this work with arousing great interest in the theory of plates." Sparrow, *Milestones of Science*, 38.

26. CLAUBERG, Johann. *Physica, quibus Rerum Corporearum Vis & natura, Mentis ad Corpus relatae proprietates, denique Corporis ac Mentis arcta & admirabilis in Homine conjunctio explicantur.* 8 p.l., 470 pp. Thick 4to, later decorated wrappers. Amsterdam: D. Elzevier, 1664.

[bound & issued with]:

— *Metaphysica de Ente, quae rectius Ontosophia, Aliarum Disciplinarum, ipsius quoque Jurisprudentiae & Literarum, studiosis accommodata. Editio tertia, multis locis emendata, aucta & Notis illustrata.* 4 p.l., 111 pp. 4to. Amsterdam: D. Elzevier, 1664. \$1250.00

First edition. Clauberg (1622-65), German philosopher, studied the Cartesian philosophy under John Raey at Leyden. Professor of philosophy and theology at Herborn and later at Duisburg, he was one of the earliest teachers of the new doctrines in Germany. Clauberg first suggested the word "ontology" to be used in place of "metaphysics."

For a discussion of Clauberg's ideas and these books, see Thorndike, VII, pp. 651-53.

Very good copies, preserved in a box. Ex Bibliotheca Mechanica.

Very Rare

27. COLLINS, John. *The Doctrine of Decimal Arithmetick, Simple Interest, &c. As also of Compound Interest and Annuities . . . formerly abridged for portability in a Letter Case . . . and since his Death both made Publick by J.D.* 4 p.l., 102 pp. Small 8vo, cont. speckled sheep over wooden boards (expertly rebacked, one corner a bit worn). London: R. Holt for N. Ponder, 1685. \$3750.00

First edition. This is an expansion of Collins's 1669 sheet entitled *Compendium for A Letter Case*; both are of very considerable rarity. According to *E.S.T.C.*, there is only one copy of the present work in the U.S. (DFo).

"This Book is a fit Companion for all Gentlemen, Merchants, Scriveners, and

other Trades-men, that deal much in lending of Money upon Interest, Mortgages, buying of Estates either in Fee, Copy, or Lease, holding Annuities, Rent Charges, Forbearance of Money, Discompt, or any other way concerning Interest, &c."—from "The Epistle to the Reader."

Collins (1625-83), a fellow of the Royal Society, carried on an extensive correspondence with many of the finest scientists of his day including Newton, Borelli, Oldenburg, Huygens, Sluse, Leibniz, and Tschirnhausen.

Fine copy. With some interesting corrections to the text.

☛ D.S.B., III, pp. 348-49.

*"The First Complete Treatise on the Integral Calculus"
with "Cotes's Rule"*

28. COTES, Roger. *Harmonica Mensurarum, sive Analysis & Synthesis per Rationum & Angulorum Mensuras promotae: accedunt alia Opuscula Mathematica...* edidit et auxit Robertus Smith. One engraved plate & numerous woodcut diagrams in the text. 10 p.l., 249 pp.; 1 p.l., 125, [1] pp. Two parts in one vol. Large 4to, cont. speckled calf (head cap a bit chipped), triple gilt fillet round sides, spine gilt, red morocco lettering piece on spine. Cambridge: 1722. \$6500.00

First edition. "This most important book by Cotes was published posthumously by his friend and successor at Trinity College, Robert Smith. Professor Morgan calls it 'the earliest work in which decided progress was made in the application of logarithms and of the properties of the circle to the calculus of fluents.' It is also the first complete treatise on the integral calculus and first contains the well-known theorem in trigonometry known as the 'Cotes' theorem.' The second part has miscellaneous writings by Cotes, including 'De Methodo Differentiali Newtoniana,' 'De Descensu Gravium,' 'De Motum Pendulorum in Cycloide,' 'De Motu Projectilium,' etc."—Babson, *Supp.*, p. 29.

Of considerable additional interest is the first printing, on page 22, of "Cotes's Rule" which "can be (and has been) read as recommending a weighted mean, or even as an early appearance of the method of least squares."—Stigler, *The History of Statistics*, p. 16.

Very fine and large copy with half-title.

☛ D.S.B., III, pp. 430-33.

29. DARCY, Henri Philibert Gaspard & BAZIN, Henri Émile. *Recherches hydrauliques enterprises... Première Partie. Recherches expérimentales sur l'Écoulement de l'Eau dans les Canaux découverts.*

[*Deuxième Partie. Recherches expérimentales relatives aux Remous et à la Propagation des Ondes*]. xxxii, 501 pp.; xviii, 152 pp. Two vols. of text. Large 4to, modern half-morocco & marbled boards, spines gilt [with]: *Atlases*. I: 2 p.l. of text & 28 double-page engraved plates. II. 2 p.l. of text & 5 double-page engraved plates. Small folios, bindings as above. Paris: Imprimerie Impériale [*Atlases: Dunod*], 1865-66. \$1250.00

First edition. "This work is an extension of Darcy's earlier work on the movement of water in pipes and contains the results of the investigations undertaken by Darcy in 1854 (in which he was assisted by Baumgarten and Ritter) and continued by Bazin after Darcy's death in 1858. These researches follow those of Prony, but were undertaken much more rigorously and under a greater variety of conditions. Rouse and Ince praise this work, noting that it provides a wealth of new information . . .

Volume I contains the report of Dupin, Poncelet, Combes, and Clapeyron, as made to the Académie by Morin. The plates were drawn by Chapuis."—Roberts & Trent, *Bibliotheca Mechanica*, pp. 86-87.

Darcy (1803-58), after designing and overseeing the construction of the municipal water system of Dijon, became engineer-in-chief for Paris in 1848. It was during this time that he completed his studies on the movement of water in pipes and conduits. Bazin (1829-1917), who worked closely with Darcy, was an innovator and experimenter of the first order. For half a century no course in applied mechanics was taught either in France or abroad which did not contain his formulas. He discovered and explained the fact that in open channels the maximum speed of the current often occurs below the surface of the water.

Very good set. Perforated and inked stamps of the Franklin Institute Library on title-pages, final leaves, and elsewhere. Ex *Bibliotheca Mechanica*.

♣ Rouse & Ince, *History of Hydraulics*, pp. 169-77.

An "Important Collection"

30. **DESCARTES, René.** *Opuscula Posthuma, Physica et Mathematica*. Numerous fine woodcuts throughout. Six parts, each with separate pagination, in one vol. Small 4to, cont. Dutch vellum over boards, arabesques in blind in center of each cover. Amsterdam: P.&J. Blaeu for Janssonio-Waesbergio, Boom, & Goethals, 1701. \$2000.00

First edition and a very fine copy in contemporary Dutch vellum. "This important collection of Descartes' posthumous papers is divided into six parts including his 'Mundus, Sive Dissertatio de Lumine, ut et De aliis sensuum objectis primariis,' 'De Mechanica Tractatus una cum Elucidationibus N. Poissonii. E Gallico sermone in Latinum translatus,' 'N. Poisson Elucidationes Physic in Cartesii Musicam,' 'Regulae ad Directionem Ingenii, ut et Inquisitio

Veritatis per Lumen Naturale,' 'Primae Cogitationes circa Generationem Animalium et Nonnulla de Saporibus,' 'Excerpta Ex Mss. R. Des-cartes,' and the 'Musicae Compendium'."—Roberts & Trent, *Bibliotheca Mechanica*, pp. 93-94—(& see their extended description of the importance of the contents).

Ex Bibliotheca Mechanica.

One of Euler's Rarer Works

31. EULER, Leonhard. *Opuscula Analytica*. Two folding engraved plates. 2 p.l., 363 pp.; 2 p.l., 346 pp. Two vols. in one. Large 4to, cont. half-sheep & speckled boards, flat spine gilt, contrasting leather lettering piece on spine. St. Petersburg: Typis Academiae Imperialis Scientiarum, 1783-85. \$5500.00

First edition of this collection of 29 mathematical treatises by Euler; the first volume was published in the year of his death. This is a very uncommon book.

"Containing important papers on the theory of numbers, including his famous 'Observationes circa Divisionem Quadratorum per Numeros primos', also 'de Criteriis Aequationis $fx + gyy = hzz$, utrum ea Resolutionem admittat necne? Considerationes super Theoremate Fermatiano,' etc. etc."—Sotheran, 2nd Supp., 1464.

Fine and fresh copy.

♣ Keynes, *A Treatise on Probability. Bibliography*, p. 443.

"The Most Important Book of this Era"

32. EYTELWEIN, Johann Albert. *Handbuch der Mechanik fester Körper und der Hydraulik. Mit vorzüglicher Rücksicht auf ihre Anwendung in der Architektur*. Five folding engraved plates. xxiv, 498 pp. 8vo, cont. half-sheep & marbled boards (new leather corners, boards rubbed), spine gilt. Berlin: F.T. Lagarde, 1801. \$1750.00

First edition. Eytelwein (1764-1848), director of the Board of Public Works at Berlin and founder of the Berlin Bauakademie, was one of the leading hydraulic and construction engineers of his time. "His *Handbuch der Mechanik* . . . (1801) was the most important book of this era, for it was the first to combine practice and theory . . . His writings were distinguished for their clarity and sweep, practice being viewed and upgraded by developing analysis."—*D.S.B.*, IV, p. 502.

"Historically speaking, the most noteworthy part of this work is its enunciation of the open-channel formula (in metric units). Rouse and Ince note its similarity to the Chézy formula, but find its source in Woltman's simplification of Du Buat's cumbersome relationship. Rouse himself notes that Eytelwein's career paralleled that of Prony in both interests and practical accomplishments, including the formulation of resistance relationships."—Roberts & Trent,

Bibliotheca Mechanica, p. 110.

Very good copy. Ex *Bibliotheca Mechanica*.

• Poggendorff, I, 708-09.

33. FAUJAS DE SAINT-FOND, Barthélemy. *Recherches sur la Pouzzolane, sur la Théorie de la Chaux et sur la Cause de la Dureté du Mortier, avec la Composition de différens Cimens en Pouzzolane, & la maniere de les employer, tant pour les Bassins, Aqueducs, Réservoirs, Citernes & autres Ouvrages dans l'eau, que pour les Terrasses, Bétons & autres Constructions en plein air.* 4 p.l., x, 125 pp. 8vo, attractive antique calf-backed marbled boards, spine gilt, black leather lettering piece on spine. Grenoble: J. Cuchet; Paris: Nyon, 1778. \$1500.00

First separate edition. The chemistry of cement is very complex and was only fully understood in the mid-19th century. This work, by the great geologist Faujas (1741-1819), describes the chemical properties of pozzolana, similar to cement, which was known to and utilized by the ancient Roman builders and engineers. Faujas also discusses its uses in civil engineering works in modern times.

"In 1775 he discovered a rich pozzolana mine on Mount Chenavary, which was used by the French government for building the port of Toulon. The use of pozzolana (a volcanic ash containing silica, alumina, lime, etc.) for the preparation of mortars and hydraulic cements is covered in this work, as is the chemistry of these materials."—Neville, I, p. 447.

A fine copy.

• D.S.B., IV, pp. 548-49.

34. FOSSOMBRONI, Vittorio, Conte. *Memoria sul Principio delle Velocità virtuali.* One engraved plate. 191, [1] pp. 4to, modern boards, uncut. Florence: G. Cambiagi, 1796. \$1250.00

First edition of this attractive and scarce book. "Fossombroni's goal was to translate Galileo's formulation of virtual velocities into the algebraic language of Lagrange's *Mécanique analytique* and to apply them to practical hydraulic problems. His work also draws upon the *Hydrodynamica* of Daniel Bernoulli, hydraulic studies by d'Albembert and Euler, and Prony's *Nouvelle architecture hydraulique*."—Roberts & Trent, *Bibliotheca Mechanica*, p. 117.

Fossombroni (1754-1844), Tuscan statesman, hydraulic engineer, and mathematician, wrote a series of works on physics and mathematics during the

early years of his career.

Very good copy. Ex Bibliotheca Mechanica.

♣ Poggendorff, I, 779.

- 35. FRANÇOIS-FRANCK, Charles Albert.** *Cours du Collège de France de 1880 à 1904 et Travaux du Laboratoire de 1875 à 1904... Sommaires des Leçons sur le Système nerveux général et organique — la Circulation du Sang — la Respiration — la Digestion — les Sécretions — le Sang et les Injections salines — les Poisons — la Locomotion et la Chaleur animale.* viii, 399 pp. 8vo, orig. printed wrappers (upper wrapper detached). Paris: O. Doin, 1904.
\$250.00

First edition. François-Frank (1849-1921), was Marey's assistant for many years, ultimately succeeding Marey in the chair of physiology in 1905. His research into the mechanisms of circulation made his clinical opinions greatly valued and much sought after in his capacity as a cardiologist.

Very good copy, preserved in a box. Ex Bibliotheca Mechanica.

*One of the Most Complete Books on Lathes;
Richly Illustrated*

- 36. GEISLER, Johann Gottlieb.** *Der Drechsler oder praktischer Lehrbegriff der gemeinen und höhern Drehkunst, nach den besten ältern und neuern Schriften, durch Mittheilungen Deutscher Künstler und nach eignen Erfahrungen...* 152 engraved plates (mostly folding). xvi, [4], 164 pp.; 4 p.l., 152 pp.; 4 p.l., 196 pp.; 4 p.l., 159 pp.; 3 p.l., 122 pp. Three vols. in five parts bound in one. Large thick 4to, early 19th cent. sheep-backed marbled boards (corners a little rounded), flat spine gilt. Leipzig: S.L. Crusius, 1795-96-1800-01-01.
\$6500.00

First edition and very uncommon, especially with the third volume (in three parts), issued five years after the second. Geissler (b. 1753), a practical engineer at Zittau and a member of various scientific societies, wrote several interesting books on precision and scientific instruments. He also translated a series of notable technological books from English into German.

