Antiquarian Books
Science, Medicine, & Technology

CATALOGUE 42

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Maclaurin, Maxwell, Mendeleev, Morton, Newton
Pander, Pasteur, Piccolomini, Riemann
Rumford, Steno, Volta, Young

THE ANTIQUARIAN SCIENTIST
• RAYMOND V. GIORDANO •
P.O. BOX 448  SOUTHAMPTON, MA  01073  U.S.A.
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Front cover:
Monochrome woodcut of a magnified snowflake, James Glashier, item no. 246

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ASTRONOMY

Neptune Predicted


The mathematical prediction of an eighth planet (Neptune) by the English astronomer went unrecognized at first, the credit instead went to Leverrier’s work that led to Galle’s sighting in September 1846. Heralds of Science 16. Milestones of Science 1. Epochal Achievements 24: “a triumph of gravitational astronomy.” H.F. Norman Lib. Cat. 7. $3,000.

The Stars for Navigators

1a. BROOKE, HENRY. A guide to the stars... in either hemisphere, particularly those that are useful for finding longitude and latitude at sea. With twelve planispheres, on a new construction... London: Taylor and Hessey, 1820.

This is among the first star atlases to entirely abandon the use of constellation figures. The ‘new construction’ noted in the title depicts the stars as they actually appear in relation to each other. Brooke, who had been a mariner, innovatively includes information on 120 stars for making determinations of latitude and longitude at sea. Houzeau, ‘Vade-mecum de l’astronomie’, no. 2930. $900.

2. COSTARD, GEORGE (1710-82). The history of astronomy, with its application to geography, history, and chronology; occasionally exemplified by the globes. London: J. Lister for J. Newberry, 1767.

FIRST EDITION. 4 to. Contemp. calf-backed boards. xi, 101 pp. Original printed instructional strip ed star map planispheres displaying stars to the 4th magnitude. Partial cracking to the hinges and wear to the binding; internally very good.


The Epochal Books of Galileo and Kepler Published with Gassendi’s Astronomy Text
An Important Copy from Colonial America


FOURTH EDITION. 8 vo. Contemp. sheep. 16, 199, (1, blank), 173 pp. Four woodcut plates in the Galileo + 2 engraved plates within the pagination of the Gassendi + numerous woodcuts in the text. The COPY of Benjamin Colman (1673-1747) with his full signature twice on the first front flyleaf. This first signature has his purchase price of $/6 with a short Latin phrase of ownership. The second more mannered signature indicates it is his book and is dated 1694. A third signature is that of the 19th century Vermont jurist and governor C.K. Williams (1782-1853). The original covers are loose and there is some of the expected spotty browning. Preserved in a fine linen-covered clamshell case with leather labels on the spine. Also preserved within is Frank Oliver’s (see below) original inserted note on this book.

Not previously in commerce, this historical volume was acquired from the estate of Frank Williams Oliver, Esq., (1920-2006), the great-great-grandson of the Third Hollis Professor of Mathematics and Natural Philosophy at Harvard, Samuel Williams (1743-1817). Oliver inherited family books and manuscripts going back to Warham and John Williams (on this notable American family see R.F. Rothschild, 'Two Brides for Apollo - the life of Samuel Williams', 2009). Rev. Colman
played a role in convincing Thomas Hollis to endow the chair eventually occupied by Samuel
Williams (1780-88). Colman had graduated Harvard College in 1692 and returned to take a master's
degree in 1695. Thereafter he sailed for England but lost nearly all his possessions, though evidently
not this book, to a French privateer ship. On his return to America he became the first minister of the
Brattle Street Church, a post he held for nearly half a century. In 1721 Colman published a tract on
small-pox inoculation which was also published at London and Dublin in 1722. In 1729 an article by
Dict. Amer. Sci., p. 60 and E. Turell, 'The life and character of the Reverend Benjamin Colman',
Boston, 1749.

Not commonly recognized, but ably documented by Mel Gorman over fifty years ago in
the journal ISIS (Dec. 1964) in his pioneering paper ‘Gassendi in America’, Gassendi’s book was
adopted in the early days of Harvard College as a textbook. Gorman writes: "Among books of serious
purpose, few are ephemeral as textbooks. Consequently, it is to be expected that extant copies of the
'Institutio' having autographed evidence of use in colonial and post-Revolutionary America are not
numerous." Of the 1653 and 1683 editions, Gorman located only one with the ownership of a
Harvard graduate in the 17th century: Thomas Shephard's (1658-85) dated 1675/6 at the Boston
Athenaeum. Colman’s copy, offered here, adds another. William Brattle (1662-1717), a Harvard
graduate in 1680, signed his name in his Gassendi in 1705. Post 1700 ownerships recorded by
Gorman include copies owned by a small number of Harvard students including James Otis and
John Winthrop. James Logan of Philadelphia and a few others outside of Harvard are known by
preserved copies or by documentary evidence that they owned copies in the 18th century. The
Colman copy, long in the hands of the Williams family is likely to have been on the shelves of books
of Samuel Williams, Harvard’s Third Hollis Professor. It is known that as late as the early 19th
century Nathaniel Bowditch (1773-1838) owned a copy of the 1683 edition. Hence, Gorman writes: "It
is evident that Gassendi’s influence in America was widespread, being very active for at least fifty
years following 1675, and not dwindling completely until commencement of the nineteenth century."
It is with this textbook and its influence on early American publications such as almanacs that the
Copernican system and ultimately Newtonian science was promulgated. Cinti 155. Favaro 355.
Casper 98. Wing G293. $8,500.

With an Early Woodcut Diagram and a Poem on the Copernican Solar System

4. GEMMA, CORNELIUS (1535-78). De arte cyclognomica, tomi III. Antwerp: Christopher
Plantin, 1569.

FIRST EDITION, first issue (see below), 4 to. Contemp. limp vellum with overlapping fore-edges.
(12), 151, (1, blank); 176v; 411l.e. 141l. (2), (1, blank) pp. Title with printer’s large woodcut device + 80
woodcuts in the text by Antoon Van Leest. Elaborate contemporary ownership of Jacobi Dorenet, M.D., Prof.
Academia Dolana Regia on flyleaf. The far more common later issue has on the verso of the last printed leaf 'Ad
lectorem' and the errata. Here that page is blank and the errata are uncorrected in the text. Further, in the later
issue the last two leaves of the preliminaries are often eliminated as they contain a letter to the Duke of Alba
(1507-82), the ruthless Iron Duke, much disliked in the Low Countries. Some toned staining to the vellum; a
fresh, very good copy.

"But the success of the 'De Revolutionibus' does not imply the success of its central thesis.
The faith of most astronomers in the earth's stability was at first unshaken. Authors who applauded
Copernicus' erudition, borrowed his diagrams, or quoted his determination of the distance from the
earth to the moon, usually either ignored the earth's motion or dismissed it as absurd. Even the rare
text that mentioned Copernicus' hypothesis with respect rarely defined or used it." (T.S. Kuhn, 'The
Copernican revolution', 1957). Cornelius Gemma like his famous father, Gemma Frisius (1508-88),
was a physician and professor at the University of Louvain. Both Gemmas valued Copernicus. It has
been shown by Prof. Owen Gingerich that Gemma Frisius' copy of 'De revolutionibus' is the most
extensively annotated from the sixteenth century. Cornelius in his 'Ephemerides' of 1561 wrote, 'That
is why, neglecting then the principles of the Ancients, I turned towards the 'Prutenic Tables' (these
were established by Erasmus Reinhold from 'De Revolutionibus'), admiring that divine genius of
Copernicus. On page 122 of vol. 1 in the present work is a fine, large woodcut of the Copernican solar
system followed by a 28-line poem and a brief description of the subject which is in accord with
Cornelius' cosmocritical thinking. The woodcut is entitled, 'Sphaera Revolutionum D. N. Copernicus'.
This precedes the first published Copernican universe to appear in England (Digges, 1576).
Gemmas 'cyclognomic art' presents an arrangement of seven concentric circles depicting a universal philosophy that brought together inferiors and celestials, nature, soul and intellect, numbers, ideas and external objects. Also of a note in this handsome work [due to the well-executed woodcuts of Antoon Van Leest (b. 1545)] is a detailed depiction of the eye with a hollow optic nerve (vol. 1, p. 85) and a large allegorical woodcut (vol. 2, p. 96). "Until recently he has been almost totally neglected by scholars, although he played an important role in the intellectual map of the second half of the sixteenth century."

Presentation Copy of Privately Printed Atlas of Stellar Spectra

5. HUGGINS, WILLIAM, SIR (1824-1910) and LADY HUGGINS (1848-1915). Atlas of representative stellar spectra from \( \lambda 4870 \) to \( \lambda 3300 \), together with a discussion of the evolutionary order of the stars, and the interpretation of their spectra. Preceded by a short history of the observatory and its work. London: William Wesley and Son, 1899.