Machine tools are fundamental to industrial civilization and the first such machine tool available to engineers, as regards to both date and importance, was the lathe. The present book was the most extensive work on lathes published in Germany for many years. Geissler describes the numerous kinds of lathes designed for various purposes including lens grinding, making clocks, ornamental turning for fancy work in metal and wood, making accurately

threaded screws (which is one of the most essential operations in the construction of instruments for the measurement of angles), polishing materials which have been lacquered or otherwise colored, etc. The author discusses the qualities and suitability of many kinds of woods for turning, the use of stains on these woods, various types of lacquers, etc.

The 152 plates are richly detailed, depicting all aspects of the numerous lathes, their parts, and the finished products.

Fine and clean copy.

♣ Poggendorff, I, 869.

The Author's Own Collection of his Writings

37. **GIRARD, Pierre Simon.** A collection of 26 proofs, offprints, extracts, and pamphlets, undoubtedly coming from the personal collection of the author himself. Three of these pamphlets, bound in two volumes, contain annotations and corrections in the hand of Girard. Two vols. 4to, mid-19th-cent. morocco & marbled boards. Paris & Cairo: 1802-36. \$9500.00

Pierre Simon Girard (1765-1836), was one of the leading French engineers of his generation. After graduating from the *École des Ponts et Chaussées*, he began investigating the strength of wood as a structural material. "In 1798 he was among the scientific experts in many fields called to take part in Napoleon's expedition to Egypt, where he remained until 1803, after the last troops had left. At first assigned to the port of Alexandria, he soon undertook an extensive study of the surface elevation and bed characteristics of the Nile; this study eventually broadened to cover material on Egypt's agriculture, commerce, and industry, all to be included in the comprehensive report on the expedition, of which he was one of eight authors. . . .

"Upon Girard's return to France, Napoleon appointed him director of the Paris water supply, with the special task of connecting the Seine and Ourcq rivers with a ship canal to serve the capital. This led him to study the resistance of the flow of water through pipes and open channels."—*D.S.B.*, V, p. 410.

Many of the memoirs described below are separate offprints from the *Mémoires* of the Paris Académie des Sciences. They date between 1802 when Girard was in Egypt and 1836, the year of his death. They reveal the variety of his activities: engineer, director of the Paris water supply, and vice-president and then president of the Académie des Sciences. Several are proofs and contain numerous notes and corrections for the printer in Girard's hand. The two memoirs printed in Cairo are of the greatest rarity.

1. *Mémoire* [this has been deleted by Girard in ink] *sur l'attraction et l'affinité. Premier Mémoire.* Pages 444-55. Paris, *Journal de Physique*, June 1812. Proofs of this memoir, abundantly corrected in ink by the author with a note to the printer

"Je reverrai une 2ème épreuve."

2. *Mémoire sur l'écoulement linéaire de diverses substances liquides par des tubes capillaires de verre. Lu à l'Académie le 12 janvier 1817.* 32, 65-89 pp. Proofs containing one correction by the author. One signature seems to be lacking although this could simply be a mis-pagination by the printer while in proof state.

3. *Mémoire sur le Mouvement des Fluides dans les Tubes capillaires, et l'Influence de la Température sur ce Mouvement. Lu à l'Académie des Sciences le 30 avril et le 6 mai 1816.* Three folding engraved plates. 2 p.l., 132 pp. Paris, Didot, 1817.

4. *Mémoire sur les Atmosphères liquides, et leur influence sur l'Action mutuelle des molécules solides qu'elles enveloppent. Lu à l'Académie des Sciences les 5, 12, et 19 avril 1819.* 1 p.l., 98 pp.

5. *Mémoire sur l'Écoulement de l'Air atmosphérique et du Gaz hydrogène carboné dans les Tuyaux de conduite. Lu à l'Académie des Sciences le 12 juillet 1819.* 28 pp.

6. **SMEATON, John.** *Recherches expérimentales sur l'Eau et le Vent, considérées comme Forces motrices applicables aux Moulins et autres Machines à Mouvement circulaire . . . Traduit de l'Anglais et précédé d'une Introduction par P.S. Girard.* Five plates (one folding). xxxii, 98, [1] pp. Paris, Bachelier, 1827. Second edition.

7. *Discours Prononcé dans l'Assemblée du Grand Divan du Caire, le 17 messidor an 9, par le C. Girard, Ingénieur en chef des Ponts et Chaussées, Commissaire français près du Divan, et Membre de l'Institut d'Égypte.* 3 pp. [Cairo]: "Extrait de la Décade philosophique, No. 8 de l'an 10." Proofs with corrections in the hand of Girard.

8. *Discours Prononcé dans l'Assemblée du Grand Divan du Caire, le 17 messidor an 9, par le C. Girard, Ingénieur en chef des Ponts et Chaussées, Commissaire français près du Divan, et Membre de l'Institut d'Égypte.* 3 pp. [Cairo]: "Extrait de la Décade philosophique, n° 8 de l'an 10." This is the corrected printing of the previous work.

9. *Institut de France. Académie Royale des Sciences. [Rapport sur la Pompe centrifuge de M. Jorge].* 12 pp. December 1816. Edited by Girard and signed by Prony, Rossel, and Girard.

10. *Institut de France. Académie Royale des Sciences. Funérailles de M. Rochon.* 1817. 3 pp. The éloge was prepared and delivered by Girard.

11. *Mémoire sur les Inondations souterraines auxquelles sont exposés périodiquement plusieurs quartiers de Paris.* 1818. 16 pp.

12. *Rapport . . . sur la Machine à vapeur, construite par M. H. Edwards, Ingénieur breveté, et établie au Gros-Caillou.* 1819. 15 pp. Two copies.

13. *Procès-verbal Des Expériences faites sur l'ancienne Pompe à feu et sur la nouvelle Machine à vapeur à double pression, de M. H. Edwards, breveté, établies au Gros Caillou.* [1819]. 11 pp.

14. *Conclusions Du Rapport de M. Girard . . . Sur la Machine à vapeur, construite par M. H. Edwards, Ingénieur breveté, et établie au Gros-Caillou.* 1819. 1 p.

15. *Précis historique sur la navigation intérieure . . . Lu à l'Académie Royale des Sciences le 16 mars 1818.* Some foxing. 14 pp.

16. *Rapport fait à l'Académie Royale des Sciences sur un Ouvrage de M.*

Vicat . . . intitulé *Recherches expérimentales sur les chaux de construction*. 2 p.l., 47 pp. Paris: Didot, 1819. Some foxing.

17. *Troisième Mémoire sur les Canaux de Navigation, considérés sous le Rapport de la Chute et de la Distribution de leurs Écluses*. Lu à l'Académie des Sciences, le 30 juin 1823. One engraved plate. 49 pp.

18. *Considérations générales sur les Avantages respectifs des divers Moyens de Transport*. 1 p.l., pp. 65-77. [Paris: Didot, 1824].

19. *Mémoire sur la Coudée septennaire des anciens Egyptiens et les différents étalons qui en ont été retrouvés jusqu'à présent . . . Lu à l'Académie des Sciences le 12 novembre 1827*. One engraved plates. 18 pp.

20. *Considérations générales sur les Chemins de fer et l'Esprit d'association*. 17 pp.

21. *Mémoire sur la théorie générale du Tracé des routes, faisant suite aux développements de géométrie, par Ch. Dupin . . . Rapport . . . par M. Girard*. 7 pp.

22. *Institut Royal de France. Séance publique annuelle des quatre Académies, du 24 avril 1830, présidée par P.S. Girard*. 7 pp.

23. *Discours de M. Girard, prononcé aux funérailles de M. le Bon. Fourier, le 18 mai 1830*. 9 pp.

24. *Funérailles de M. Navier. Discours de M. Girard*. 1836. 4 pp.

25. *A Messieurs les Electeurs Municipaux du 3e Arrondissement de la Ville de Paris*. 1834. 2 pp.

26. *Notice des ouvrages publiés par M. Girard, et des Mémoires qu'il a présentés à l'Académie des Sciences et à l'Institut*. 4 pp.

Fine copies. Stamp in two places of the Franklin Institute Library. Ex Bibliotheca Mechanica.

☛ Poggendorff, I, 903.

"A Very Important Item"—Duveen

38. [GRATAROLI, Guglielmo], ed. *Verae Alchemiae Artis'que Metallicae, Citra Aenigmata, Doctrina, certus'que modus, scriptis tum novis tum veteribus nunc primùm & fideliter maiori ex parte editis, comprehensus: quorum elenchum à Praefatione reperies*. 8 p.l., 244, 299 pp. Folio, 18th-cent. calf (joints very expertly repaired, unimportant marginal worming), double gilt fillet round sides, spine nicely gilt, red morocco lettering piece on spine, a.e.g. Basel: H. Petri & P. Pernam, 1561. \$22,500.00

First edition of this very uncommon book. "One of the earliest collections of alchemical writers, containing 53 texts, a full list of which is given by Ferguson. It includes works by Geber, Roger Bacon, Arnaldus de Villanova, Albertus Magnus, Raymundus Lullius, Joa. de Rupescissa, Gugl. Gratarolo (the editor), and many others."—Duveen, p. 268.

"Gratarolo was a native of Bergamo, where he was born in 1516. He went through the customary training, and then turned his attention to medicine.

Having acquired a liking for Protestantism he settled in Basel in 1555, and remained there till 1562, when he was summoned to Marburg as professor of medicine. He, however, remained only a year there, and returned to Basel, where he practised medicine and wrote several works."—Ferguson, I, p. 342.

A fine copy.

• Hirsch, II, p. 634.

39. GREEN, George. "On the Laws of the Reflexion and Refraction of Light at the common Surface of two non-crystallized Media... Read December 11, 1837." Pages 1-24. Large 4to. [Cambridge]: *Transactions of the Cambridge Philosophical Society*, Vol. VII, Part I, [1837].

[bound with]:

— "VI. Supplement to a Memoir on the Reflexion and Refraction of Light... Read May 6, 1839." Pages [113]-20. Large 4to. [Cambridge]: *Transactions of the Cambridge Philosophical Society*, Vol. VII, Part I, [1839].

[bound with]:

— "VII. On the Propagation of Light in Crystallized Media... Read May 20, 1839." Pages [121]-140. Large 4to. [Cambridge]: *Transactions of the Cambridge Philosophical Society*, Vol. VII, Part II, [1839]. \$1250.00

Extracts from the *Transactions of the Cambridge Philosophical Society*. Green (1793-1841), an extraordinary self-taught mathematician, matriculated at Caius College in 1833, at the age of 40. Due to the importance of the above publications, he was elected as Perse Fellow of Caius in 1839. Green is primarily known for his work in electricity and magnetism and for the formula connecting surface and volume integrals (Green's Theorem) still used in the solution of partial differential equations. Green's general mathematical theory of potential development led, through Kelvin and Maxwell, to the mathematical theories of electricity of the twentieth century. He coined the term "potential."

"Of interest to the strength of materials is Green's paper 'On the Laws of Reflexion and Refraction of Light at the Common Surface of Two Non-crystallized Media' in which he takes up problems of elasticity. This paper started a controversy which gave rise to two schools on the theory of elasticity, the differences between these schools promoting interest in the experimental determination of elastic contents...

"'Supplement to a Memoir...' is on the reflexion and refraction of light, following and amplifying the works of Cauchy and Airy while following Lagrange in the method of integration. In it Green applies a formula representing a system of molecules acting on each other, as well as applying the

general method of Lagrange's *Mécanique analytique* to a theory of light . . .

"In the paper 'On the Propagation of Light . . .' Green uses the *vis-viva* theorem (conservation of mechanical energy) to simplify Cauchy's treatment of the same subject . . .

"Though these papers more immediately relate to the wave theory of light, Todhunter indicates the importance of their 'demonstration of the body shift-equations for free vibrations of an elastic solid.' Green's method of obtaining body shift-equations has been followed by the majority of upholders of multi-constancy ever since, including Thomson and Kirchhoff. Pearson objects to this method on many points; in particular he denies the linearity of the stress-strain relation and calls the bi-constant argument on which the method is based 'fallacious'."—Roberts & Trent, *Bibliotheca Mechanica*, pp. 145-46.

Fine copies. Ex Bibliotheca Mechanica.

☛ D.S.B., XV, pp. 199-201.

With a "Pharmacopoeia Indica"

40. GRIMM, Herman Nicolas. *Compendium Medico-Chymicum, seu Accurata medendi Methodus, quae excellentissimis Medicamentis, tam Europae, quam Indiae Orientali proficuis, repleta, variores Observationes, & curiosam optimorum Medicamentorum, in libelli hujus formulis contentorum, praeparationem exhibet, auctior & emendatior.* Finely engraved frontis. 7 p.l. (incl. frontis.), 475, [11] pp. 8vo, cont. vellum over boards. Augsburg: T. Göbel, 1684.

[bound with]:

HUENERWOLF, Jakob Augustin. *Anatomia Paeoniae, in qua Natales et Qualitates Paeoniae, itemque Praeparationes et Medicamenta ex ea varia cum Virtutibus et Usu ad plurimos Humani Corporis affectus exhibentur.* 1 p.l., 110, [8] pp. 8vo. Arnstadt: H. Meurer, 1680. \$8500.00

Two very interesting chemical/medical/pharmacological works. According to OCLC, no copy of the Grimm is found in American libraries.

I. Second edition, enlarged. The first edition was printed in Batavia and is of the greatest rarity. Grim(m) (1641-1711), the son of the physician to the Kings of Sweden, took his medical degree and then spent eight years in various parts of Sumatra as a physician. Upon returning to Sweden, he assumed his father's medical appointment. He wrote a number of books on chemistry, mineralogy, and pharmacology.

The present work is the result of his long stay in the East Indies. It is a collection of pharmacological recipes based on minerals and herbs found in the East Indies and in Europe. Hirsch describes Grimm's contributions to the

knowledge of pharmacology as very “considerable.”

The *Pharmacopoeia Indica* appears on pages 387-475.

II. First edition of this work on the medical uses of the peony plant. Extracts from the peony root have long been used in China, Japan, and the West to treat convulsions. Huenerwolf also describes how the peony can be used to enhance mental and liver function, inhibit blood clotting, and improve fertility in women. He provides a series of pharmacological recipes.

Huenerwolf (1644-85), was city physician of Arnstadt.

Fine copies from the Solms ducal library at Lich.

• I. Ferchl, pp. 200-01. Hirsch, II, p. 855. II. Ferchl, p. 251. Hirsch, III, p. 325. Pritzel 4315. Waring, p. 605.

41. GUGLIELMINI, Domenico. *Aquarum Fluentium Mensura Nova Methodo inquisita*. Four folding engraved plates. 4 p. l., 59, [1] pp. 4to, cont. vellum over boards (one corner a bit worn). Bologna: Pisari, 1690.

[bound with]:

— *Aquarum Fluentium Mensura, Nova Methodo Inquisita. Pars Altera*. 2 p.l., 90 pp. Bologna: Pisari, 1691. \$3750.00

First editions and fine copies. Guglielmini (1655-1710), studied mathematics and medicine at the University of Bologna. He was one of the leading hydraulic engineers of his time and took the professorship of mathematics at the University of Padua. In 1702, he became professor of medicine at the same university, reflecting his varied and changing interests.

“The six books of Guglielmini’s work on hydrostatics appear here in their entirety. According to the author, this text presents an entirely new method of measuring flowing water . . .

“Book one sets forth a general doctrine concerning velocity; the second sets forth the measure of water flow in a single inclined canal; the third concerns the measure of water flow in a horizontal canal, either alone or joined with another horizontal. Book four concerns the measure of flowing water in an inclined canal joined in any manner whatsoever. Book five considers horizontal, vertical, and inclined canals. Book six concerns the fundamentals of the proportional distribution of water from aqueducts, or canals and reservoirs . . .

“An appendix [the *Pars Altera*] contains a table with examples of its use in measuring flow in an inclined canal, in a horizontal canal, and in canals joined in any manner whatsoever after the rule in book four.”—Roberts & Trent, *Bibliotheca Mechanica*, p. 151.

Fine copies. Ex Bibliotheca Mechanica.

• Riccardi, I, 642. Rouse & Ince, *History of Hydraulics*, pp. 68-71.

42. GUGLIELMINI, Domenico. *Della Natura de' Fiumi, Trattato Fisico-Matematico* . . . Nuova Edizione con le Annotazioni di Eustachio Manfredi. Engraved printer's vignette on title & 18 fine folding engraved plates. 4 p. l., xvi, 427, [1] pp. 4to, cont. vellum over boards, brown morocco lettering piece on spine. Bologna: L. dalla Volpe, 1739.

\$1950.00

Second edition of this classic work; this is an important edition as it has been "enlarged and annotated by Eustachio Manfredi, Guglielmini's successor as Bologna's superintendent for water. Manfredi included much material found in Guglielmini's notes, corrected some errors and added the notes which follow each chapter; he also greatly expanded the index."—Roberts & Trent, *Bibliotheca Mechanica*, pp. 152-53.

The finely engraved plates show ninety of the observations and experiments described, including the construction of canals, water mills, and dams.

Fine copy. Ex Bibliotheca Mechanica.

♣ Riccardi, I, 643—"Raro ed apprezzato."

A Very Handsome Copy

43. HALLER, Albrecht von. *Enumeratio Methodica Stirpium Helvetiae indigenarum. Qua Omnium Brevis Descriptio et Synonymia Compendium Virium Medicarum dubiarum declaratio Novarum et Rariorum uberior Historia*. Engraved vignette on title & 24 finely engraved plates (three are folding). Both titles are printed in red & black. 2 p.l., 424 pp.; 1 p.l., 425-794 pp. Two vols. in one. Thick folio, cont. mottled calf (ends of spine & corners a little worn), single gilt fillet round sides, spine richly gilt, red morocco lettering piece on spine. Göttingen: A. Vanderhoek, 1742. \$8500.00

First edition of Haller's first great survey of Swiss flora.

A very fine and handsome copy.

♣ Pritzel 3718. Stafleu & Cowan 2306.

Arthritis

44. HEMSTERHUIS, Sibout. *Historia et Analysis Arthritidis Vagae*. 5 p.l., 178 pp., one leaf of errata. 12mo, 18th-cent. wrappers (light foxing). Leeuwarden: 1666. \$1500.00

First edition of this rare and early monograph on arthritis. Hemsterhuis (b. 1629), came from a famous family of Dutch physicians. He took his medical degree at Leyden and was appointed physician in ordinary to Prince William

Frederick.

Hemsterhuis distinguishes between acute and chronic forms of arthritis and their relation to gout, rheumatism, and gonorrhoea.

Very good copy.

♣ Hirsch, III, p. 157. Lindeboom, *Dutch Medical Biography*, col. 832.

“Essential”

45. HERRMANN, Gustav. *Zur graphischen Statik der Maschinengetriebe. Ein Leitfaden zum Gebrauche für Maschinentechniker, Baumeister und Ingenieure sowie zum Unterrichte an technischen Lehranstalten.* vi, [2], 74 pp. Large 4to, modern morocco-backed marbled boards [**with**]: *Atlas*. Eight lithographed plates. 2 p.l. (half-title & title). Large 4to, binding as above. Two vols. Braunschweig: F. Vieweg & Son, 1879. \$500.00

First edition. Herrmann (1836-1907), professor of mechanical technology and industrial engineering at the University of Aachen, was a member of engineering societies in both Germany and the United States.

“Herrmann’s essential work on the graphic handling of kinematic problems of machine elements through the use of vector polygons. The work itself is divided into chapters on: degree of work of the driving-gear of a machine, equilibrium of the driving gear, sliding friction, friction at a pivot, rolling friction, friction to a chain, rigidity of ropes, friction on toothed gears, concluding with an example.”—Roberts & Trent, *Bibliotheca Mechanica*, p. 162.

Nice set. Perforation stamp of the Franklin Institute Library on title of text volume and half-title of atlas. Ex Bibliotheca Mechanica.

46. HOFFMANN, Friedrich. *Gründlicher Unterricht, Wie ein Mensch nach den Gesundheits-Regeln der Heil. Schrift und durch vorsichtigen Gebrauch weniger ausserlesener Artzneyen . . . sein Leben und Gesundheit lang conserviren könne. Deme noch beygefüget ein ausführlicher Bericht von der Natur, Eigenschafft und herzlichen Krafft Dess Ungarischen Weins, und von dem . . . Nutzen der Wasser-Bäder in innerlichen Kranckheiten, Wie auch Von dem Gebrauch und Missbrauch dess Schnupff-Tobacks.* Edited by Georg Friederich Reimann. Title printed in red & black. 11 p.l., 400, [37] pp. 8vo, cont. vellum over boards (light browning & foxing). Ulm: D. Bartholomai, 1722. \$2750.00

First edition. Hoffmann (1660-1742), whom Hirsch calls “one of the heroes of German medicine in the 18th century,” was “a leading medical systematist of the first half of the eighteenth century . . . he became a highly influential teacher

and practicing physician in Germany, systematizing coherently the Galenic, iatromechanical, and iatrochemical aspects of the phenomena of health and disease."—*D.S.B.*, VI, p. 458.

In the present work, Hoffmann offers a collection of medical and dietetic instructions developed to improve health. He provides a long description of Hungarian wines and their medical uses. He also recommends bathing in mineral waters.

Very good copy of an uncommon book.

♣ Arents 526—"The learned doctor considers the correct use of snuff important enough to entitle the subject to a separate chapter." Hirsch, III, pp. 256-59.

47. HOFFMANN, Johann Christian. *Beschreibung und Abbildung einer Wagenwinde von ausserordentlicher Wirksamkeit.* One folding engraved plate. 20 pp. 4to, cont. speckled boards. Leipzig: G. Fleischer the Younger, 1800. \$1250.00

First edition and very rare; OCLC locates no copy in the U.S. Hoffmann (1768-19189), was successively professor of chemistry at Zamosc in Galicia, professor of physics at the Hauptschule in Cracow, and finally professor of economics and technology at the Staatswirthschaftliche Schule at Warsaw.

This is a "description and drawing of an unusual lifting jack. In the foreword, Hoffman notes that this jack is related to one described in Bürja's *Grundlehren der Statik* (1789) and in Oberländer's *Beschreibung einer neuen ungemein grossen Spinnmaschine . . .* (1795)."—Roberts & Trent, *Bibliotheca Mechanica*, pp. 163-64.

The plate depicts various cross-sections of the jack.

Fine copy. Ex Bibliotheca Mechanica.

♣ Poggenдорff, I, 1124.

48. HUMPHREYS, David Carlisle. *Notes on Rankine's Civil Engineering after the Notes of Prof's William Allan & G.W.C. Lee.* Numerous diagrams in the text. 2 p.l., 184 pp. Large 4to, orig. black cloth (ends of spine a little chipped, one small defect to upper cover). Richmond: A. Hoen, 1894.

\$500.00

First edition. "Autolithographed edition of Humphrey's notes, issued in conjunction with the nineteenth edition of this classic work by William John Macquorn Rankine (1820-1872). The notes were intended primarily for use in the author's classes and for the use of his students elsewhere. His notes are based on those of his predecessors at Washington and Lee, William Allan and G.W.C. Lee . . .

“William Allan (1837-1889) was born in Virginia and served as lieutenant colonel in the Confederate army. After the war, he was from 1866 to 1873 professor of mathematics at Washington and Lee. From 1873 to 1889 he was principal of the McDonough School, an industrial institution near Baltimore . . .

“George Washington Custis Lee (1832-1913), attended West Point, graduated at the head of his class in 1854, and was assigned to the U.S. Army Corps of Engineers. With the outbreak of the Civil War, he resigned his commission and offered his services to the Confederacy. At the end of the war he became professor of military and civil engineering at the Virginia Military Institute (1865). In 1871, he succeeded his father as president of Washington and Lee University.”—Roberts & Trent, *Bibliotheca Mechanica*, p. 169.

Humphreys (1855-1921), educated at Washington and Lee from 1875 to 1878, was later assistant engineer on improvements to the Missouri river. In 1885 he returned to his alma mater as professor of applied mathematics, and was professor of civil engineering from 1889; in 1904 he became dean of the School of Applied Science. Humphreys was resident hydrographer of the U.S. Geological Survey from 1895 to 1908.

With printed sheet advertising the book pasted in on front free-endpaper.

Very good copy. From the Franklin Institute Library with bookplate and perforation on title-page. Ex *Bibliotheca Mechanica*.

49. JACOBI, Karl Gustav Jacob. *Canon Arithmeticus sive Tabulae quibus exhibentur pro Singulis Numeris Primis vel Primorum Potestatibus infra 1000 Numeri ad Datos Indices et Indices ad Datos Numeros pertinentes.* xl, 248 pp. Large 4to, half-calf & marbled boards, uncut. Berlin: Typis Academicis, 1839. \$1500.00

First edition of a rare book. It is concerned with primitive roots; “for each prime and power of a prime less than 1,000 it gives two companion tables showing the numbers with given indexes and the index of each given number.”—*D.S.B.*, VII, p. 54.

Jacobi (1804-51), spent 18 years teaching at the University of Königsberg where his tireless activity produced amazing results in both research and academic instruction. Jacobi was an essential factor in the revival of mathematics at German universities.

A very fine uncut copy. Ex *Bibliotheca Mechanica*.

• Smith, *History of Mathematics*, I, pp. 506-07.

50. **JACOBI, Carl Gustav Jakob.** *Vorlesungen über Dynamik . . . nebst fünf hinterlassenen Abhandlungen desselben*, herausgegeben von A. Clebsch. viii, 578 p. Large 4to, orig. cloth-backed printed boards (corners somewhat worn, joints a little frayed). Berlin: G. Reimer, 1866. \$250.00

First edition. "Jacobi's lectures on dynamics delivered at the University at Königsberg in the winter of 1842-1843 appear here as edited by Clebsch. As Jacobi had been prevented by illness from completing the series of lectures, Clebsch has supplied the chapter 'Die Integration der nicht linearen partiellen Differentialgleichungen erster Ordnung' from a paper by Jacobi of 1838. To the lectures have been joined five of Jacobi's papers on related topics."—Roberts & Trent, *Bibliotheca Mechanica*, pp. 172-74.

Good copy with some foxing. Ex Bibliotheca Mechanica.

One of the Earliest & Most Important Tracts on the Plague

51. **JACOPI, Johannes (or JACME, Jean or JASME).** *Tractatus de Pestilentia*. Gothic type, 20 lines. [12] leaves. Small 4to (197 × 138 mm.), modern boards. [Augsburg: Johann Keller, 1478-82]. \$45,000.00

First edition of one of the earliest, most popular, and important tracts on the plague. This is an extremely rare book — ISTC locates only four copies: BSB, BL, Countway, and NLM. The in-progress GKW locates another copy at the Cistercian monastery at Wilhering in Upper Austria. The printer of this book, Johann Keller, published only five books and they are, for the most part, very rare.

Jacopi (or Jacobi or Jaume or Jacme or Jasme), was a "Catalan physician, and translator from Arabic into Catalan, professor of medicine in Montpellier. His birthplace is unknown, but it was possibly Lleida (Lerida on the Segre), and he may have studied in the university of that city. He was mentioned as early as 1360 in a contested election for the chancellorship of the University of Montpellier, was finally elected to that position in 1364, and retained it until his death in 1384. He was consulting physician to several popes and kings: he attended pope Urban V (1362-70); in 1370 he was called to Avignon to aid pope Gregory XI (1370-78); in 1378 he was appointed physician to Charles V the Wise, king of France 1364-80; in 1384 he attended the antipope Clement VII (1378-94) in Avignon . . .

"Joannes wrote a number of medical treatises, notably the *Tractatus de pestilentia*, the *Secretarium practicae medicinae*, and the *Tractatus de calculis in vesica* . . .

"The first of these was probably the first to be composed, about 1373. Judging by the number of early printed editions, Joannes' treatise on the plague was by far the most popular work of its kind . . .

“His plague treatise is divided into three parts, dealing with the cause of the pestilence, the proper regimen for avoiding it, and the treatment. In part I he says that the plague may be caused by infections coming from bad sanitation, foul stagnant water, corrupt air. The two signs of the disease are fever and apostumes. Various questions concerning the susceptibilities of different people are debated. Part II deals with the precautions against the disease which everyone should take. Suitable dwelling places and proper living conditions are described; methods of fumigation, proper diet and exercise are advised. Bloodletting is to be used with caution. In part III the methods of treatment are discussed; these are purgation, bloodletting, and strengthening drugs.”—Sarton, III, Pt. 2, p. 1687.