FIRST EDITION. Folio (15 1/2 x 12 inches). Orig. beveled cloth. (10), 165, (3) pp. Errata slip. Twelve half-tone plates of stellar spectra + illus. in the text, some full-page + initials and vignettes drawn by Lady Huggins. PRESENTATION COPY to the American astronomer, David P. Todd (1855-1939), who while chief astronomer at Lick Observatory produced a complete set of photographs of the 1882 transit of Venus. From 1881 to 1917 Todd was professor astronomy and director of the observatory at Amherst College. He also led many astronomical expeditions here and abroad. The holograph presentation dated January 1900 is on Huggins' Tuol stationery tipped in before the title and includes Todd's ownership signature and receipt entry in France on 21 Feb. 1900. The cloth is soiled in spots, a bit worn at the corners and at the spine ends, internally clean and crisp.

"In January 1899, Huggins informed Hale he was planning ‘to bring out our new spectra in a privately printed volume’. ...Their principal motivation for publishing the book was ‘to place in the hands of those interested in the subject representative spectra of the principal classes of stars through a long range of wave-length, together with scales attached, sufficient for the determination of the approximate positions of the stronger lines.’ They spared no effort in preparing the volume’s twelve plates. To produce ‘the most truthful representation of the photographs’ required ‘many trials and much consideration’. ...The Hugginses eventually settled for a scale of enlargement that sacrificed some detailed structure in order to reproduce correctly the tone of the originals. ...The folio book, ‘An Atlas of Representative Stellar Spectra’, was identified on the title page as the first volume of the ‘Publications of Sir William Huggins’s Observatory.’ ...Reviewers admired the volume as ‘magnificent’, ‘striking’ and ‘beautifully printed and bound’. All took delight in the pen-and-ink illustrations contributed by Margaret Huggins. ...In the ‘Edinburgh Review’, Agnes Clerke - as few others could - drew attention to Margaret’s scientific contributions to the work.” (B.J. Becker, ‘Uprising Starlight - William and Margaret Huggins and the rise of the new astronomy’, 2011, pp. 272-273).


Important Presentation Copy of the Very Rare First Issue


FIRST EDITION, first issue. 8 vo. Orig. boards with printed paper label on spine, uncut. viii, 421, (1, errata) pp. A folding table outlining the history of the subject from 1700 serves as an index to the text. PRESENTATION COPY with a flowery 8-line inscription by Izarn to Antoine Fourcroy (1755-1809), the prominent French chemist who played a leading role in the scientific life of France. In the inscription, Izarn credits Fourcroy’s influence on him having engendered his appetite for science. At the time Izarn published this book on meteorites, Fourcroy and his frequent collaborator, Louis Vauquelin (1763-1829), were analyzing meteorites from a recent shower in Normandy, and in 1804 published their results. Izarn refers extensively to the researches of Vauquelin in his book, and, of course, presented the present copy to his distinguished collaborator, Fourcroy. A bit rubbed, front joint neatly repaired; a very good copy.
The rare first issue (second issue entitled: 'Des Pierres tombées du Ciel') of an important book on the origin and physical/chemical nature of meteorites by the French physician and professor of physics, Joseph Izarn. Not until the accurate chemical analyses of E. Howard in 1802, confirmed by both Vauquelin and Klaproth in 1803, was there definite evidence that stones did fall from the atmosphere. Izarn, therefore, critically reviews the evidence and theories at a crucial time in his book on the subject. Dedicated to Laplace, who had suggested that the stones came from lunar volcanoes, Izarn also noted in his dedication E. Howard and L. Vauquelin. The first section of the book reviews and abstracts papers from the year 1700 onward by Pictet, Vauquelin, Sage, Darcet and others. In the second section, Izarn examines their results and conclusions, while in the third section, he presents his own theory. In 1804, Izarn published a comprehensive book on galvanism. All citing the second issue: Poggendorff I.1174; Sotheran/Zeitlinger, 1st suppl., no.4265; Cole 678; Ferchl, p.255; Roller & Goodman I. 584; Neville Lib. I. 683. $2,400.

Hungarian Treatise with Hand-colored Constellation Charts

   FIRST EDITION. 8 vo. Contemp. half sheep with marbled boards, spine gilt. xxiii, 436 pp. Four folding engraved plates, two are hand-colored constellation charts. Minor wear to the binding; a very good copy.
   A very rare book, the most up-to-date and exhaustive treatment of physical geography/natural history/astronomy of its time in the Hungarian language. Katona was nationally recognized as an expert in geography with expertise on questions in astronomy as well. Not in any of the usual bibliographies or collections. OCLC shows British Library only, however their catalogue does not record the book. $1,700.

"...changed the course of optics..." (D.S.B)

   FIRST EDITION. 4 to. Contemp. vellum with manuscript title on spine. (16), 449, (18) pp. Title with woodcut device + an engraved plate with unnumbered explanatory leaf + numerous woodcut diagrams in the text + two folding printed tables. The COPY of the German astronomer, Conrad Heiligenstein (1774-1849; see Poggendorff I.1047) with his ownership signature and purchase note on the front pastedown. Minor professional repair to the blank edges of the margin and lower margin, browning as is usual for this book; still, a very good copy in a contemporary binding.
   "Kepler's 'Optics' is a tremendously rich book. With all its new ideas, as well as numerous loose ends, it set the agenda for much of the study of light in the seventeenth century. Astronomers, in the first place, could take up its theoretical and instrumental ideas; natural philosophers explored its new vision of vision; mathematicians (the young Descartes among them) found a treasure of puzzles of optical imagery and an invitation to make conic sections fruitful; physicians discovered a new basis to reassess eye troubles." (Review of the new English translation, ISIS, vol. 95, no. 2, 2004).
   "Kepler argues that all the rays incident on the eye from any specific point on the object will arrive at a single point on the retina after refraction in the eye's humors. In consequence, the retina receives an unconfused, although inverted, image of the object. Kepler also presents experimental results, examining, for instance, the range of applicability of Ptolemy's direct proportionality between the angle of incidence and the angle of refraction; and he formulates the principle that the intensity of illumination is inversely proportional to the square of the distance from the illuminating source." (C.L. Parkinson, 'Breakthroughs', 1985, pp. 61-62). D.S.B. 7: 289-312, esp. 295-299. Sotheran/Zeitlinger, vol.2, no.10097. Caspar 18. Zinner 3993. Houzeau, 'Vade mecum de l'astronomie', no. 665. $18,500.

Polyhedral Theory of Kepler's Planetary Orbits

The 'Mysterium cosmographicum' ('The secret of the universe') first appeared in small quarto format at Tübingen in 1596 in an edition of only 200 copies (Caspar 6). Twenty-five years later it was republished in folio format with notes and additions. To this second edition, Kepler added a 50-page 'Apologia' with its own title page (1622), a defense of his 'Harmonices mundi' from the attack of Robert Fludd. The first part now includes a new dedicatory epistle, a reprint of Rheticus' 'Narratio o prima', which when first published in 1540 contained the first announcement of the Copernican system, and Mästlin's (Kepler's mentor) treatise on the dimensions of the orbits and celestial spheres.

To the 'Mysterium', Kepler updated the text with annotations which included his three laws of planetary motion.

"Almost all the astronomical books written by Kepler (notably the 'Astronomia nova' and the 'Harmonice mundi') are concerned with the further development and completion of themes that were introduced in the 'Mysterium cosmographicum'. The ideas of this work did not constitute just a passing fancy of youth but rather the seeds from which Kepler's mature astronomy grew. When a new edition was called for, he decided against changing the text itself, for a complete revision would have required the inclusion of all the main ideas of his other books ... Instead, he simply added explanatory notes and references to his definitive accounts of various topics given elsewhere, especially in the 'Harmonices mundi' and the 'Epitome astronomiae copernicanae'. " ('Introduction' by E.J. Aiton to the English translation of the present edition by A.M. Duncan, N.Y., 1981).


The Original French Edition Followed by the First Edition in English

Laplace's System of the World


FIRST EDITION. Two volumes. 8 vo. Original blue marbled boards (the covering sheets marbled over printed waste paper possibly from a period French military text) with original printed paper spine labels. Uncut and unpressed. With the half-titles and the uncommon errata leaves in each volume. 314, (6, contents and errata); 312, (6, contents and errata) pp. This superb set is preserved in two 20th century gilt round-back quarter calf folders with marbled board sides. The folders are fitted into a marbled slipcase with calf edges and rounded ends. A fine set in original state.

Laplace delivered ten lectures over ten weeks beginning in January 1795 at the École Normale. 'As often happens, the courses proved more important to the teachers than to the students. Attendance was spotty. By early April 1795 many pupils had drifted away. The École Normale closed at the end of April, and Laplace never gave the lectures his program envisaged on rational mechanics, the differential and integral calculus, and astronomy. Instead, he referred his auditors to a book he had in preparation, to be entitled 'Description du système du monde', in which he would give a nonmathematical account of all that had been discovered in these subjects. ...the promised book proved to be one of the most successful works of science ever composed. (Charles C. Gillispie, 'Pierre-Simon Laplace, 1749-1827, A life in exact science', 1997). Laplace prepared six editions of the 'Exposition', the last appearing posthumously in 1835. In the sixth book of the 'Exposition' is Laplace's nebular hypothesis in which he "...argued that the planetary system formed from the primitive solar atmosphere, which extended beyond the orbit of the outermost planet. As this atmosphere cooled and condensed, it left a succession of rings in the plane of the solar equator that ultimately coalesced to form individual planets." (J. Lankford, 'Hist. astro. - an encyclopedia', 1997). Milestones of Science 123. Houzeau & Lancaster 8940. See: PMM 252. $3,250.

FIRST EDITION IN ENGLISH. Two volumes. (6), (v) - viii, 379; (2), iii, (1), 375 pp. A PRIZE SET of the Royal Military College bound in period calf with gilt arms on all covers, front cover with gilt: "Royal Military College. PRESENTED FOR ATTENTION AND PROGRESS IN STUDY". The spines are richly gilt within compartments and the front fly-leaves carry a calligraphic presentation inscription to Cadet Erskine dated December, 1819. Bound without half-titles. Apart from cracking and partial cracking of joints, a fine, crisp set.

The first edition of Laplace's 'Exposition du système du monde' appeared in 1796, the non-mathematical forerunner of his massive 'Mécanique celeste'. This work is "... a handbook of what was known of cosmology at the end of the eighteenth century" (D.S.B.), and contains in its last chapter Laplace's speculations on the origin of the solar system (named his 'nebular hypothesis') and on the nature of the universe beyond its confines. The translator, John Pond (1767-1836), was Astronomer Royal from 1811 and is known for his improvement of methods and instruments used at Greenwich. D.S.B. 15: 341-345. Houzeau & Lancaster 8940. Milestones of Science 123. See: P'MM 252.

$1,400.

Canals on Mars


FIRST EDITION. 8 vo. Orig. cloth with gilt Mars map on front cover. (2), vi, (2), (vii)-viii, 228 pp. Colored frontispiece of Mars with printed tissue guard + 23 plates + text figs. Tipped in is a clipped letter signed by William H. Pickering (1858-1938), the Harvard astronomer pioneer in dry-plate celestial photography, and observer of the features of Mars. Pickering was Lowell’s buddy at Harvard and then his scientific rival. Here he praises this as Lowell’s best book. A very good copy.

In 1894 he founded the Lowell Observatory in Flagstaff, Arizona, where he reported seeing ‘canals’ (now known to be optical effects and natural formations) on the surface of Mars. …Influenced strongly by the work of Italian astronomer Giovanni Schiaparelli, Lowell set up his observatory at Flagstaff originally with the sole intention of confirming the presence of advanced life forms on Mars. He thought he could make out a complex and regular network of canals and regular seasonal variations that to him indicated agricultural activity.’ (‘Random House Webster’s Dictionary of Scientists’).

Four Offprints on Mars Signed by Percival Lowell


All in fine condition.

$975.

Mason, of the Mason-Dixon Line, Improves the Lunar Tables


LAST AND BEST EDITION. 4 to. Contemp. mottled calf. (2), (2, errata), 72 pp. THE COPY of the German astronomer, Johann Friedrich Schmidt (1825-84), an expert on selenography, who was director of the National Observatory, Athens. Tipped in between pages 4 & 5 is a period manuscript leaf in English in a fine hand which includes a table 'Moon’s mean motion for the meridian of Philadelphia. New Style'. The table begins at year 1799 and runs to 1821. Further there is a 5-page manuscript in the same hand of instructions for finding the moon’s longitude and latitude and tables including 'Mayer’s solar tables' and 'Sun’s mean motion
A N T I Q U A R I A N  S C I E N T I S T

of the meridian of Philadelphia. New style'. This table runs 1799 to 1831. Of interest for the Philadelphia connection, Mason returned to the U.S. in 1786 and died there in that year. The binding has some wear, the front joint is cracked but holding, the last 5 leaves have a light waterstain; a good copy.

These revised tables first appeared in 1780, while this edition "... continued long to be the best extant." (D.N.B.). Mayer's widow had his Tabulae motterr solidis et lunae' published in 1770, and they were used by Maskelyne to compute the lunar and solar ephemerides for the early editions of the 'Nautical Almanac'. On the background for this see: W. J. H. Andrewes, 'The quest for longitude', 1996, pp. 155-156.

Early German Rocket Design

FIRST EDITION. 8 vo. Orig. printed stiff wrappers. 47, (1) pp. Half-tone frontispic - portrait of Nebel + numerous half-tones in the text and a few diagrams. Laid in is an unused postcard to become a member of the Verein für Raumschiffahrt in Berlin. As usual, browning due to the paper, but a fine copy.

In 1927, the engineer and first assistant of Hermann Oberth, R. Nebel, became involved in the founding of the Society for Space Travel. In 1929, he built with Oberth their first liquid fuel rocket, which at the time was thought to be the first of the type to lift off the ground until they learned of Goddard's priority. Interlibrum, Cat. 310, no. 205. $750.

Piazzi's Palermo Observatory Handbook

FIRST EDITION. Two volumes. Large 8vo. Near contemp. half lea. with compartmented spine. xx, (1, blank), xvi - xxii, (1), (1, blank), 240: xxvi, 446 pp. Ten engraved plates, eight folding. Each title with the engraved illustration of the observatory. A very good, crisp set.

The Italian astronomer, Giuseppe Piazzi set up Royal Observatory at Palermo which opened in 1790 as the southern-most European observatory with advantageous observing conditions. The great masterpiece of 18th century technology, the Ramsden five-foot vertical circle became an important feature of the installation. From this perch, Piazzi discovered Ceres (1801), the small planet between Mars and Jupiter. In addition, Piazzi published in 1813 a large catalogue of stars. In 1817 he published the present work, a detailed, technical handbook for astronomers' use at the Palermo observatory. In volume two are particulars on Ceres and a note of Vesta. Plate II illustrates various instruments including the Ramsden circle. Very scarce. D.S.B. 10: 591-593. Houzeau & Lancaster 9275. $2,450.

The First Printed Star Atlas (1540)

16. PICCOLOMINI, ALESSANDRO (1508-78). De la sfera del mondo. Libri Quattro... De le stele fisse. Libro uno... Venice: per Giovanantonio & Dominico fratelli de Volpini da Castelgiofredo... Tien per insegna il Pozzo, Del messe de Aprile, 1540 (colophon). FIRST EDITION. 4 to. Contemp. vellum. (12, includes errata), 5-176 (i.e. 178), (2) leaves. Complete. Leaf numbers for 103-106 repeated twice while 167-168 omitted in foliation. Large woodcut vignette on both title pages + woodcut historiated initials + text woodcuts. Forty-seven full-page xylographic star maps (numbered to 48 but no 24 omitted) + 48 letterpress tables on text leaves. Engraved armorial bookplate of Henry Ludlow, 2nd Baron Ludlow (1865-1922) and ownership signature at foot of first title of Henry Ludlow over an erasure of an earlier signature. First title lightly soiled in blank foremargin, early light ink smear on recto of leaf 83 mostly in blank area, last leaf (colophon) firmly in binding pasted down to flyleaf to hide early calculations on verso; about a very good copy.

"Alessandro Piccolomini, a resident of Siena and an archbishop, was an early popularizer of science, being a clear and entertaining expositor. His choice of Italian rather than Latin set a precedent for Bruno and Galileo. ... Most memorable of Piccolomini's efforts is this set of forty-eight (sic) xylographic star charts, included in the pair of popularizations, 'On the Sphere of the Universe' and 'On the Fixed Stars'. The Lownes example is the first of numerous editions printed from the same woodblocks during the sixteenth century. On the charts the stars are classified into four magnitude categories, each designated by a separate symbol. Piccolomini's Roman lettering system was a good try, but has been superseded by Bayer's scheme of Greek letters." (Renaissance books of science from
the collection of Albert E. Lownes', 1970, entry by Prof. Owen Gingerich). O. Gingerich, 'Piccolomini's
p. 357. $8,750.

17. PLAYFAIR, JOHN (1748-1819). Remarks on the astronomy of the Brahmins. Offprint:
FIRST SEPARATE EDITION. 4 to. Orig. stitched blue-grey wrappers. 60 pp. PRESENTATION COPY appealingly inscribed by Playfair on the verso of the title page: "To the only Lady who will ever honour this Paper with a perusal it is most respectfully inscribed. J. P." One small correction by Playfair to an equation in the text. A fine copy.
Best known for his 'Illustrations of the Huttonian theory of the Earth' (1802), a landmark in
British geology, this is Playfair's third scientific paper published in the journal which he edited.
Playfair compares in detail the accuracy of four sets of early astronomical tables from India with
those of European origin, eg. Cassini, Mayer Bailly, Ptolemy. The methods of Lagrange Laplace,
Delalande, etc. are frequently employed. Playfair's "Lady" (Caroline Herschel?) must have had a
known interest in the subject to have been expected to appreciate this paper. $850.