A fine and fresh copy with many edges uncut.

• B.M.C., II, p. 361. Goff J-15. Klebs 542.1. Klebs & Sudhoff, *Die Ersten Gedruckten Pestschriften*, no. 62 & pp. 145-49. Osler, *Incunabula Medica*, 190.

52. JOUKOWSKY (or ZHUKOVSKII), Nikolai Egorovich. *Ueber den hydraulischen Stoss in Wasserleitungsröhren*. Diagrams in the text. 1 p.l., 71 pp. Large 4to, bound in modern morocco-backed boards (each leaf has been silked on its verso but leaving the text entirely legible). St. Petersburg: *Mémoires* of l'Académie Impériale de Sciences, 8th Series, Vol. IX, No. 5, 1900. \$450.00

First edition, presentation copy inscribed on the upper wrapper: “To Mr. John C. Trautwine with compliments N. Simin Moscow, Russia.”

Joukowski (1847-1921), following his graduation from Moscow University, entered graduate studies at the Petersburg Military Institute of Communications. In 1872 he was appointed mathematics teacher at the Moscow Technical College, where he worked up to his death in 1921. He wrote much on the laws of motion of solids and fluids but made his most important contributions to aeronautics. He is considered one of the fathers of aerodynamics.

“Joukowski’s memoir on his improved form of the hydraulic ram, which first appeared in 1899 as *The Hydraulic Ram*. This improvement was based upon his hydrodynamic studies between 1890 and 1900, which had yielded a theory of water-hammer that not only explained the physical and mathematical nature of this phenomenon, but made it possible to calculate it.”—Roberts & Trent, *Bibliotheca Mechanica*, p. 178.

Very good copy. From the Franklin Institute Library with several of their more subtle markings. Ex Bibliotheca Mechanica.

53. JUNCKER, Johann. *Conspectus Formularum Medicarum, exhibens Tabulis XVI. Tam Methodum Rationalem, quam Remediorum Specimina, ex Praxi Stahlianam potissimum desumpta, et Theriapiæ generali accommodata.* Engraved vignette on title. Title printed in red & black. 2 p.l., 112 pp. 4to, attractive antique panelled calf (rather foxed & with some browning due to the quality of the paper), spine gilt, red morocco lettering piece on spine. Halle: Litteris et Impensis Orphanotropei, 1723. \$2750.00

First edition of a rare book. Juncker (1679-1759), professor of medicine at the University of Halle, was closely associated with two of the outstanding chemical and medical theorists of the early 18th century, George Ernst Stahl and Friedrich Hoffman, both of whom also taught at Halle. One of Stahl's most gifted and prominent disciples, Juncker "published numerous dissertations and books that expounded and developed Stahlian ideas in chemistry and medicine . . .

"By effecting a clarification in Stahlian theory and methodology, Juncker played a significant part in the development of his mentor's ideas as a major force for reform in eighteenth-century chemistry. His concern with the broader implications of Stahl's work, transcending other, more narrow approaches that focused on phlogiston, prefigured the orientation of important groups of chemists in Germany and France at mid-century."—*D.S.B.*, VII, p. 188.

The present book contains a series of pharmaceutical preparations in tabular form. This was a very successful book which went through at least five editions during a fifty year period.

Good copy.

☛ Ferguson, I, p. 443. No copy of the first edition in the Neville collection.

54. JUNCKER, Johann. *Conspectus Therapiæ generalis cum Notis in Materiam Medicam Tabulis XX Methodo Stahlianam conscriptus.* Engraved vignette on title. Title printed in red & black. 4 p.l., 520, [11] pp. 4to, cont. calf (occasional browning), well-rebacked, spine richly gilt, red morocco lettering piece on spine. Halle: Impensis Orphanotropei, 1725.

\$2950.00

First edition. The present work is based on Stahl's theories and presents a series of pharmaceutical recipes in twenty tables.

Very good copy. Bookplate of Joseph Claude Anthelme Recamier (1774-1852), the noted French surgeon.

☛ Partington, II, pp. 688-89.

*“Of the Greatest Rarity”–Weil
Binomial Classification*

55. **JUNG, Joachim.** *Opuscula Botanico-Physica ex Recensione et distinctione Martini Fogelii... et Joh. Vaquetii... cum eorundem Annotationibus accedit Josephi de Aromatariis... ad Bartholomeum Nanti Epistola de Generatione Plantarum ex Seminibus...* Three woodcuts on one page. 12 p.l., 183, [1] pp. 4to, cont. boards (a bit worn). Coburg: G. Otto, 1747.

\$5500.00

First collected edition of Jung’s revolutionary lectures on botany including Giuseppe degli Aromatari’s letter on the germination of plants from seeds. The stagnation of descriptive botany in the 17th century “was ended by extremely important new theoretical developments, particularly in plant morphology, which stemmed from the work of Joachim Jung (Jungius), and which were certainly the reflection, in systematics, of the rising experimental philosophy . . .

“Jung was a man of great versatility and powerful intellect, ranking beside Galileo, Bacon and Descartes, his contemporaries . . . He was led by philosophy and observation to a systematic analysis of plant form which had a lasting impact on descriptive botany.”–Morton, *History of Botanical Science*, pp. 167-68–(and see pp. 167-75 for a detailed account).

“Jung [1587-1657], for fear of heresy, published nothing in his lifetime and nearly a century passed before his notes were printed. These show an almost modern grasp of plant identification and classification. He gave botany much of its present nomenclature and provided the clear divisions of botanical interest into plant morphology (structure), physiology, and ecology (relationships). He classified plants by a binomial system, the first being a generic term, the second a descriptive adjective. The great rarity of his writings has hindered the wider adoption of his contributions.”–Dibner, *Heralds of Science*, 23.

Jung’s works were based upon transcripts of lectures, edited shortly after his death by his students Martin Fogel and Johann Vaquet.

Fine copy preserved in a red morocco-backed box.

• D.S.B., VII, pp. 193-96. Evans, *First Editions of Epochal Achievements in the History of Science* (1934), 82. Ernst Weil, *Cat. 12*, item 137.

56. **LA FAYE, Polycarpe de.** *Recherches sur la Préparation que les Romains donnoient à la Chaux dont ils se servoient pour leurs constructions, & sur la composition & l’emploi de leurs Mortiers.* vi, 83, xi pp. 8vo, attractive antique calf-backed marbled boards, spine gilt, black morocco lettering piece on spine. Paris: de l’Imprimerie Royale, 1777.

\$1500.00

First edition. “An important work on cement and mortars, their preparation from different types of limestone, their physical and chemical properties, etc. La

Faye (or De La Faye), of whom nothing appears to be recorded, was paymaster general of the French Army. In the present work he gives an account of the use of lime in the preparation of Roman mortars for construction, based on the writings of Vitruvius and Pliny. For further information on Roman mortars, see M. E. Weeks (*Discovery of the Elements*, Easton, Pa., 1956, p. 506).—Neville, II, p. 3.

Fine copy.

57. LA FAYE, Polycarpe de. *Mémoire pour servir de Suite aux Recherches sur la Préparation que les Romains donnoient à la Chaux. Dont ils se servoient pour leurs constructions, & sur la composition & l'emploi de leurs Mortiers.* viii, 110, xviii, [2] pp. 8vo, attractive antique calf-backed marbled boards, spine gilt, black morocco lettering piece on spine. Paris: de l'Imprimerie Royale, 1778. \$1500.00

First edition. "La Faye claimed to have rediscovered a secret Roman method of making mortar, of which a crucial property was its ability to harden under water, from his interpretation of various passages from Vitruvius (Book II) and also from Saint Augustine (Book XXI of the *City of God*) . . . [this is] the second of La Faye's two works on the ancient uses of cements and concretes, again widely citing Vitruvius, and including the Roman method of road and terrace construction, ways to make mortar set etc. together with three letters from de Bruno, a French diplomat who had spent much time in India, on construction techniques there."—Elton Engineering Books, *Cat. 6*, items 227 & 228.

Fine copy.

One of His Most Important Books

58. LAMBERT, Johann Heinrich. *Pyrometrie oder vom Maasse des Feuers und der Wärme.* Eight folding engraved plates. xxii, [2], 360, [4] pp. Large 4to, early 19th-cent. boards (a little worn). Berlin: Haude & Spener, 1779. \$3750.00

First edition of one of Lambert's most important works. This is his final book, "completed only a few months before his death; his first publication had also dealt with the question of measuring heat. It is characteristic of him that he dealt not only with radiation but also with reflection of heat, although the latter could not yet be demonstrated, and his results could only have been preliminary in nature. Lambert also took into consideration the sensory effect of heat on the human body and tried to give a mathematical formulation for it."—*D.S.B.*, VII, p. 599.

In this book, Lambert pointed out that when air enters an evacuated vessel the

temperature rises; this particular experiment later played an important part in the work of Gay-Lussac and of Joule (see Cardwell, *From Watts to Clausius*).

A good copy. Old library stamp on verso of title (with release stamp). Bookplate of Albert Edgar Lownes. Ex Bibliotheca Mechanica.

☛ Cole 741—"This, the author's last work, is a systematic treatise on heat, presenting many of his own experiments. . . . Wenceslaus J.G. Karsten supplied a preface and Johann A. Eberhard provided an essay on Lambert's merit as a philosopher." Roberts & Trent, *Bibliotheca Mechanica*, p. 193.

*Enormously Influential;
A Fine & Large Copy*

59. L[ANGLEY], B[at]ty. *The City and Country Builder's and Workman's Treasury of Designs: or the Art of Drawing and Working the Ornamental Parts of Architecture.* Two hundred finely engraved plates. 1 p.l., 22 pp. of text. Large 4to, cont. speckled calf (joints very expertly repaired), double gilt fillet round sides, spine gilt, red morocco lettering piece on spine. London: Printed for & sold by S. Harding, 1745. \$4500.00

Second edition, enlarged with the addition of fourteen extra plates, and a very handsome, large copy. "Langley's architectural books . . . were continually in use and demand, and their influence on standard eighteenth-century building all over the British Isles was enormous. The 500 subscribers to . . . *The Country Builder's and Workman's Treasury* . . . were carpenters, joiners, glaziers, masons, carvers and craftsmen such as these. With few exceptions (for example James Paine and the elder John Wood) they are the forgotten men who did the daily work of building. Cabinet-makers, whom we do not normally associate with architectural books, proved to have been just as eager as builders to acquire patterns of capitals, cornices, pediments, doors and windows, complete with examples by Thomas Langley of how these features could be put together to form bookcases. Thomas Edwards, 'cabinet maker', presumably the author of the furniture designs engraved in 1754 by Matthias Darly in the *New Book of Chinese Designs*, and James Chippendale, joiner, probably the father of Thomas Chippendale, were notable subscribers, and Henry Mayhew's copy of the *Treasury* is in the Metropolitan Museum of Art."—Harris, *British Architectural Books and Writers 1556-1785*, pp. 268-69.

Fine copy from the library of Great Dixter with the bookplate of Nathaniel Lloyd on pastedown. Lloyd was a noted architectural historian who employed Edwin Lutyens to extend the house. The first edition appeared in 1740 with 186 plates only.

☛ Harris 450.

60. LANGSDORF, Karl Christian. *Grundlehren der mechanischen Wissenschaften welche die Statik und Mechanik, die Hydrostatik, Aerometrie, Hydraulik und die Maschinenlehre enthalten. Mit besonderer Rücksicht auf Physiker und Praktiker.* Twelve folding engraved plates. lxxviii, 755, [1] pp. Thick 8vo, cont. marbled boards (extremities worn), flat spine gilt, red vellum lettering pieces on spine. Erlangen: J.J. Palm, 1802.

[bound with]:

—. *Theorie des Krummzapfens, eine der wichtigsten für die praktische Maschinenlehre ein bisher noch nicht aufgelöstes Problem, in aller Schärfe erwiesen und in einer sehr einfachen Formel dargestellt.* 32 pp. 8vo. Erlangen: J.J. Palm, 1803. \$1500.00

First editions and scarce.

I. "The contents of this work is [sic] divided into: dynamics or the statics and mechanics of solid bodies (ten chapters), hydrostatics (three chapters), aerometry or pneumatics (six chapters), hydraulics (six chapters), and the study of machines (thirty-three chapters). The section on machines opens with fundamentals of machinery, describing the entire range of simple machines, water wheels, windmills, etc. Among the more advanced machines described are a stamping press and the steam engine of Watt and Boulton, see p. 533."—Roberts & Trent, *Bibliotheca Mechanica*, p. 196.

II. This work is concerned with cranks and crankshafts.

Langsdorf (1757-1834), was professor of engineering at Erlangen and later became professor of mathematics at Heidelberg.

Very good copies in a somewhat worn binding. Duplicate stamp of the Library of Congress on free front endpaper. Ex *Bibliotheca Mechanica*.

• Poggendorff, I, 1372.

Epidemics

61. LEBENWALDT, Adam von. *Land- Stadt- und Hauss-Artzney-Buch, in welchem angezeigt und erwiesen wird, wie man denjenigen Kranckheiten, welche ein gantzes Land . . . anstecken, so dann durch Contagion . . . anderweitig fortgepflantz und ausgebreitet werden, Als da seyn: die Pest . . . ungarische Kranckheit, rothe Ruhr, Kinds-Blattern etc . . . so wohl durch geringe als kostbare Mittel Widerstand thun könne . . . Samt einer Information, was zu solcher Contagions-Zeit, I. Status Politicus und Land-Obrigkeiten, II. Status Civilis oder Stadt-Obrigkeiten . . . zu thun haben. Dabey eine fünff-fache Cur zu finden* Engraved frontis. port. of the author, full-page engraved arms on leaf following title, & one folding engraved plate. Title printed in red & black.