The Modern Classic of Celestial Mechanics

18. POINCARÉ, HENRI (1854-1912). Les méthodes nouvelles de la mécanique céleste. Paris:
Gauthier-Villars, 1892-99.
FIRST EDITION. Three volumes. 8 vo. Twentieth century cloth, orig. printed wrappers bound
in, latest ad dated 1911. (4), 385; viii, 479, (1); (4), 414 pp. Text figs. A fine set.
"...Poincaré remains... the mathematician who after Newton did the most remarkable work
in celestial mechanics. ...The works of Poincaré on celestial mechanics contrasted sharply with those
of his predecessors. ... (He) inaugurated the rigorous treatment of celestial mechanics, in opposition
to the semi-empirical computations that had been prevalent before him. ...Most of his results were
developed in his famous three-volume 'Les méthodes nouvelles de la mécanique céleste..." (D.S.B.).
Ekelöf Cat. 1600. Poggendorff IV. 1178. $1,600.

Smyth's Observatory at Hartwell
His Attempt at a Standard for Recording the Colors of Stars

19. SMYTH, WILLIAM HENRY (1788-1865). The cycle of celestial objects continued at the
Hartwell Observatory to 1859. With a notice of recent discoveries, including details from the
Aedes Hartwellianae. London: printed for private circulation by John Bowyer Nichols and Sons,
1860.
FIRST EDITION. Large 4 to. Orig. cloth, rebacked with the orig. gilt spine laid down. ix, (1), 480
pp. Six engraved plates, one in blue & black, and numerous wood engravings in the text. Spotty foxing to some
plates (especially the first) and surrounding leaves; a very good copy.
William Henry Smyth and his son, Charles Piazzi Smyth (1819-1900), were both
observational astronomers. The elder Smyth published his first set of observations in 1844 (vol. 2:
The Bedford Catalogue). Towards the end of his life he supplemented it with a record of his
observations on double stars in the present publication. Also included is a complete account of his
observatory at Hartwell, its instruments, library, and personnel. A summary history of astronomy
and remarks on sections of his previous 'Cycle' precede the new observations. Smyth also provides
an extended account with quotations of the discovery of the new planet Neptune. This large volume
ends with an ode to the double-star gamma-Virginis. See King's 'Hist. telescope' for facsimile of the
Lancaster.
Offered with:
SMYTH, WILLIAM HENRY. Sidereal chromatics; being a reprint, with additions from
the "Bedford Cycle of Celestial Objects", and its "Hartwell Continuation", on the colours of
FIRST COMBINED AND SEPARATE EDITION, with addition of an appendix. Tall 8 vo. Orig.
cloth. 96 pp. Chromolithographed plate of 24 color gradations. PRESENTATION COPY to the Library of the
Chronological Institute of London "with respects of Admiral Smyth & Dr. Lee, Hartwell. 25 February, 1865"
Back in 1863, when Huggins and Miller were examining the spectra of stars, Smyth was preparing to publish a monograph on the science of star colour. He asked several seasoned observers, including Huggins, to examine binary pairs of contrasting colour and give their expert opinion on them. (B.J. Becker, 'Unravelling starlight', 2011, pp. 106-111). Admiral Smyth's color work thereby contributed to the eventual understanding of the cause of the differences in star color.

"...the first systematic accurate synthesis of celestial mechanics that an educated layperson could understand"


20. **Mechanism of the heavens.** London: J. Murray, 1831. FIRST EDITION. 8 vo. Contemp. speckled sheep, lxx, 621, (3, includes errata) pp. Woodcut text figs. Library withdrawn bookplate and their small call number label on the spine which is hardly noticeable having toned to the leather color; a very good copy.

The 'Queen of Nineteenth-Century Science', Mary Somerville, "...is best known for her work explaining the mathematical and scientific works of others. ...Her first book, published in 1831, was 'The Mechanism of the Heavens', which explained Pierre Simon Laplace's book on celestial mechanics, and added many of Somerville's own ideas. Celestial mechanics is best understood by people who have working knowledge of calculus, but Somerville made certain that intelligent lay people with no training in advanced mathematics could understand her book. She had approached the project of writing the book with some anxiety because she did not have a college education. Somerville was so fearful about the book's success that she insisted that her editors not think it destroyed. The book was a smashing success. It was the first systematic accurate synthesis of celestial mechanics that an educated layperson could understand." (Notable Mathematicians, 1997). P. Phillips, 'The Scientific Lady', 1990, pp. 113-114 where it is noted that the print run was limited to 750 copies. M. B. Ogilvie, 'Women in Science', 1986, pp. 161-166. M. Alic, 'Hypathia's Heritage', pp. 185-186. D.S.B. 1: 521-525. $1,800.

CHEMISTRY

A Nobel Prize Winning Doctoral Thesis


"In 1903, for the same thesis (the present memoir) that had barely earned him a passing grade in his doctor's examination, he won the Nobel Prize in chemistry." (I. Asimov, 'Biog. Encyclo. Sci.', 1972). These memoirs appeared in the supplement series to the 'Proceedings of the Royal Swedish Academy of Sciences'. Herein is the germ of the theory of electrolytic dissociation, the revolutionary concept of electrically charged atoms which ran counter to the century-old view of Dalton's structureless and indivisible atom. Few doctoral dissertations in science become landmark works, and of those, none have had such a lackluster beginning. D.S.B. 1: 296-302. Partington IV. 674-76. See: G-M 709. $1,000.

With the Rare First Edition of the First Volume


'The first complete edition of an important book on dyeing and calico printing, in which the author announced important discoveries. Born in Massachusetts... (Bancroft) emigrated to England, where he obtained an M.D. and in 1773 was elected F.R.S. At the outbreak of the American

FIRST EDITION. 12 mo. Contemp. speckled calf, spine richly gilt. xii, 495, (1, Macquer’s approbation & errata) pp. Minor dampstain on front free fly-leaf and title, front joint neatly repaired; a very good, crisp copy.

The scarce first edition of the French apothecary and chemist, Antoine Baumé’s manual of chemistry was influential having received two French editions and a reprint (1763, 1765, 1766), two English translations (1778, 1786), two German editions (1774, 1775), and two Italian editions (1783, 1785). Cole 54 notes it was "a compact introductory and review textbook covering the basis of all of the principal operations of chemistry and the substances treated therein." D.S.B. 1: 527. Partington III.90.III. Ferguson I.84. Neville I. 97. Wellcome II.118.

$1,000.

Photoluminescence - A Presentation Copy


FIRST EDITION. 4to. Later marbled boards. (12), 85, (1, blank), (1, imprimatur) pp. Title in red and black. PRESENTATION COPY with a two line inscription to G.B. Mazzacurati signed by the author as "A.". In lower blank margin of title, an old ownership entry and small stamp, light brown stain in upper inner margin of first three leaves; a very good, crisp copy.

An important book by the first professor of chemistry in Italy, the Beccari treatise on photoluminescence "...contains his observations on organic and inorganic materials, which he was the first to describe and classify." (Neville I.101-102). Beccari’s experiments with the Bolognian phosphor were quantitative leading to a better understanding of its properties. Harvey, pp. 156-158 & 324-327. Weeks (6th ed.), p. 514. Partington II. 339. Poggendorff I. 123. Ronalds, p. 40.

$2,400.

Important Treatise on the Chemistry of Iron and Steel


Duvan (p. 67) notes this book as "one of the rarest of Bergman’s writings." The director of the iron works at Bayard, Pierre C. Grignon (1723-84), has translated Johan Gadolin’s (1760-1852) doctoral dissertation of 1781 presented under Bergman (1735-84) and has added an appendix and four memoirs on the metallurgy of iron and related subjects. C.S. Smith in his ‘Sources for the history of the science of steel’ has written: "It was this edition that was largely responsible for the interest of leading French scientists in the problem of steel." Neville Lib. I. 121: "a milestone work of metallurgical chemistry." Bolton, 1st suppl., p.86. Partington III. 193. Neu 408.

$850.


FIRST EDITION IN ENGLISH. 8vo. Full antique style calf. xiv, (2), 382, (2) pp. Four folding engraved plates + 3 folding tables. William Cole bookplate, two library bookplates including the Royal College of Physicians, early engraved armorial bookplate, and dated ownerships in the 19th and 20th centuries. Plate I clipped by the binder’s knife (probably during its first binding) affecting the last line of figures of the lower row of affinity diagrams.

$1,500.
ANTIQUARIAN SCIENTIST

Translated by Thomas Beddoes, the Swedish chemist "... published his important tables of chemical reactions and advanced a simplified version of Macquer's classification of types of reactions. Fourcroy considered this to be one of Bergman's most important contributions." (Neville Lib. I. 123). D.S.B. 2: 7. Partington III. 184. Bolton I. 302. Cole 97.

FIRST EDITION. Two volumes in one. 8vo. Contemp. half lea. with marbled boards. (12), 276, (2, errata); (8), LIX, 392, (2, errata) pp. The contemporary ownership signature on each title of a J. Gahn. The Swedish chemist, J.G. Gahn (1745-1818), was closely associated with Berzelius, but the signatures have not been verified as his. The binding has edge wear and is lightly rubbed, internally there is some light spotty foxing and a few insignificant stains; overall, a very good copy complete with both errata.

"Berzelius' early book on animal chemistry (Föreläsningar i djurkemien), dedicated to the King of Sweden, was (at Davy's instigation) translated into English..." (Partington IV.146) by G. Brunmark as 'A view of the progress and present state of animal chemistry', 1813 and 1818 editions. A German translation followed in 1815. "Written as a textbook for his lectures, the book contains the results of his analyses of many animal substances." (Cole 146). Hagelin, 'Rare and important medical books in the library of the Karolinska Institute' (1992), pp. 142-143 with facsimile of the title page. Partington IV.147.VIIa. Bolton I. 308. Edelstein 266. Not in Duveen, Ferguson, Smith or Wellcome.

$850.

With the Rare Original Volume (1818) of the First Table of Atomic Weights

FIRST EDITION, (volume one is second edition). Six octavo volumes of text + a quarto volume of tables. Text volumes bound in mid-20th century three-quarter cloth with marbled boards, spines gilt. The important table volume is in contemporary half calf with marbled boards, spine gilt and with lea. label. Text vols.: (10), 726; (2), iv, (4), 640, (2, errata); xv, (1, errata), 564, (1, pub. prices for Berzelius' works); x, (565)-1300, 6, (1, pub. prices for Berzelius' works); (4), ii, 415, 416a-416c, 417-895, (1, errata), (1, pub. prices for Berzelius' works) pp. Table vol.: 99, 1 pp. Twelve folding engraved plates. The COPY of the distinguished 20th century organic chemist, Prof. Franz Sondheimer (1926-81), whose accomplishment of synthesizing an 18-membered ring annulene, a homologue of benzene, is commemorated in his bookplate present in each volume. The first 13 leaves of vol. 1 were cast short in the blank lower margins and were sometime remargined with old laid paper, 6 leaves in vol. 1 have old repaired tears (probably paper flaws); but generally, a very good set.

An entirely complete set of Berzelius' 'Lärbok' in its original Swedish, a classic of chemistry rarely encountered with the quarto 1818 'Tabell', the first table of atomic weights, a supplement to volume three according to its title page. Though Berzelius had reported atomic weights in 1814, here he gives the first extensive table ever published giving the atomic weights of 45 of the 49 elements then known. In addition, Berzelius gives the chemical composition and molecular weights of almost 2,000 compounds. The significance of Berzelius' 'Tabell', along with the associated 1818 volume 3 'Lärbok' text on atomic theory containing the determination of atomic weights and an electrochemical theory, was quickly recognized; the following year a French translation appeared at Paris. A facsimile of a page from the 1818 'Tables' can be found on page 189 of P. Whitfield, 'Landmarks in Western science', 1999. "'Lärbok' was a gigantic attempt to encompass the whole of chemistry in one textbook - a book that eventually consisted of six volumes. Of course such a work was not suitable for teaching purposes, in spite of its title, and it was probably used for the most part as a reference work." (A. Lundgren in 'Communicating chemistry', 2000). The complete original Swedish edition rarely appears for sale.


$1,500.

First Appearance in Print of Joseph Black's Chemical Lectures

BLACK, JOSEPH (1787-99). Lectures on the elements of chemistry... Edinburgh: Mundell, 1803.
Eighteenth century chemistry, using the eyes of an informed and reflective observer of that day.

The modern student of historical chemistry may thus use the 'Elementa Chemiae' as a window enabling him to take a backward look into ever a text-book of chemistry contributed to spreading a knowledge of the subject, raising its status, and enlarging its scope, that book was Boerhaave's...

The Welsh chemist, Thomas Henry, practiced as a surgeon-apothecary in Manchester. 'In 1772 he published an improved process for preparing magnesia... and this is reprinted in the present work... The researches of Priestley on carbon dioxide are mentioned (p. 41) as are those of Black (pp. 42-47) in detail. Henry first observed the use of carbon by plants. The book is an important eighteenth-century landmark in the chemistry of carbon dioxide, magnesium, and calcium compounds.' (Neville I. 620). Concerning the 'Appendix', Neville (I. 619) writes: 'Dated Manchester, 8 March 1773, this very rare 'Appendix' was clearly written and published after the 'Experiments and Observations', which is dated Manchester, 18 January 1773.' In these eight pages, Henry criticizes the magnesia preparation of Samuel Glass which he shows by chemical analysis is contaminated with caustic lime. "...(Henry) was undoubtedly one of the most important figures and deserves a niche in the industrial hall of fame." (Musson & Robinson, 'Sci. & tech. in the indust. revol.', 1964, chap.7).


The Genuine Edition with Boerhaave's Autograph

Boerhaave was professor of medicine and botany from 1709, and of chemistry from 1718 at the university at Leyden. He was the most distinguished teacher of his time... One of his most important works is the treatise on chemistry, which was based on notes of his lectures, but was afterwards revised by himself. (Ferguson). 'Boerhaave's 'Elementa Chemiae' at once became the standard textbook of chemistry, a position which it held until the end of the era of phlogiston. Chemical historians have united in paying homage to Boerhaave's treatise. Koppe... wrote that 'if ever a text-book of chemistry contributed to spreading a knowledge of the subject, raising its status, and enlarging its scope, that book was Boerhaave's'. The modern student of historical chemistry may thus use the 'Elementa Chemiae' as a window enabling him to take a backward look into eighteenth century chemistry, using the eyes of an informed and reflective observer of that day.
(John Read, 'Humour and humanism in chemistry', 1947, with reproduction of the title and the autograph signature). The book is divided into two parts, the first dealing with theoretical chemistry having a Newtonian emphasis, the second with practical chemistry. Also included is an early history of chemistry. Because of the importance of Boerhaave's lectures, many manuscript copies were made and two unauthorized published editions (1724 and 1727) appeared. These convinced Boerhaave to issue the genuine edition of his chemical textbook in 1732. Partington II. 743-744. Neville I. 168. Ferguson I. 112. Duveen, p.84. Bolton I. 322. Cole 164. $3,400.

32. **BOERHAAVE, HERMAN (1668-1738).** A new method of chemistry... To which is added, notes; and an appendix... By Peter Shaw, M.D., F.R.S. London: Longman, 1753.


Boyle on Desalination and Other Subjects

33. **BOYLE, ROBERT (1627-91).** Tracts consisting of observations about the saltness of the sea: An account of a statical hygroscope and its use: Together with an appendix about the force of the air's moisture: a fragment about the natural and preternatural state of bodies... To all which is premis'd a sceptical dialogue... London: E. Flesher for R. Davis, 1674.

FIRST EDITION. Small 8 vo. Contemp. speckled sheep, rebacked. A4, B-N8 (100 leaves including blank A1). Corners of covers worn, some spotting and browning, leaf I2 with torn away section of blank outer margin (paper flaw?); a good to very good copy.

Fulton 113: 'Boyle's omnivorous curiosity had become proverbial even during his lifetime, and none of his works illustrate his versatility of mind more strikingly than 'The saltness of the sea'. ...Boyle was much interested in the problem of rendering seawater fit for consumption and much of the present tract is taken up with an account of experiments designed to make this operation feasible for sailors.' The book consists of ten tracts including four on experiments with cold, one on measurement of the density of seawater, and three tracts concerning experiments with Boyle's hygrometer. Neville I. 212. Duveen, p.95. Ferguson Coll. I. 116. $2,850.


FIRST EDITION IN GERMAN and First Translation from the Original Russian. 8 vo. Contemp. half lea. with marbled boards, contrasting labels on spine. xii, 752 pp. Uniformly lightly browned, some edge rubbing to the binding; otherwise, a very good copy.

To the important Russian chemist, Aleksandr Butlerov, we owe our understanding "...that the particular arrangement of atoms in a molecule is responsible for the substance's physical and chemical properties." (A. Greenberg, 'A chemical history tour', 2000, p. 208). 'Butlerov was mainly a theoretician and he extended Kekulé's concepts of organic structure. He proposed that each organic compound has a unique configuration and he invented the term 'chemical structure'.** (Biog. Encyclo. of Scientists). Butlerov's text on organic chemistry, which replaced that of Mendeleev (1863 second edition), was published in Russian in 1864 and was first translated in 1868 into German. D.S.B. 2: 620-625. Partington IV. 548-550. Bolton I. 348. Not in Neville. $750.