14 p.l. (incl. frontis. & engraved coat-of-arms), 720, [31] pp., one leaf with colophon. Folio, cont. panelled sheep, sides & spine decorated in blind. Nuremberg: J.C. Lochner, 1695. \$4500.00

First edition of this very rare and massive work on epidemics. A very interesting and varied man, Lebenwaldt (1624-96), was a physician from the Styria area of Austria. He took his M.D. at Padua and returned to Austria where he was created Count Palatine and was a councillor in Styria, Imperial poet laureate, and provincial physician to the Duke of Styria (see Ferguson, II, pp. 14-15 for more). He also participated in alchemical experiments and magic.

Lebenwaldt describes here the varieties of epidemics which were prevalent and their cures. There are many pharmaceutical recipes. A very detailed and useful index of diseases, medicines, and therapies has been provided.

Fine crisp copy.

• Hirsch, III, p. 704.

"His Masterwork"

62. LECREULX, François Michel. *Recherches sur la Formation et l'Existence des Ruisseaux, Rivières et Torrens qui circulent sur le Globe Terrestre; avec des Observations sur les Principaux Fleuves qui traversent la France, sur les Causes des Changemens qu'ils éprouvent dans leur cours, les moyens de les contenir dans leur lit, d'en tirer avantage pour la navigation . . .* Eight folding engraved plates. xv, 407 pp., one leaf of errata. Large 4to, modern green half-calf & marbled boards, spine lettered in gilt. Paris: Bernard, 1804. \$950.00

First edition. Lecreulx (1734-1812), was one of the most important civil engineers in France during the late 18th and early 19th centuries. He oversaw the construction of a large number of important bridges and in 1801 was appointed inspector general of bridges and roads. Lecreulx took part in the planning of most of the chief public works programs during the years of the Empire.

This work is a comprehensive theoretical and practical treatise on river control. The excellent plates depict various techniques of damming, embankment, construction of locks, etc.

Very good copy. Rare. Embossed and perforated stamps of the Franklin Institute on title. The same embossed stamp reappears here and there. Ex Bibliotheca Mechanica.

• Roberts & Trent, *Bibliotheca Mechanica*, pp. 201-02—"His masterwork."

- 63. LECREULX, François Michel.** *Examen critique de l'Ouvrage de M. Du Buat, sur les Principes de l'Hydraulique, et Observations sur les hypothèses dont il a fait usage et les Expériences qu'il a fait exécuter.* Two folding engraved plates. 1 p.l., xx, 344 pp. 8vo, mid-19th-cent. cloth-backed marbled boards (occasional foxing), spine gilt. Paris: Firmin Didot & Goeury, 1809. \$1350.00

First edition. Very good copy. Early stamp of G. Hagen on half-title. This was probably Gotthilf Heinrich Ludwig Hagen, German civil engineer (see Poggendorff, I, 992-93). Ex Bibliotheca Mechanica.

• Roberts & Trent, *Bibliotheca Mechanica*, pp. 202—"This critical examination of DuBuat's work on hydraulics follows the organization of the original work exactly. Passages quoted from the text are set off in quotes, and Lecreulx' own notes are clearly indicated."

- 64. LORIOT, Antoine Joseph.** *Instruction sur la nouvelle Méthode de préparer le Mortier-Loriot.* One folding engraved plate. 13 pp. 8vo, attractive antique calf-backed marbled boards, spine gilt, black morocco lettering piece on spine. Paris: J. Barbou, 1775. \$1250.00

First edition of an important book in the development of the cement industry; it contains a further account of the author's discovery of a water-proof mortar, known as "le mortier-Loriot." This mortar had the extra advantage of becoming extremely hard with time and was to be used in the construction of buildings as well as for ornamental purposes. Loriot had published an earlier work on the subject in 1774.

Loriot (1716-82), was a French chemist and mechanical engineer who developed many interesting machines, waterproof cements, and researched the manufacture of pastels.

Fine copy and very rare.

A Fine Copy of "His Most Important Work"

- 65. MACH, Ernst.** *Die Mechanik in ihrer Entwicklung. Historisch-Kritisch dargestellt.* Numerous illus. in the text. x, 483, [1] pp. 8vo, orig. blind-stamped cloth, upper cover & spine stamped in gilt. Leipzig: F.A. Brockhaus, 1883. \$500.00

First edition. "Mach's most important work, in which he presents his criticism of the epistemological and methodological basis of scientific inquiry. In his

analysis of the conceptual basis of Newtonian physics, he introduces what Einstein later named the 'Mach Principle: the inertia of an isolated body can have no meaning and can be expressed only by its relationship to the inertial frame. This critique of Newtonian mechanics influenced the development of Einstein's gravitational theory . . .

"The work is divided into five parts: development of the principles of statics, development of the principles of dynamics, application of the principles, formal development of mechanics, and mechanics and other sciences. An appendix lists the most significant practitioners of mechanics and their works."—Roberts & Trent, *Bibliotheca Mechanica*, p. 208.

Fine and fresh copy. Stamp of Marcel Bekus on front paste-down and verso of title. Ex Bibliotheca Mechanica.

☛ *D.S.B.*, VIII, pp. 595-607.

Mayer's Dissertation

66. MAYER, Julius Robert von. *Ueber das Santonin. Eine Inaugural-Dissertation welche zur Erlangung der Doctorwürde in der Medicin & Chirurgie unter dem Praesidium von Wilhelm von Rapp.* 46 pp. 8vo, self-bound. Heilbronn: M. Müller, 1838. \$750.00

First edition of Mayer's inaugural dissertation, for which he was awarded his doctorate of medicine. Mayer (1814-78), was one of the early formulators of the principle of the conservation of energy, along with Joule, Thomson, and Tait (see *D.S.B.*, IX, pp. 235-40).

Santonin is an anthelmintic used to poison the round worm *Ascaris lumbricoides*. It must be administered while fasting and be followed by a purgative in order to expel the worm.

Fine copy. Stamp on title of Starckenstein. Ex Bibliotheca Mechanica.

The Null Collection of Minerals

67. MOHS, Friedrich. *Des Herrn Jac. Fried. von der Null Mineralien-Kabinet, nach einem, durchaus auf äussere Kennzeichen gegründeten Systeme geordnet, beschrieben, und durch Hinzuthuung vieler, dem gegenwärtigen Zustande der Mineralogie angemessener, erläuternder Anmerkungen und nöthiger Berichtigungen, als Handbuch der Oryctognosie brauchbar gemacht.* 1 p.l., lxxii, 594 pp.; 1 p.l., 330 pp.; 1 p.l., 730, [4] pp. Three vols. 8vo, cont. marbled paper boards. Vienna: "Auf Kosten des Besitzers," 1805.

\$9500.00

First edition, second issue (the first issue bears titles dated 1804); privately

printed by Null. Mohs (1773-1839), "one of Abraham Werner's outstanding students . . . made his primary scientific contribution in systematic mineralogy. He also proposed the scale of hardness for minerals, which is named for him and which is still in use."—*D.S.B.*, IX, p. 447.

A journey to Great Britain in 1802 allowed Mohs to study the geology and mineralogy of Ireland and Scotland and to make lasting friends amongst Scottish geologists, including George Mitchell and Robert Jameson. On Mitchell's recommendation, Mohs was commissioned by J.F. von der Null, a Viennese banker, to prepare a systematic description of his important mineral collection. It was in this work, along with two other books published in the same year, that Mohs first expressed his doubts about Werner's mineralogical system. Mohs later established a systematic mineralogy on a completely new basis.

Fine set and very rare on the market.

✦ Sinkankas, *Gemology*, 4522. Wilson, *The History of Mineral Collecting*, pp. 103, 107-08, 219 & 186—" [Null] built an exceptionally fine mineral collection, curated for him by Friedrich Mohs. Megerle von Mühfeld described it as 'not only the best private collection in Vienna, but in all of Germany as well, and technically the most instructive.' This collection of 2 to 4-inch specimens was begun in 1797 and achieved major status in just three years. Between 1797 and 1807 Van der Nüll [sic] purchased no less than eleven important mineral collections. The 1804 catalog runs to three volumes describing 3,926 specimens. The collection was purchased in 1827 by the Royal Imperial mineral cabinet in Vienna."

A Complete Set

68. MONATLICHE CORRESPONDENZ zur Beförderung der Erd- und Himmels-Kunde. Edited by Franz Xaver von Zach. 104 engraved plates (some folding, three tinted) & 47 printed tables. 28 vols. 8vo, cont. grey boards (minor wear), spines gilt, orange vellum lettering pieces on spines (one missing). Gotha: Becker, 1800-13. \$8500.00

A complete set of this important technical journal, issued monthly, which reported the latest scientific news in the fields of astronomy, cartography, discovery, geography, surveying, etc. This journal was edited by Zach (1754-1832), who came from a noble and distinguished family in Hungary and Czechoslovakia. In 1786 he was appointed head of the observatory which Duke Ernst II of Saxe-Coburg erected near Gotha.

Zach was in correspondence with every important astronomer and geographer of the time and the list of contributors to this journal include Olbers, William Herschel, Gauss, Lagrange, Laplace, von Lindenau, Humboldt, and many others.

Very good set and rare when complete.

✦ *D.S.B.*, XIV, pp. 582-23. Kronick 1165. Lalande, p. 655—"Il a continué d'être le dépôt de l'astronomie de toutes les parties de l'Europe."

"Important"

69. **MONGE, Gaspard.** *Description de l'Art de fabriquer les Canons . . .* 60 folding engraved plates & four folding printed tables. 2 p.l., viii, 231 pp. Large 4to, orig. blue paste-paper wrappers (extremities quite frayed), entirely uncut. Paris: de l'Imprimerie du Comité de Salut Public, An 2 [1794]. \$1500.00

First edition. When the Revolution began in 1789, Monge (1746-1818), one of the most widely known of French scientists, was a director of a branch of France's military schools, enabling him to visit iron mines, foundries, and factories and thus becoming an expert on metallurgical and technological questions. From September 1793 until October 1794, he took part in the work of the Committee on arms, writing the present "important" (D.S.B.) work on the making of cannons.

Good copy, handsomely illustrated. Preserved in a box. Ex Bibliotheca Mechanica.

• D.S.B., IX, p. 472.

Surprisingly Scarce on the Market

70. **MUSSCHENBROEK, Petrus van.** *Physicae Experimentales, et Geometricae, de Magnete, Tuborum Capillarum Vitreorumque Speculorum Attractione, Magnitudine Terrae, Cohaerentia Corporum Firmorum Dissertationes: ut et Ephemerides Meteorologicae ultrajectinae.* 28 folding engraved plates, one large folding engraved chart, & a folding printed table. Tables in the text. Title printed in red & black. 5 p.l., 685 pp. Large 4to, cont. half-vellum & paste-paper boards (covers rather rubbed, spine a little wormed), spine lettered in gilt. Leyden: S. Luchtmans, 1729. \$3000.00

First edition and a surprisingly scarce book on the market. "Numerical data on the laws and phenomena of magnetism. Law of distance, p. 20; action of flames, p. 70; whirling magnet, p. 116; consequent poles, p. 243; declination at Paris and London, p. 150; dip, p. 206. Contains Halley's chart of magnetic lines."—Wheeler Gift Cat. 268—(illustrated).

This work is also notable for containing Musschenbroek's experiments on the strength of materials, capillarity, and cohesion. "Of particular relevance to this collection is 'Introduction ad Cohaerentiam Corporum Firmorum,' accompanied by a number of plates illustrating fractured test specimens and testing apparatus. Also of relevance is the chapter 'Tentamen de corporum Duritiâ,' which concerns the hardness of materials."—Roberts & Trent, *Bibliotheca Mechanica*, p. 232.

Musschenbroek (1692-1761), professor of natural philosophy and mathematics

at Utrecht and, later, professor of experimental physics at Leyden, was one of the most celebrated physicists and most important investigators of his time. The experiments described in his books have become classics in elementary instruction. "Underlying Musschenbroek's lectures demonstrated with experiments was the experimental philosophy...the principal source of inspiration was Newton, but Galileo, Torricelli, Huygens, Réaumur, and others were important to this school."—*D.S.B.*, IX, p. 596.

Very good copy, preserved in a box. Ex Bibliotheca Mechanica.

71. OKA, Genpo. *Moshi Hinbutsu Zuko* [Illustrated treatise of objects from Nature in Mao's Book of Poems / Songs / Odes]. 118 full-page fine woodcuts of animals & plants in the text by Yukosai Kunio. 43; 43; 32 folded leaves. Seven parts in three vols. 8vo, blue semi-stiff wrappers, embossed with a floral design, sewed in Chinese manner with woodcut printed labels on each cover (two labels a little abraded, a bit of unimportant marginal worming). Kyoto: Kitamura Shirobei, Tenmei 5 [1785]. \$5000.00

First edition of this beautifully illustrated book, xylographically printed. A most handsome book, it describes the natural world, depicting plants, birds, fish, mammals, insects, and reptiles and their uses in pharmacology. The text — "Mao's Book of Poems" [the *Shijing* of Mao] — is the earliest existing collection of Chinese poems and is one of the great Confucian classics, dating from the 12th to the 7th cent. B.C. It is regarded as a foundation work of Chinese literature.

Genpo (Koyoku) Oka (1737-87), a physician in Osaka, was the compiler of this work and knew classical Chinese. This work, printed on *nino* paper (the best for block books), is a fine example of high-quality Japanese book production. The main text is in Chinese, with the plant and animal names in both Chinese and Japanese. The handsome illustrations are from drawings by Suya Kunio and the woodcuts were done by Omori Kibe and Yamamoto Chozaemon.

Fine set, preserved in a modern cloth case. Several red ownership stamps.

♣ Walravens, *Zoologische Buchillustration in China und Japan* (in Nissen *ZBI*), p. 447—(with incorrect date).

His Writings on Natural Philosophy

72. PARACELSUS. *Philosophiae Magnae . . . Tractatus aliquot, jetzt erst in Truck geben, unnd hiernach verzeichnet.* Title within typographical border & a full-page woodcut of the author, aged 47, on verso of A⁴. 4 p.l., 247,

[2] pp. Small 4to, attractive antique mottled calf by Aquarius (final leaf with some skillful marginal repairs), spine gilt, green morocco lettering piece on spine. Cologne: A. Byrckman, 1567. \$6750.00

First edition of this important collection of writings; it is the chief collection of Paracelsus's works on natural philosophy, translated here into German. The texts are: "De Vera Influentia rerum"; "De Inventione Artium"; "De Sensu & Instrumentis"; "De Tempore Laboris & Requei"; "De Bona & Mala Fortuna"; "De Sanguine ultra Mortem"; "De Obsessis a Malis Spiritibus"; "De Somniis, & Erynibus in Somno & annexis"; "De Animabus Hominum post Mortem appetibus"; "De Lunaticis"; "De generatione Stultorum"; "De Homunculis"; "De Nymphis, Sylvanis, Pygm. Salamand. &c."; "De Imaginatione"; "De Maleficis & eorum operibus"; and "De Animalibus ex Sodomia natis."