Reprints Cannizzaro's Revolutionary Paper of 1858 - Presentation Copy


FIRST EDITION. 8 vo. Orig. printed wrapper, uncut. (4), 387, (3) pp. Wood engraved frontispiaint. PRESENTATION COPY to his "old friend in Palermo" (translation), Alfred Naquet (1834-1916), signed and dated by Cannizzaro at Rome 13 Dec. 1900. The French chemist, and later political activist, Naquet received his M.D. at Paris in 1859. First he was a professor at the Faculty of Medicine in Paris (1863) and then in Palermo (1864) where Cannizzaro was professor (from 1861) as well. Like Naquet, Cannizzaro was also involved in politics. Wrappers a bit worn at edges, tear in leaf 199/200 (no losses); a very good copy preserved in a robust cloth slipcase with a large leather label on the spine.
ANTIQUARIAN SCIENTIST

The collected edition of Cannizzaro's works on atomic and molecular theory, published on the occasion of his seventieth birthday. "...his most important work was the clear exposition of the significance of Avogadro's hypothesis as the basis for the determination of atomic and molecular weights. He first clearly defined the terms atom and molecule. This famous collection of important papers illustrates the development of a uniform and consistent system of chemistry. It begins in 1858 with his classic 'Sunto di un Corso de Filosofia Chimica'..." (Neville I.236). Scarce in its original state especially since the book is printed on thick paper and the wrappers are fragile. Honeyman Sale no. 577 - this copy, Partington IV.491. Bolton, 1st suppl., p.117. Edelstein 455. Smith Coll., p.99.


Very good in original printed cloth. Authorized English translation. $1,750.

Early Important Photographs of Spectra

36. [Early Photography]. CAPRON, J. RAND (1829-88). Photographed spectra. One hundred and thirty-six photographs of metallic, gaseous, and other spectra printed by the permanent autotype process... With an extra plate of the solar spectrum (showing bright lines) compared with the air spectrum. London: Spon, 1877.

FIRST EDITION. 8 vo. Orig. red cloth with a black-and-gold spectrum on the front cover. (4), 84 pp. Thirty-six autotype photographic plates + "extra plate" of two mounted spectrum photographs above detailed letterpress explanation of analysis and technique + a text woodcut of aurora. A very good copy.

"...Capron published an important work on 'Photographed Spectra' in which he gave, in a very easy and convenient form for reference, 136 photographs of metallic, gaseous, and other spectra, accompanied by critical explanations. For obtaining the spectra of the metals he employed a direct-vision prism of an inch aperture, with collimeter and camera, and with the spectroscope he obtained photographs of spectra of some forty metals... For the spectra of gases, three different spectroscopes were employed... The value of this work was fully recognized at the time, as it brought together so many spectra simultaneously before the eye..." ('Obituary', Monthly Notices of the Royal Astro. Soc., 1889). $1,500.

37. CAREY, GEORGE C. Chemistry as it is, compared with what it was: or, a systematic view of the present state of chemistry, with its application to the mechanical arts. London: William Cole, 1825.


A scarce and interesting chemistry not noted by Partington; not in Poggendorff, Duveen, Bolton, Edelstein, or Fenchl. The supplement, with its own title page, collects many practical chemical notices by various authors. Cole, 'Chem. Lit. 1700-1860', no. 229. Smith, p.100. Neville I. 238. $750.

38. CAVALLO, TIBERIUS (1749-1809). A treatise on the nature and properties of air, and other permanently elastic fluids. To which is prefixed, an introduction to chymistry. London: for the Author, 1781.

FIRST EDITION. 4 to. Half lea. with marbled boards, antique style. xii., 835, (1, errata), (8, index) pp. Three folding engraved plates and a folding table. Light browning along margins of title page from previous binding; a very good copy.

Cavallo's massive treatise on pneumatic chemistry, the largest English work on the subject at the time, "...deals with chemistry, hydrostatics and pneumatics, examines critically most of Priestley's experiments, and adds new work on the atmosphere and on fixed and inflammable airs. It accepts the phlogiston theory, but quotes Lavoisier's opinions. It also describes some of the extensions of the experiments by Ingenhousz on the influence of light on the growth of plants." (Partington III. 300). "...a judicious examination of contemporary work..." (D.S.B.). Bolton I. 357. Duveen, pp. 127-128. Cole 226. Neville I. 249. $1,100.

Henry Cavendish and Eudiometry - A Rare Presentation Offprint

The eudiometer for measuring the volume of gases was invented in 1775 by Landriani, who introduced the term eudiometry, and it was perfected by Volta in 1777. Fontana, to whom this offprint is presented and who is referred to within, made his own nitrous air eudiometer in 1775, which Cavendish preferred, and which “…won wide acceptance in northern Europe.” (D.S.B. 14:74). For several decades eudiometers were employed to help identify malarial and other insalubrious regions …hoping to correlate the reading of their eudiometers with the evident foulness of the air. No consistent correlations emerged. In 1805 Humboldt and Gay-Lussac put an end to the search by showing that the percentage of oxygen in unvitiated air was independent of source (Partington III. 321-323). “In ‘An account of a New Eudiometer’ Cavendish examined the great discrepancies in the results of various investigations on the ‘goodness’ of air as determined by Priestley’s method of measuring the contraction ensuing when air is mixed over water with nitrous gas (nitrous oxide). He refers to the Abbé Fontana eudiometer and showed that the differences resulted from variations in the method of mixing gases and the time the gases are allowed to stand before shaking with the water and nitrous air from copper and nitric acid…” (Partington III. 321-323). George Wilson in his ‘The life of the Hon’ble Henry Cavendish’ for the Cavendish Society in 1851 (pp. 215-231) treats this important paper in detail. A Cavendish eudiometer is preserved at St. Patrick’s College, Ireland. Cavendish published 18 pages in the Phil. Trans. of which 10 are chemical. Presentation copies from the reclusive Cavendish are very uncommon. See: PMM 217 for a notice of eudiometry, Fontana, and Cavendish. $3,000.

First Chemical Periodical Published in English

FIRST EDITION. Two volumes. 8 vo. Orig. plain wrappers with orig. printed spine labels. Uncut. (4), lvi, 298; (4), 484; (pub. dat., dated 1823) pp. A fine set in original state.

“Chaptal is noted as a chemical manufacturer and for his part in building French industry after the revolution when he was Minister of the Interior, 1801-1804. …This is a book that had some impact on agricultural chemistry. It includes many practical procedures such as preserving foods, making cider, beer and wine, making butter and cheese, etc. as well as the chemistry of soils, fertilizers etc.” (Cole 250). The English translation was popular in America with numerous editions from 1835 to 1854. Bolton I. 361. Partington III. 558. Neville I. 259. $975.

41. CHEMIST, THE. Volumes I & II (all published). London: Knight and Lacey, 1824-25.

“The only volumes of the first periodical publication in English on chemistry.” (Duveen, p. 131). Short-lived as it was deemed “not likely to pay”, nevertheless, it provides a useful snap-shot of the state-of-the-art of chemical science circa 1825 with numerous valuable illustrations of chemical apparatus of the day. The preface to volume one, besides providing some details on the objectives of the weekly publications, contains an overflowing appreciation of Sir Humphry Davy as the leading living chemist. Bolton questions the suggestion that the journal was edited by Mongredieu, while more recently, W.H. Brock in his ‘Norton history of chemistry’ (1993) gives Thomas Hodgkin as the editor. Sothean/Zeitlinger, 3rd suppl., no. 2528 points out that the second volume (probably published in a smaller number) is “specially rare” and is nearly always missing its title page and notice leaf. Dr. E. Weil, Cat. 27, no. 226. Bolton I. 1096.127. Smith Coll., p.109. Edelstein 2700. Neville I. 270.

FIRST EDITION. 8 vo. Contemp. half lea. with marbled boards. (4), xxi, (3), 256, (1, errata) pp. Piece of leather (1 " x 3") missing from front cover; otherwise, a very good copy.


$750.


As director of dyeing at Gobelins, Chevreul taught a course of chemistry there from 1826 to 1840. The 30 lessons appeared in print in 1829 to 1830 and covered nearly all of chemistry with the last two lessons wholly on dyeing. Chevreul's "...initial studies were on chemical aspects of dyes and dyeing, attempting to place the art of dyeing on a more rational basis than the complicated and empirical procedures then employed..." (D.S.B.). Neville I. 272. Bolton III. 241. Edelstein 2981. Partington IV. 247. Biblio. Tintoria 206.

First Issue in Original State of John Dalton's First Book

44. **DALTON, JOHN (1766-1844).** Meteorological observations and essays. London: W. Richardson, J. Phillips, and W. Pennington, 1793.