Very good copy. While this is a book well-represented in libraries, it is most uncommon on the market.

♣ Sudhoff 86.

*He Developed the Classical Stone Arch Bridge to its
Ultimate Perfection*

73. PERRONET, Jean Rodolphe. *Mémoire sur la recherche des moyens que l'on pourroit employer pour construire de grandes Arches de pierre de deux cents, trois cents, quatre cents, & jusqu'à cinq cents pieds d'ouverture, qui seroient destinées à franchir de profondes vallées bordées de rochers escarpés.* One large folding engraved plate. 1 p.l., 44 pp. Large 4to, modern boards (minor foxing), uncut. Paris: de l'Imprimerie Nationale, 1793.

\$5000.00

First edition, presentation copy, inscribed on the title "Au Cit. Rondelet de la part de l'Auteur." The recipient was Jean Rondelet (1734-1829), the great French architect who worked on so many of the most important projects of the time (see *N.B.G.*, Vol. 42, 600-01).

"This *Mémoire* on his monumental concept of masonry bridges with spans of 200 to 500 feet is the rarest of all Perronet's works. Inspired by some of the great spans of the past (Verona 150ft or Pontypridd 178ft) he asks why, 'dans un siècle ou les sciences & les arts ont fait de si grands progrès, ne pourroit-on pas se flatter d'en établir solidement qui ayent encore plus d'ouverture?' ...

"Perronet is fascinated by the challenge of building such huge spans, particularly that of 500ft, and three main problems are considered. The first of these is the choice of stone and here he draws on his considerable knowledge, derived from experiments carried out on the strength of stone from quarries all over France, as well as citing his experience during the construction of the Neuilly bridge. The other two problems concern the design of centring for such

a gigantic arch and the method of dismantling it after the keystone has been put in place. Here, too, he brings his unparalleled experience to bear in his design but cites the theoretical works of Parent, Buffon, Musschenbroek and Couplet to prove its feasibility . . .

“The spandrels of his arch were to have been pierced by three voids, reminiscent of the Pontypridd bridge, and the design and construction of these are discussed, together with the retaining walls, the fill of the haunches behind the spandrel walls etc. Altogether a remarkable work (illustrated with a single magnificent plate).”—Elton, *Cat. 5*, 42.

Perronet (1708-94), was the founding director of the *École des Ponts et Chaussées* and developed the classical stone arch bridge to its ultimate perfection.

The fine and very large plate depicts the projected 500 foot bridge and has an engraved flap pasted over a portion of the image to show before-and-after effects.

Very good copy. Ex Bibliotheca Mechanica.

☛ *D.S.B.*, X, pp. 527-28. Picon, *French Architects and Engineers in the Age of Enlightenment*, pp. 167-68.

Dynamics

74. PIOLA, Gabrio. *Sull' Applicazione de' Principj della Meccanica Analitica del Lagrange ai Principali Problemi. Memoria.* xxiii, [3], 252 pp. Large 4to, orig. blue boards (covers & spine a little soiled & rubbed), uncut. Milan: dall' Imp. Regia Stamperia, 1825. \$750.00

First edition and rather scarce. “This paper won the prize offered by the Imperial and Royal Institute of Sciences in 1824. Todhunter and Pearson note his allusion to elastic cures and his mention of Binet’s correction of an error in Lagrange.”—Roberts & Trent, *Bibliotheca Mechanica*, p. 252.

Piola (1791-1850), professor of mathematics at Milan, wrote on discontinuous functions, on hydraulics, on the pendulum, and on the application of calculus to indeterminate analysis.

Nice copy. Stamp on title of “Bero Speluzzi Milano.” Ex Bibliotheca Mechanica.

☛ Poggenдорff, II, 456-57.

75. PIOLA, Gabrio. *Di un Principio controverso della Meccanica Analitica di Lagrange, e delle Molteplici sue Applicazioni. Memoria postuma . . .* pubblicata per cura del Professore Francesco Brioschi. 110 pp. Large 4to, orig. printed wrappers bound in modern green half-calf &

marbled boards, spine gilt, uncut. Milan: G. Bernardoni di Giovanni, 1856. \$250.00

Separate offprint "from Vol. VI of the *Memorie* of the Royal Institute of Sciences, Letters, and Arts of Milan. It has been suggested that the present paper was intended as a continuation of a memoir which appeared in the first part of Tome XXIV of the *Atti della Societa Italiana* of Modena . . . However, Todhunter and Pearson devote a number of articles to Piola's 'La Meccanica de' corpi naturalmente estesi trattata col calcola delle variazioni' which appeared in the *Opuscoli matematici e fisici* (1833). That memoir was a discussion of the theory of elasticity, done in the manner of Lagrange and was called 'memoria prima,' Piola intending that a series of other memoirs follow it."—Roberts & Trent, *Bibliotheca Mechanica*, p. 252.

Very good copy. Ex Bibliotheca Mechanica.

The Founder of Systematic Dermatology

76. **PLENCK, Joseph Jacob, Ritter von.** *Doctrina de Morbis Cutaneis qua hi morbi is suas classes, genera & species rediguntur.* 124, [4] pp. 8vo, cont. half-sheep & decorated boards (foot of spine a bit worn, some light dampstaining throughout), contrasting leather lettering piece on spine. Vienna: R. Gräffer, 1776. \$3500.00

First edition of one of the most important treatises in the history of dermatology; this is a rare book. "A classification of skin diseases upon the basis of their clinical appearance. Until the time of Willan, von Plenck's book was the greatest authority of dermatology. He mentioned 115 different skin diseases, all that were known at that time, and divided them into 14 classes."—Garrison-Morton 3982.

Plenck (1738-1807), a member of the Viennese School, was, at one time or another, professor of chemistry, botany, surgery, anatomy, and obstetrics at the Joseph Academy at Vienna.

Very good copy.

• Pusey, *History of Dermatology*, pp. 57-58.

Poleni's Calculating Machine

77. **POLENI, Giovanni, Marchese.** *Miscellanea. Hoc est I. Dissertatio de Barometris, & Thermometris, II. Machinae Aritmeticae, eiusque usus Descriptio, III. De Sectionibus Conicis Parallelorum in Horologiis Solaribus Tractatus.* Finely engraved vignette on title & 9 folding engraved plates. 4 p.l., 56 pp. 4to, cont. vellum over boards (a few minor defects to binding).

Venice: A. Pavinus, 1709.

\$12,500.00

First edition of Poleni's first book; it is today a scarce work on the market. It includes dissertations on barometers, thermometers, and conical sections in sundials, as well as an illustrated treatise describing his arithmetical calculating machine.

Poleni invented his "pin-wheel" calculating machine after reading about those of Pascal (1645) and Leibniz (1671). He built it out of wood, but destroyed it when he heard that Brauer, a Viennese machine-maker, had presented another calculating machine to the Emperor. This book is therefore the only record of his invention and its illustrations were the basis of IBM (Italia)'s reconstruction of it.

"The 'pin-wheel' was embodied in a calculating machine which was devised, and constructed in hard wood, by the Italian nobleman, G. Poleni (see his *Miscellanea*, Venice, 1709). The pin-wheel is a toothed wheel, the number of whose teeth can be varied at will; a simple movement causes 1,2,3 . . . and up to 9 teeth to project; these interact with an equal number of teeth on the cog-wheel controlling the dial whenever the pin-wheel is turned through a complete revolution, and the pointer is moved forward by an equal number of places. Poleni's mechanism for carrying numbers was somewhat akin to Pascal's *sautoir*, but it was operated by suspended weights instead of by springs."—Wolf, II, p. 656.

Pin-wheels have the advantage over stepped reckoners of occupying less space. They were employed in the nineteenth century by Thomas, and by the Russian inventor W.T. Odhner, whose calculating machine was later developed into the well-known Brunsviga Calculator.

Two of the folding plates depict the whole machine in its supporting frame and the complicated gearing mechanisms at its center.

Fine and fresh copy. Early ink stamp "SIP" on title in two places.

♣ Riccardi, I, 290.

78. PONCELET, Jean Victor & LESBROS, Joseph Aimé. *Expériences hydrauliques sur les Lois de l'Écoulement de l'Eau à travers les Orifices rectangulaires verticaux à grandes dimensions, entreprises à Metz . . . d'après les Ordres du Ministre de la Guerre, sur la Proposition de M. le Général Sabatier . . . Mémoire lu à l'Académie des Sciences, le lundi 16 Novembre 1829.* Seven folding engraved plates (each with the stamp of the Franklin Institute). 2 p.l., 267, [1] pp. Large 4to, modern morocco-backed marbled boards (stamp of the Franklin Institute here & there and with their

perforated stamp on title). Paris: de l'Imprimerie Royale, 1832.

\$750.00

First edition. "These experiments, a continuation of those undertaken by Bossut and Du Buat at Mézières, were conducted from November of 1827 through 1828."—Roberts & Trent, *Bibliotheca Mechanica*, p. 264.

Poncelet (1788-1867), made important contributions to geometry, hydraulics, the theory of machines, and industrial mechanics (see *D.S.B.*, XI, pp. 76-82 for a long and excellent discussion). Lesbros (1790-1860), was an engineer in the French army.

Good copy. Ex Bibliotheca Mechanica.

79. RANKINE, William John Macquorn. *Introductory Lecture on the Harmony of Theory and Practice in Mechanics, delivered to the Class of Civil Engineering and Mechanics in the University of Glasgow, on Thursday, January 3, 1856.* 22 pp. 8vo, modern wrappers. London: R. Griffin, 1856.

\$350.00

First edition, presentation copy, inscribed on the title "Presented by the Author." Rankine (1820-72), professor of civil engineering at Glasgow from 1855 to his death, was an extremely influential teacher and author of standard textbooks on engineering and mechanics. He is best known for his work on the mechanical theory of heat and is considered one of the pioneers of thermodynamics.

Fine copy, preserved in a box. Ex Bibliotheca Mechanica.

☛ *D.S.B.*, XI, pp. 291-95.

Prize Binding

80. RANKINE, William John Macquorn. *Miscellaneous Scientific Papers.* Frontis. port., four folding plates, & numerous illus. in the text. xxxvi, 567, [1] pp. Thick 8vo, prize binding of cont. calf, arms of the University of Glasgow on upper cover, double gilt fillet round sides, spine richly gilt, red morocco lettering piece on spine. London: C. Griffin, 1881.

\$750.00

First collected edition. "Rankine's collected papers appear here with an excellent evaluation by Peter Guthrie Tait of his scientific contributions. The papers originally appeared in the *Transactions* and the *Proceedings* of the Royal Society, as well as other scientific journals. The papers in the first part are devoted to temperature, elasticity, and the expansion of vapors, liquids, and solids. Those in part two are dedicated to energy and its transformation, and those in part three to wave forms and the propulsion of ships. The most

important contributions are those in thermodynamics (on the action of heat in the steam engine) and in hydrodynamics (on the forms of waves and water-lines of ships).” –Roberts & Trent, *Bibliotheca Mechanica*, p. 273.

Fine and handsome copy. Minor foxing. Ex Bibliotheca Mechanica.

☛ *D.S.B.*, XI, pp. 291-95.

The Dynamometer

81. REGNIER, Jean Baptiste. *Considérations sur la Force musculaire, suivies de la description et de l'exposition chalcographique d'un nouvel Instrument pour mesurer cette force; Dissertation.* One folding engraved plates. 24 pp. 4to, modern boards. Paris: Didot jeune, 1807. \$750.00

First edition of this early bio-mechanical work; it is rare with no copy in OCLC. Regnier describes here his method of measuring force exerted by humans. The “dynamometer” illustrated on the fine plate was developed by his father, Edme Regnier, a prominent instrument maker in Paris.

Fine copy. Ex Bibliotheca Mechanica.

☛ Hirsch, IV, p. 747.

“Exquisitely” Illustrated & Privately Printed

82. RICHTER, Christian. *Saxoniae Electoralis Miraculosa Terra, oder Des Weltberühmten Chur-Sachsen-Landes bewunderns-würdige Erde.* 61 black & white full-page engravings. [148] pp. 4to, cont. paste-paper boards, spine gilt, blue leather lettering piece on spine, a.e.g. Schneeberg: auf Kosten des Autoris, 1732. \$7500.00

First edition of this handsome and rare book, privately printed for the author, a self-described 65-year old mining expert and inspector of precious stones by appointment to the Elector of Saxony.

“Very rare . . . The volume describes and illustrates mineral and rock specimens from the mining region of Saxony. In particular, Richter describes samples of ‘Wundererde,’ which is a colorful variety of jasper found near Zwickau and used for ornamental purposes. The 61 exquisite text engravings show in the form of cross-sections examples of this jasper and various ores with embedded minerals, which are carefully labeled with letters and referenced to the descriptive text.” –Schuh, *Mineralogy & Crystallography: A Biobibliography, 1469 to 1920* (in progress), 3892.

“This interesting work is a treatise on the discovery of what appears to be variegated jaspers in Saxony, there being 61 specimens depicted on small to large in-text engraved plates. All are carefully, indeed, exquisitely engraved and labeled with letters referring to explanations upon the facing pages.” –Sinkankas,

Gemology, 5452.

A very few copies have been hand-colored by a contemporary hand. We have located only two such copies, at the University of Oklahoma and in a private collection in the U.S.

Fine copy of a very rare book; there was no copy in the Freilich collection. Two old library stamps on title.

♣ Wilson, *The History of Mineral Collecting 1530-1799*, p. 222.