FIRST EDITION, first issue. 8 vo. Original boards, old rebacking with paper label on spine. Uncut. xvi, 280 pp. Uniformly lightly browned; about a very good copy. Preserved in a clam-shell case with raised spine bands.

The scarce first issue of the first edition (2nd issue, also 1793 but undated; 2nd ed. - Manchester, 1834) of Dalton's first book. "They contained, as the author remarked 40 years later, the germs of most of the ideas afterwards expanded by him into discoveries. A prominent section comprised the result of six years' auroral observations. He had detected independently the magnetic relations of the phenomenon, and concluded thence auroral light to be of purely electric origin, and auroral arches and streamers to be composed of an elastic fluid of a ferruginous nature existing above our atmosphere. This hypothesis was further developed by Biot in 1820... The essay in the same volume was remarkable for the then novel assertion that aqueous vapour exists in the air as an independent elastic fluid, not chemically combined, but mechanically mixed with the other atmospheric gases." (A.M. Clerke quoted in Sotheran/Zeitlinger, vol.1, no.930). "...(It) includes his ideas on evaporation, which contained the seeds of his later chemical atomic theory. In the appendix... (he) provided the first statement of what is now known as Dalton's Law of partial pressures..." (H.F. Norman Lib. Cat. 574). Smyth 1. Mottelay, pp.307-308. Wheeler Gift Cat. 582. Cartrell 128. Neville I. 321. Duveen, p. 644. H.F. Norman Lib. Cat. 574.

$2,500.

A Presentation Copy of John Dalton's Very Rare Second Book


FIRST EDITION, very rare. 8 vo. Contemp. tree sheep, rebacked with the orig. lea. label preserved. (2, joint title page), 29, (1, blank), 28, 14, (2, blank), 70, 9, (1, blank) pp. An engraved hand-colored map of England and Wales + a folding engraved plate. PRESENTATION COPY to his life-long friend and fellow Quaker, Dr. John Fell, F.R.S. of Ulverstone with a four-line inscription in Dalton's hand. Fell published in 1800 in Nicholson's journal a paper on the use of a pocket Ribband electrical machine. It is recorded that Dalton also presented to Fell his 1801 'Elements of English grammar' (E.C. Patterson, 'John Dalton and the atomic theory', 1970, pp. 76-77 partially reproducing Dalton's letter of presentation). A letter from Dalton to Fell (5 April 1901) with scientific content is in the Science Museum Library, London, see: A. Thackray, 'John Dalton', 1972, pp. 149-150. There are short errata corrections by Dalton on four pages. In a small old envelope mounted to the rear pastedown is a carte de visite photograph of an etched portrait of Dalton by the famous studio Sarony, Photo-grapher to the Queen, Scarborough and Leeds (based on printed name and address on the photograph's verso, it dates c. 1865). Below the portrait in the photo is the identical caption as that in Smyth 460 (p. 77), another etching by the Manchester engraver, James Stephenson (1808-86). A very good, crisp copy.

FIRST EDITION. 8 vo. Contemp. three-quarter calf with marbled boards, rebacked with the original lea. label preserved. xiv, (2, errata), 511 pp. Twelve engraved plates. The COPY of Henry B. H. Beaufay, F.R.S. (1795-1851) with his engraved armorial bookplate. Henry, the son of Mark Beaufay (1764-1827), the astronomer and physicist, published his father’s massive ‘Nautical and hydraulic experiments’ (1834). Philanthropist, businessman, and MP, Henry had a large library of which part was sold at auction in 1909. Boards a bit rubbed; a very good, crisp copy.

In 1812 Davy published the first connected treatise on physical chemistry which “…incorporate(d) the results of the important discoveries made by the author. These include(d) a description of fluor spar, the origin of fluoric compounds, the naming of hydrofluoric acid, and a modification of Lavoisier’s classification of the elements." (Sothean/Zeillinger, 2nd suppl., no. 10591). Davy also included an account of his contributions to the new science of electrochemistry which he had helped found. Fullmer 1812: 6. Neville I. 356. Bolton I. 390. Partington IV. 35. $1,850.


FIRST AMERICAN EDITION. 8 vo. Orig. boards with paper label on spine. 296 pp. Twelve engraved plates. Signature of a Thomas J. Paschall dated March 5, 1813 on verso of title. Wear to spine paper and the joints, but overall the book is crisp and well-preserved with only uniform light browning.

Published the same year as the London original, this is the only American edition of Sir Humphry Davy’s classic text, the earliest connected treatise on physical chemistry. Bolton I. 390. Cole 345. Smith Coll., p.140. Fullmer 1812: 6R. Not in Neville. Scarce, especially in the original state. $975.

"An important book that introduced the era of scientific farming and the use of 'chemically balanced' fertilizers. ...Davy, the first to use the term 'agricultural chemistry,' is concerned with only a limited number of elements. ...Davy here recognizes the importance of soil analysis and the measurement of its physical properties". (Neville I.333). Fullmer 70. Partington IV.35. Bolton I.390.

$750.

The Herculaneum Papyri and Sir Humphry Davy

DAVY, HUMPHRY (1778-1829). On an August day A.D. 79 Mt. Vesuvius violently erupted burning Herculaneum in alternating pyroclastic flows and surges. In a quickly consumed oxygen atmosphere a covering of pumice, ash and rocks over the Villa dei Papiri and its library charred and dried the papyrus book rolls within. Not until the early 18th century was the first excavation begun after accidental discovery by well diggers of the buried Roman town of Herculaneum next to the modern Ercolano (formerly Resina). The Villa dei Papiri was discovered in 1750 and the first of nearly 2000 scrolls in 1752. From this point to today numerous attempts to read the book rolls by opening the charred papyrus scrolls, or otherwise employing modern technological imaging methods, have been tried with some successes. Through the eighteenth century an unrolling machine which operated very slowly was built by Father Antonio Piaggio revealed the minor works of a member of the Athens school of Epicurean thought, the Greek poet and philosopher, Philodemus. Overall there has been great excitement over the scrolls and a hope that lost masterpieces by classical writers would be recovered. The first Herculaneum text was published in 1793.

In the early nineteenth century the French and English became involved in working with the valued scrolls, in the British case under Rev. John Hayter and with the instigation and at the expense of the Prince of Wales (later King George IV), and in the French case as a consequence of the French invasion by Napoleon. Between 1802 and 1806, Hayter oversaw the unrolling of about 200 scrolls. In Paris and in London further attempts on working with scrolls removed to both cities engaged prominent scientists including in England Thomas Young, Sir Joseph Banks, and Humphry Davy. They tried various gases and liquids, and in the case of Banks, a new unrolling machine. A second group of 16 scrolls arrived in England in 1816 and Davy was invited to work with them. His first attempts were mechanical. Thereafter sent by the British government and patronized by the Prince Regent, Davy with Lady Davy travelled to Italy in 1819 to conduct experiments on the manuscript scrolls. 'He arrived at Naples in the autumn, and began his researches on the Herculaneum manuscripts... His first results were sufficiently encouraging to induce him to make some prolonged experiments with a view of discovering a method of unfolding them. He found that the papyri had suffered not so much from fire, as was believed, as from a gradual change in vegetable structure, similar to that which accompanies the transformation of vegetable matter into lignite. He managed to unroll a number, and an account of his results was communicated to the Royal Society in 1821. But from the fragmentary character of the papyri these were found to be of little value to literature. Subsequently, difficulties were put in his way by the curators of the museum, and ultimately his investigations were abandoned, not without some little exhibition of temper and resentment on his part. ...He left Naples in the spring of 1819..." (T.E. Thorpe, 'Humphry Davy: Poet & Philosopher', 1896/2007).

John Ayrton Paris writes on this subject in his 'The life of Sir Humphry Davy' (1831): 'It occurred to him, that as chlorine (Davy had demonstrated its elemental nature) and iodine do not exert any action upon pure carbonaceous substances, while they possess a strong attraction for hydrogen, these bodies might probably be applied with success for the purpose of destroying the adhesive matter, without the possibility of injuring the letters of the Papyri...' At this point Paris recounts much of the details found in Davy's 1821 Philosophical Transactions paper and in the

After Davy's efforts, a chemical approach was not tried again for decades, however unrolling continued with Piaggio's machine.

Offered below are key documents concerning Davy and the Herculaneum papyri. Interestingly (1) was sold at auction to a New York bookseller in 1978 independently of (2) which appeared at auction more recently in London. Here they are properly paired once again. (3) accompanied (2). Some dust-soiling to the Davy report, but all is in very good condition. The letters and manuscripts are preserved in a fine linen-covered clam shell box with a leather label on the spine.