83. ROBINS, Benjamin. *Mathematical Tracts . . . Vol. I containing his New Principles of Gunnery, with several subsequent Discourses on the same Subject, the greatest Part never before printed . . . Vol. II. Containing his Discourse on the Methods of Fluxions, and of Prime and Ultimate Ratios, with other Miscellaneous Pieces . . .* Three engraved plates (one folding). xlvii, [2], 341, [3] pp.; 4 p.l., [7]-380 pp. Two vols. 8vo, cont. calf (decently rebacked, some foxing & soiling). London: J. Nourse, 1761. \$1250.00

First edition, edited by Dr. James Wilson. This collection contains Robins' book on gunnery, the polemics on the *vis viva* controversy and other articles read to the Royal Society but until then unpublished, reprints of the published articles, and Wilson's personal comments on the life and character of his old friend.

Robins (1707-51), "is best known as the inventor of the ballistic pendulum. Today the device is used to demonstrate conservation of momentum as well as for the purpose to which Robins put it: to determine the muzzle velocity of bullets . . . Much of his writing was devoted to attacks on Newton's enemies — Leibniz, the Bernoullis, Berkeley and James Jurin. Robins took part in the celebrated *vis viva* controversy, the subject of most of his polemics . . . His other work on ballistics was far from trivial, including studies of the resistance of fluid media to high-speed objects, pressures on projectiles inside a gun barrel, the rifling of barrel pieces, and the shape of actual, as opposed to ideal, trajectories."—*D.S.B.*, XI, pp. 493-94.

Good set. Ex Bibliotheca Mechanica.

♣ Roberts & Trent, *Bibliotheca Mechanica*, pp. 279-80—"The first volume contains Robins' *New Principles of Gunnery* together with various of his treatises on that subject which had been read before the Royal Society. The second volume contains his 'A Discourse Concerning the Nature and Certainty of Sir Isaac Newton's Methods of Fluxions . . .' with related articles from *The Present State of the Republic of Letters*. Together with his 'Remarks' on Johann Bernoulli's *Discours sur les Loix de la communication du Mouvement*, on Euler's *Treatise of Motion*, Smith's *Compleat System of Optics*, and Jurin's *Essay upon Distinct and Indistinct Vision*." Wallis 268.001.

- 84. SAINT-VENANT, Adhémar Jean Claude Barré de.** *De la Torsion des Prismes. Avec des Considérations sur leur Flexion ainsi que sur l'Équilibre des Solides élastiques en général et des Formules pratiques pour le Calcul de leur Résistance à divers Efforts s'exerçant simultanément.* Diagrams in the text. xx, 328 pp. Large 4to, modern morocco-backed marbled boards (long tear to final leaf carefully repaired without loss). Paris: Imprimerie Impériale, 1855. \$500.00

First separate edition, issued with new pagination, an "Extrait du Tome XIV des Mémoires présentés par divers savants à l'Académie des Sciences." "This epoch-making essay on torsion was presented to the Academy in 1853 and was published in the *Mémoires des Savants Étrangers* in 1855 on the recommendation of a review committee which included Cauchy and Lamé. St. Venant begins with a summary of current knowledge of the theory of elasticity, going on to present his own contributions. Among these is the use of the 'semi-inverse' method, by which he 'assumes only some features of displacement and of the forces and determines the remaining features of those quantities so as to satisfy all the equations of elasticity.'—Timoshenko, 234. He also gives solutions for the bending and torsion of prismatical bars. St. Venant strongly influenced the study of the strength of materials by the introduction of the fundamental equations of elasticity."—Roberts & Trent, *Bibliotheca Mechanica*, p. 288.

Saint-Venant (1797-1886), who was elected to the mechanics section of the Académie des Sciences, succeeding Poncelet, made important contributions to "the mechanics of solid bodies, elasticity, hydrostatics, and hydrodynamics."—*D.S.B.*, XII, pp. 73-74.

Very good copy. Ex Bibliotheca Mechanica.

Presentation Copy

- 85. SAINT-VENANT, Adhémar Jean Claude Barré de.** "Sur la torsion des prismes à base mixtiligne, et sur une singularité que peuvent offrir certains emplois de la coordonnée logarithmique du système cylindrique isotherme de Lamé." Pages 1-12. Large 4to, unbound (a little frayed & soiled). [Paris]: "Extrait des *Comptes rendus des séances de l'Académie des Sciences*, t. LXXXVII, séances des 2 et 9 décembre 1878." \$650.00

First separate edition, issued with new pagination. This is a fine presentation copy, inscribed on the first leaf: "À M. Tait offert par l'auteur de St. Venant à Vendôme." The recipient was, of course, Peter Guthrie Tait (1831-1901), professor of natural philosophy at Edinburgh, who made original contributions in the fields of thermoelectricity, thermodynamics, and on the compressibility and kinetic theory of gases.

This is another important contribution to the study of the strength of materials.

Very good copy. Ex Bibliotheca Mechanica.

- 86. SEGUIN, Marc.** [Drop-title]: *Mécanique Industrielle. Mémoire sur un nouveau Système de Moteur fonctionnant toujours avec la même vapeur, à laquelle on restitue, à chaque coup de piston, la chaleur qu'elle a perdue en produisant l'effet mécanique.* Illus. in the text. 17 pp. Large 4to, disbound. [Paris]: *Comptes rendus des séances de l'Académie*, t. XL, no. 1, 3 Janvier 1855. \$500.00

First separate edition, with new pagination. This is another of Seguin's important contributions to the study of heat, the principle of energy conservation, and the development of the steam engine.

Fine copy and rare. Preserved in a cloth box. Ex Bibliotheca Mechanica.

• D.S.B., XII, pp. 287-89.

- 87. SGANZIN, Joseph Mathieu.** *Programmes ou Résumés des Leçons d'un Cours de Construction, avec des Applications tirées principalement de l'Art de l'Ingénieur des Ponts et Chaussées, conformément au Système d'enseignement adopté par le Conseil de Perfectionnement de l'an 1806.* Ten folding engraved plates (numbered 1-9 & 4bis). xii, 260 pp. (errata leaf misbound at end). Large 4to, modern morocco-backed marbled boards. Paris: Courcier, 1821. \$500.00

Third edition, revised, corrected, and enlarged. It was from this edition that the highly influential Boston edition of 1837 was translated and used at West Point for many years. "This work is intended to convey the essentials of the art of construction, and is structured in the form of thirty lessons. The first part discusses the materials used in building: aggregate, brick, rammed earth, the various sorts of rock and mortar, as well as wood and iron, and gives test results on their strength and resistance. In the second part the construction of roads and bridges is discussed, and in the third part that of canals, reservoirs, aqueducts, and sea works. One of the plates (4bis) appears for the first time in this edition and is essential for an understanding of the text."—Roberts & Trent, *Bibliotheca Mechanica*, p. 294.

Sganzin (1750-1837), professor and practicing engineer, was from 1797 at once director of maritime works in France and professor of Civil Engineering at the newly founded École Polytechnique. He was in charge of many of the greatest civil engineering projects of the time in France, including the reestablishment of the great lock near Ostende and the enlargement of the great lock at Flessingue.

Very good copy. Embossed stamp of the Franklin Institute on half-title. Ex Bibliotheca Mechanica.

Telford's Autobiography

88. TELFORD, Thomas. *Life of Thomas Telford, Civil Engineer, written by Himself; containing a Descriptive Narrative of his Professional Labours...* Edited by John Rickman...with a Preface, Supplement, Annotations, and Index. Large atlas vol.: engraved frontis. port. of Telford & 82 engraved plates (some folding, some double-page). 2 printed leaves of title & list of plates. Text: one engraved plate & illus. in the text. xxiv, 719 pp. Thick 4to. Two vols., orig. cloth, each volume with attractive new calf spines & corners. London: Payne & Foss, 1838.

\$8500.00

First edition and a very nice example of this magnificent book. "Telford was one of the greatest of the early civil engineers and famous for his canals and roads and for his aqueducts and bridges. Many of his works were on a hitherto unprecedented scale and he also played a major role in the developing use of cast iron for bridge construction. The present autobiography is the best source of information on his achievements. It contains copies of the reports, surveys, letters, specifications, agreements and experiments for all his major schemes. These include the Caledonian and Götha (Sweden) ship canals, the Birmingham & Liverpool Junction canal and the Ellesmere Canal with its extraordinary cast-iron aqueduct at Pont-y-cysyllte as well as such splendid bridges as the suspension bridge with its then unprecedented span which took the Holyhead Road over the Menai Strait, the beautiful Conway suspension bridge or the fine cast-iron bridge at Galton which crossed over his own massive cutting for the Birmingham Canal. All these are magnificently illustrated in the accompanying folio atlas, both in section and elevation, and in many cases details of construction together with the machinery and tools employed are also shown. The book was in preparation at Telford's death and was completed by his friend, John Rickman, who had been Secretary to the Commission on the Caledonian Canal."—Elton, *Cat. 15, 93.*

A handsome set. Bookplate in text volume of George Giles and with a letter tipped-in presenting this work to him. Stamp in gilt on upper cover of the atlas volume of the Institution of Civil Engineers. Ex Bibliotheca Mechanica.

• Skempton 1556.

- 89. THOMSON, Joseph John.** *Applications of Dynamics to Physics and Chemistry.* viii, 312 pp., one leaf of ads. 8vo, orig. dark red cloth (spine faded), spine lettered in gilt. London: Macmillan, 1888. \$250.00

First edition. "This text comprises the contents of Thomson's lectures at Cavendish Laboratories in Michaelmas term of 1886. Portions appeared previously in the *Philosophical Transactions* of 1886 and 1887. In this work he illustrates how to guess at a term in a Lagrangian on the basis of known phenomena and how the new term may be manipulated to reveal the existence of other effects. This work helped Thomson to found the electron theory of metals . . . The *Applications* reveal Thomson to be a master of the literature, as well as his moderate phenomenology which eschews the specification of dynamic processes, and his conviction that an appropriate Lagrangian can always be found. — DSB."—Roberts & Trent, *Bibliotheca Mechanica*, pp. 363-64.

Fine copy. Signature of "Reginald T. Smith, St John's Coll, Cambridge, Nov./89" on front paste-down and his signature on title. Ex Bibliotheca Mechanica.

A Fine Copy

- 90. THURNEISSER ZUM THURN, Leonhard.** [In Hebrew]: *Melitsath Kai Hermeneia, Das ist, ein Onomasticum und Interpretatio oder ausführliche Erklerung . . . uber Etliche frembde und (bey vielen hochgelarten, die der Lateinischen and Griechischen Sprach erfahren) unbekante Nomina, Verba, Proverbia, Dicta, Sylben, Character, and sonst Reden. Deren nicht allein in des theuren Philosophi und Medici Aurelii, Theophrasti, Paracelsi von Hohenheim, Sondern auch in anderer Authorum Schrifften . . . hin zusammen, nach dem Alphabet verzeichnet. Das Ander theil.* Title within elaborate woodcut border, woodcut port. of the author on verso, & eight double-page woodcut tables (two tables with outer margins shaved). Title printed in red & black. 6 p.l., 188 pp. Folio, cont. limp vellum (reusing an old antiphonal). Berlin, N. Voltz, 1583. \$9500.00

First edition of the *Melitsath*, "a kind of dictionary directed to clarifying the works and ideas of Paracelsus, whose follower Thurneisser purported to be."—*D.S.B.*, XIII p. 397. The *Melitsath* is a continuation of Thurneisser's *Hermenia*, published in 8vo in 1574.

Very handsomely printed, the *Melitsath* contains a large number of quotations from a work entitled *Carboantes* by Paracelsus, unknown to earlier and contemporary authors, with the exception of Valentius de Retiis. Sudhoff discusses this at some length, questioning the authenticity of these references, without coming to any conclusion.

At the end of the *Melisath* are bound in two double-page tables illustrated with fine figurative woodcuts, intended to be put together, and six double-page alphabetic tables within woodcut borders. These tables seem to be lacking in most copies. They are, however, essential to the completeness of this dictionary, containing phonetic equivalents in the scripts of Greek, Latin, Hebrew, Abyssinian, Syriac, Arabic, Armenian, Dalmatian, Russian, Georgian, Old Egyptian, Indian, Persian, and Turkish, with hints on pronunciation. In explanation of the rarity of copies with these tables, Sudhoff suggests they might have been obtainable separately. They are, however, referred to at the end of Thurneisser's preface, and form an integral part of the work.

Thurneisser (1530?-96), born in Basel, was one of the most remarkable men (and charlatans) of his century. He travelled in England, France, Bohemia, Hungary, Italy, Spain, and North Africa acquainting himself with metallurgical practices and methods. "In 1571 he settled at Frankfurt on the Oder, where he published his book *Pison* (1572), in which he states that the waters of the Spree carry gold. This attracted the attention of the Elector of Brandenburg, who made Thurneisser his physician. He cured the wife of the Elector, and in his laboratory in Berlin he made cosmetics, potable gold, tincture of rubies, amulets and talismans, which he sold at high prices. He taught boys chemistry for high fees, and practised astrology. His household now contained 200 persons and he became very wealthy. He had his own press in Berlin... He established or reorganized alum and saltpetre works and, in order to obtain apparatus, introduced improvements in glass factories. He so contributed to the development of chemical industry in Brandenburg and he attracted many clever artisans to Berlin. In this way he certainly laid the foundations of the chemical industry in Prussia."—Partington, II, pp. 152-53.

Fine copy. There is much printing with exotic typefaces.

♣ Durling 4355—(apparently without the tables). Duveen p. 579—(lacking the tables). Ferguson, II, pp. 450-53—(no copy in Young collection). Sudhoff 194.

Cinnabar

91. TILING, Mathias. *Cinnabaris Mineralis, seu, Minii naturalis Scrutinium Physico-Medico-Chymicum, ad normam & formam Sacri Romani Imperii Academiae Naturae Curiosorum directum.* Title printed in red & black. 6 p.l., 250 pp. 8vo, attractive calf-backed speckled boards, spine gilt, red morocco lettering piece on spine. Frankfurt am Main: J.G. Seyler, 1681. \$4500.00

First edition of this "comprehensive treatise on mineral cinnabar or natural minium (mercuric sulphide, HgS). Tiling (or Tilling, 1634-1686), an iatrochemist and professor of medicine at the University of Rinteln, in forty chapters describes the locations where cinnabar is mined, its history, its physical and chemical properties, and its uses in pharmacy. He documents the work with

references to Agricola, Aldrovandi, Dioscorides, Matthiolus, Pliny, Theophrastos, et al. Tiling states that cinnabar is composed of mercury and sulphur (p. 48) and discourses on its use in the preparation of medicines when mixed with 'sanguis draconis' (dragon's blood), which is the gum resin secreted by fruits of East Indian palms. Cinnabar was used as a treatment for syphilis until the nineteenth century but is no longer employed owing to its significant toxicity."—Neville, II, p. 556.

Fine copy from the Solms ducal library at Lich.

♣ Partington, II, p. 319. Schuh, *Mineralogy & Crystallography: A Bibliography, 1469 to 1920*, 4636—"rare." Thorndike, VIII, p. 373. Waring, p. 497.

92. TORELLI, Giuseppe. *De Rota sub Aquis Circumacta Epistola*. One folding engraved plate & one diagram in the text. 10 pp. 8vo, modern marbled wrappers. Verona: Typis Seminarii, 1747. \$950.00

First edition of this rare work on water wheels. Torelli (1721-81), a native of Verona, "published a number of works on geometric subjects. In this tract he proposes a more efficient paddle wheel for raising water for the irrigation of farmlands."—Roberts & Trent, *Bibliotheca Mechanica*, p. 321.

Fine copy, preserved in a cloth box. Dedicated to Giovanni Poleni. Ex Bibliotheca Mechanica.

♣ Riccardi, II, 538—(and see his interesting note).

His First Publication

93. TYNDALL, John. *Die Schraubenfläche mit geneigter Erzeugungslinie und die Bedingungen des Gleichgewichts für solche Schrauben. Inaugural-Dissertation . . .* Diagrams on p. [14]. 13, [1] pp. Large 4to, self-wrappers (a little foxed & stained). Marburg: Elwert, 1850. \$750.00

First edition of Tyndall's dissertation and extremely rare. "This mathematical essay on screw surfaces and the conditions for the equilibrium of such screws represents Tyndall's inaugural dissertation, delivered on receiving his degree as doctor of mathematics in 1850."—Roberts & Trent, *Bibliotheca Mechanica*, p. 329.

Tyndall (1820-93), professor of natural philosophy at the Royal Institution, succeeded Faraday as superintendent of that organization. One of the most famous and influential scientists of late Victorian Britain, he made important contributions to the study of diamagnetism, glacial movement, and the effects of solar and heat radiation on atmospheric gases.

Very good copy, preserved in a morocco-backed box. Ex Bibliotheca Mechanica.

♣ *D.S.B.*, XIII, pp. 521-24.

The Corliss Engine

94. **UHLAND, Wilhelm Heinrich.** *Corliss-Engines and Allied Steam-Motors working with and without Automatic Variable Expansion-Gear. Including the most approved Designs of all Countries, with Special Reference to the Steam-Engines of the Paris International Exhibition of 1878. A Treatise on the Development, Progress and Constructive Principles of these Engines for Engineers, Machinists, Steam-Users and Engineering Colleges.* A Translation of W.H. Uhland's Work with Additions by Anatole Tolhausen. Text vol.: 33 plates, 4 printed tables, & numerous illus. in the text. viii, [iii]-v, 288 pp. 4to, cont. green half-sheep & cloth sides (corners a little worn) **[and]**: Atlas vol.: 66 double-page plates. Folio, binding as above (but corners a bit more worn). London: E. & F.N. Spon, 1879. \$1500.00

First edition in English, "describing the Corliss engine and others of that class. The Corliss was the best known of the high-pressure condensing engines with an expansion-gear in which the point of cut-off is determined by the governor."—Roberts & Trent, *Bibliotheca Mechanica*, pp. 330-31.

George Henry Corliss (1817-88), of Rhode Island, developed mechanisms "that very soon revolutionized the construction and operation of steam-engines . . . His invention consisted of rotary valves (separate ones for steam and exhaust ports) and a governor which by a system of levers controlled the valves and the admission of steam to the engine cylinder. Reciprocating steam-engines have not been greatly bettered either in steam or fuel or fuel economies since the introduction of engines operated with Corliss's valve gear and drop cut-off, as the invention is called. By the technical world Corliss is ranked equally with Watt in the development of the steam-engine . . . The principal features of the engine were copied by engine manufacturers, both in the United States and Europe, and Corliss had many infringements to fight."—*D.A.B.*, II, p. 441.

Uhland (1840-1907), worked in Leipzig as a civil engineer, patent attorney, and author of technical works.

Very good set. Ex *Bibliotheca Mechanica*. A supplementary atlas accompanies the above-mentioned volumes. The double-page plates are numbered 1-17, 19, 22-23, and 26. In spite of the skips in plate numbers, I suspect that this supplementary volume is complete. Most sets do not have this extra volume.

"Our Greatest Geometer, the New Archimedes of Our Age"—Galileo

95. **VALERIO, Luca.** *De Centro Gravitatis Solidorum Libri Tres.* Large woodcut printer's device on title & numerous woodcut diagrams in the text. 4 p.l., 80, 92, 94 pp. 4to, modern blindstamped calf (tear to title carefully repaired without loss, two small holes to title, minor browning).

Rome: B. Bonfadini, 1604.

[bound & issued with]:

— . *Quadratura Parabolae per simplex falsum. Et altera quàm secunda Archimedis expeditior ad Martium Columnam.* Woodcut diagrams in the text. 20, 23 pp. (Part II bound before Part I). 4to (some marginal worming carefully filled in, light browning). Rome: L. Facius, 1606. \$12,500.00

First editions; these are rare and important books which had a considerable influence on Galileo and his studies on motion.

Valerio (1552-1618), who had studied under Clavius, met Galileo in Pisa in 1590 and influenced him to renew his studies on the centers of gravity. In 1609 they began an extensive correspondence on problems of motion and mathematics. It was during this time that Galileo was preparing his treatise on motion and mechanics which later became the *Discorsi* of 1638. "In December 1612, having completed his *Sunspot Letters*, Galileo considered having the Linceans print his work on centers of gravity of paraboloids, probably in the form of a letter to Luca Valerio. Ensuing correspondence shows that he sent this to Cesi, who in discussing the matter with Valerio found that he was then revising his own book on a similar subject, published in 1603-4. Galileo accordingly gracefully withdrew his work from publication at this time, for which Valerio expressed his gratitude. In fact Valerio did not reprint his book, and Galileo eventually placed his investigations of centers of gravity in an appendix to his own last book in 1638."—Drake, *Galileo at Work*, p. 202.

Valerio's influence on Galileo, through his correspondence and these two books, was enormous, and he was singled out for praise in the *Discorsi*; where he is described as "our greatest geometer, the New Archimedes of our age." This was high praise indeed, for Valerio was critical of Galileo's Copernicanism and had been expelled from the Accademia dei Lincei in 1616 for his views.

"Valerio's *De centro gravitatis* consists of the application of Archimedean methods to the determination of the volumes and centers of gravity of the various solids of rotation and their segments . . . Among the mathematicians who studied him and spoke highly of him were Cavalieri, Torricelli, and J. C. de la Faille. He also had a direct influence on Guldin, Gregorius Saint Vincent, and Tacquet."—*D.S.B.*, XIII, pp. 560-61.

Good copies. Ex Bibliotheca Mechanica.

• M.E. Baron, *The Origins of the Infinitesimal Calculus*, pp. 101-03. Riccardi, II, 570—"Raro e pregiato." Roberts & Trent, *Bibliotheca Mechanica*, pp. 332-33.

*A Rare Elizabethan Book of Secrets;
How to Illuminate MSS.*

96. A VERY PROPER TREATISE, wherein is briefly set foorth the art of *Limming*, which teacheth the order in drawing and tracing of letters, Vinets, Flowers, Armes, and Imagerye, and the maner how to make sundry syses or groundes to lay Silver or Gold upon, and how silver or Golde shall be layed or limmed upon the syse, and the waye to temper Gold and Silver and other mettals and diverse kindes of colours to write or to limme withall uppon Velym, Parchment or Paper, and how to lay them uppon the worke which thou intendest to make, and how to vernish it when thou hast done, with divers other thinges verry meete and necessary to be knowne to all such Gentlemen, and other persons as doe delight in *Limming*, painting or in tricking of Armes in their colours, and therefore a woork verry meete to be adjoyning to the bookes of Armes. Typographical device on title. Printed throughout in black letter. 11, [1] leaves. Small 4to, fine modern blue morocco, dentelles gilt, a.e.g. London: T. Purfoote, the assigne of R. Tottill, 1588. \$22,500.00

Fourth edition of one of the earliest English books of "secrets," or manual of practical arts; this text appears to be entirely of English origins. It was first published in 1573 and reprinted in 1581 and 1583; there were also editions of 1596 and 1605. All editions are very scarce; of this printing the NSTC (24255) records five copies: L18, O; F, PN, NY Metropolitan Museum.

This is a very early English manual of instructions for painting and illuminating ("limming," or "limning"), particularly books and manuscripts. The following recipes are characteristic: "to temper golde or silver wherewith you may write with a pen or paint with a pencil"; "to temper Brasill wherewith to write, flourish, or rule bookes"; "to make a kind of colouring called vernix, wherewith you may vernish gold, silver, and other colour or paintings, be it upon velim, paper, timber, stone, leade, copper, glasse, &c." The last leaf contains on the recto "the names of all such colours and other thinges as are mentioned and contayned in this present booke of limming, and are for the moste parte to bee solde at the apothecaries," and on the verso is an index to the various recipes.

A fine copy. Books of this sort are perishable by nature and copies seldom appear on the market; many of those which do survive in institutional libraries are in less than perfect condition.

97. VINTON, Francis Laurens. *Theory of the Strength of Materials, illustrated by Applications to Machines and Buildings.* Five plates on four folding sheets & numerous diagrams in the text. 3 p.l., 182 pp. 8vo, orig.

blind-stamped black cloth (head of spine a bit chipped), upper cover stamped in gilt. New York: Tobitt & Bunce, 1874. \$250.00

First edition. Vinton (1835-79), graduated from West Point in 1856 and then attended the École des Mines from 1856 to 1860. He was one of the founders of the School of Mines at Columbia University where he served as professor of civil and mining engineering.

Very good copy. Bookplates and stamps of the School of Mines, Columbia University and the Franklin Institute on title. Ex Bibliotheca Mechanica.

98. WEISBACH, Julius Ludwig. *Principles of the Mechanics of Machinery and Engineering*. First American edition. Edited by Walter R. Johnson. Wood engraved frontis. in Vol. II & one thousand wood engravings in the text. xv, [25]-486 pp., one leaf of errata; xvi, 368 pp. Two vols. 8vo, orig. blind-stamped cloth (spine of Vol. I well-repaired), spines lettered in gilt. Philadelphia: Lea & Blanchard, 1848-49. \$500.00

“Timoshenko praises Weisbach for his treatment of problems of strength of materials, noting that his ‘original work in this field was centered around the design of machine parts which are subjected to the action of combined stresses.’ Weisbach uses the ‘maximum strain theory as the basis for his selection of safe dimensions for machine parts.’ This work enjoyed a high reputation not only on the Continent but in the English-speaking world . . .

“This American edition makes use of the English translation of Weisbach’s book on mechanics for the use of engineers and machinists. Divided into two parts; the first volume provides the theoretical material, and the second volume the applications of that theoretical knowledge . . .

“A graduate of the famous School of Mines in Freiberg (1826), Weisbach later studied for two years at Gottingen (1827-1829) and for a year at the Vienna Polytechnical Institute. Preferring not to work as an engineer, he remained on in Freiberg, where he gave private lessons in mathematics. In 1833 he was called upon by the Academy of Mines of Freiberg to teach applied mathematics, and from 1836 to the end of his life he was professor of mechanics and machine design at that school. He made contributions to hydraulics and strength of materials.”—Roberts & Trent, *Bibliotheca Mechanica*, p. 351.

Very good set. Bookplates of the Marietta Public Library. Ex Bibliotheca Mechanica.

*The Theory of the Origin of Ore Deposits;
The Solms Copy*

99. **WERNER, Abraham Gottlob.** *Neue Theorie von der Entstehung der Gänge, mit Anwendung auf den Bergbau besonders den freibergischen.* xxxx, 256 pp. 8vo, cont. half-sheep & paste-paper boards, red morocco lettering piece on spine. Freiberg: Gerlach, 1791. \$2500.00

First edition. This work by Werner, who is known as the father of historical geology, describes his "theory of the origin of ore deposits which would be consistent with his general theory of the origin of the earth's crust . . . Many of its elements were of lasting value. Werner formulated basic questions about the origin and history of veins and their contents, established criteria for determining the relative age of veins and vein materials, and presented a comparative study of the structure of veins and rock masses . . . Perhaps the most important contribution of *Von den Entstehung der Gänge*, however, was that it made the study of vein formation an integral part of historical geology."—*D.S.B.*, XIV, pp. 262-63.

Fine copy. Stamp of "Fürstl. Solms Braunfels Hofbibliothek" on title.

☛ Hoover 878.

The Perfection of Machines

100. **ZALLINGER ZUM THURN, Franz Seraphim von.** *De Generali et Absoluta Virium Mechanicarum Mensura. Dissertatio.* One folding engraved plate. 6 p.l., 84 pp. 8vo, orig. blue boards. Innsbruck: J.T. Trattner, 1777. \$1250.00

First edition and very rare; OCLC locates no copy in the U.S. Zallinger (1743-1828), a Jesuit, was professor of theoretical and experimental sciences, natural history, and mineralogy at Innsbruck.

"This dissertation concerns judging the perfection of machines pertaining to the mechanics of solids. Zallinger seems to have been much involved with mechanics at this period, and in the years prior to this had produced dissertations on the curvilinear motion of bodies and . . . on the perfection of machines with respect to the mechanics of solids."—Roberts & Trent, *Bibliotheca Mechanica*, pp. 369-70.

Fine copy. Ex Bibliotheca Mechanica.

☛ Pogendorff, II, 1391.