1. A.L.S. written from Rome, 12 February, 1819, from Humphry Davy to William Richard Hamilton (1777-1859), Under-secretary of State (1804-22) at the Foreign Office, London and an archaeologist. 4 to. 8 pages (approx. 1400 words) addressed on the last leaf, with postmark and docketing as received March 2, and marked 'Private' by Davy. This is the extensive cover letter to Davy's official report on the state of the Herculaneum manuscripts. Davy gives particulars on his stay in Naples and at the museum along with details of his experiments with the papyri. He gives his estimate of the time and personnel it will take to work with the scrolls and fragments. This includes specific details on various salaries and costs for a total likely expenditure of something under 3000 pounds. For example, this includes 400 pounds for the 'Greek Scholar' plus 200 for travelling expenses. Davy writes he will return to Naples in March when he hopes to meet the King and Sir William A Court who he just missed on arrival. Davy comments on the MSS contents - Epicurus and Lucretius - as likely distasteful to the Orthodox Roman Catholic beliefs. Before concluding his "very tedious letter", Davy considers the possible arrangements for a further visit to Naples and gives Hamilton some archeological news from Rome.

2. [Manuscript]. Report on the state of the Manuscript of Papyrus found at Herculaneum. Folio. 5 pages (approx. 3000 words). In a secretarial hand dated Feb. 12, 1819 at Rome at the end, and on page 6 in Davy's hand: "A duplicate copy of a Report on Herculaneum MSS by H.D." along with "Rec'd at the Foreign Office, March 2/19 by Stratford Cuning" (1786-1880), the English envoy, ambassador, and MP. This is Davy's official report to the British government referred to in (1). Another copy was sent to the president of the Royal Society, Sir Joseph Banks, who passed it on to Dr. Marret. Prof. William T. Brande received it from Marret and quickly had it published in the Quarterly Journal of Science (vol.7, pp. 154-161, 1819; see Fullmer 1819:1). This displeased Davy since he considered it a private communication. Very slight differences can be found between this manuscript and the published version. In 1821 (Fullmer 1821:5) an authorized paper by Davy on Herculaneum papyri appeared in the Philosophical Transactions.

3. A.L. from the Keeper of the Royal Museum, Portici, Piozzo Paderni, to an unnamed recipient, 6 Jan. 1806. Folio. 3 pages (approximately 750 words). The letter refers to the accompanying document: Notamento di tutti li Papiri Ercolanesi svolti sotto la Direzione del Sig. le De Giovanni Hayter da Genne: 1802 a tutto li 6 di Gene. 1806. Folio. 4 pages, in the same hand as the letter and signed at the end, Custode del Real Museo Erculaneo, Piozzo Paderni. Paderni at the outset hopes a letter of some months ago entrusted to Colonel Layard was received (likely by William R. Hamilton of the British Foreign Office). He gives considerable detail on the recently discovered incomplete Latin epic poem (MS no. 817 in the document's list). Paderni believes it may be attributed to Varius offering his evidence and supportive analysis. Paderni concludes by noting MS no. 1061, the last on the included list, a mathematics fragment by Demetrius on the Bisection of Rectilinear Angles. He emphasizes as a bit of self-promotion the types of manuscripts yet to be unrolled and read, both in Greek and Latin, in various named subject areas. The list itself contains content titles, where known, of 187 manuscripts.


A Presentation Copy

Faraday influenced by Wollaston's unsuccessful experiment, as demonstrated to Davy in 1821, on the rotation on its axis of a wire carrying a current when approached by a magnet, succeeded in 1823 at showing the rotation of a wire carrying a current round the pole of a magnet in a cup of mercury in which the wire dipped. Faraday's results prompted Davy to investigate the movement of mercury when a strong current was passed through it and the effect of the presence of a magnet. Davy credits Wollaston's experiment as being prior to Faraday's work, a matter over which Wollaston's friend, Henry Warburton, F.R.S. (see item 51) first opposed Faradays election to the Royal Society. Wheeler Gift 2566. Fullmer 1823: 1. $1,250.

Presentation Copy to Henry Warburton, Esq.


OFFPRINT from the Phil. Trans. 4 to. Blue-grey boards with paper label on spine. t.p. + 7 pp. Brande’s printed statement on priority of offprints on verso of title. PRESENTATION COPY with the author’s inscription. Once folded probably for posting, several clean knife cuts repaired (no losses), even toning; a good to very good copy.

Davy influenced by Wollaston’s unsuccessful experiment, as demonstrated to Davy in 1821, on the rotation on its axis of a wire carrying a current when approached by a magnet, succeeded in 1823 at showing the rotation of a wire carrying a current round the pole of a magnet in a cup of mercury in which the wire dipped. Faraday's results prompted Davy to investigate the movement of mercury when a strong current was passed through it and the effect of the presence of a magnet. Davy credits Wollaston's experiment as being prior to Faraday's work, a matter over which Wollaston's friend, Henry Warburton, F.R.S. (see item 51) first opposed Faraday's election to the Royal Society. Wheeler Gift 2566. Fullmer 1823: 1. $1,250.

Presentation Copy

52. DAVY, HUMPHRY (1778-1829). Six discoveries delivered before the Royal Society London: John Murray, 1827.

FIRST EDITION. 4 to. Contemp. calf, once rebacked with orig. spine laid down. xi, (1), 148 pp. Bookplate of Sir Edward C. Bullard (1907-80), F.R.S., who studied under Rutherford and became a distinguished geophysicist. PRESENTATION COPY inscribed by Davy on the half-title. Scattered spotty foxing, the binding is worn but intact; a very good copy.

“Davy’s 'Discourses' from 1820-6, during his term as president of the Royal Society. A valuable work, it includes the awarding of the Royal and Copley medals to many of the fellows for their important contributions: e.g. J.F.W. Herschel, Edward Sabine, John Pond, Peter Barlow, Arago, and John Dalton.” (Neville I.342). Fullmer 1827: 1, (850 copies printed). Bolton I. 391. Cole 350.

Bound with:


FIRST EDITION. viii, 522, xci, (1) pp. Contemporary annotations including one which cites talking with Robert Brown. This is initialed 'EH', possibly Everard Home who was F.R.S. (1807). Adherence to flyleaf affecting the last two letters of 'History' in title, gutter corner tears to first two leaves (no losses); otherwise, a very good copy.

“Thomson was elected a fellow of the Royal Society in 1811 and in 1812 published this excellent history of the society, which is extensively documented with references to original sources...’ (Neville I.549). Bolton I. 161. Cole 1276.

Bound with:


FIRST EDITION. 12 pp. A very good copy. $1,600.

American Revision of Heinrich Rose's Chemical Tables

ANTiquarian Scientist

FIRST EDITION. Tall 8vo. Orig. stamped black publisher’s cloth with gilt title on front cover. 69 pp. PRESENTATION COPY inscribed by the Author and with Parker Cleveland’s woodcut bookplate. Cleveland (1780-1858), the first professor of chemistry at Bowdoin College, is generally accorded the title of ‘Father of American Mineralogy’ (see item 109a). Top of spine a bit chipped; a very good, crisp copy.

Though William P. Dexter attained an M.D. at Harvard (1842), his main interest was chemistry, in particular in the work of the German chemist, Heinrich Rose (1795-1864), the discoverer of niobium. Independently wealthy, he conducted research in his home laboratory. His chemical education was enhanced by studies in Germany with Rose, Wöhler, and Bunsen. Dexter’s English version and revision of Rose’s ‘Handbuch der analytischen chemie’, (Berlin, 1829 and many editions and translations). On Dexter: Miles & Gould, ‘American chemists and chemical engineers’ (1994), pp. 62-63. Bolton I. 399. Not in Neville, Cole, Smith or Edelstein. $750.

A Presentation Copy of the First American Book on Dyeing

54. [DOSSIE, ROBERT] (1717-77). The elaborately laid open, or, the secrets of modern chemistry and pharmacy revealed. London: J. Nourse, 1758.


An American Chemist's Copy of a Classic of French Chemistry


FIRST EDITION. 12 mo. Contemp. sheep, viii, (9)-139, (3, index), (1, errata), (1, blank) pp. PRESENTATION COPY with the author’s two-line inscription on the title to a Mary Abbott. This book is usually found with the signs of its practical use. The period binding here is in sound condition with only minor signs of its age. Internally there is the expected scattered staining, the edges of some pages thumbed, and the signatures no longer even but still tight in the binding.

Asa Ellis’ book on dyeing is the first such manual on the subject written and published in America. "In this book he reveals the new revolutionary spirit in America which was showing up not only in politics but also in science and technology... his information on dyestuffs is extremely detailed... finally, with a strong feeling for the principle of 'Made in America' Ellis devoted his last chapter to the subject of America producing its own dyestuffs." (S.M. Edelstein, ‘Yankee dyers’, American Dyestuff Reporter, Dec. 5, 1955). This important book is particularly rare in presentation. It is clear from a 1912 note on the front pastedown that this book had been passed down in the Abbott family. The possible recipient is a Mary Abbott, born in Brookfield in 1782. Rink 1837. Edelstein 3018. Not in Neville, Bolton, Cole or Smith. $3,250.


FIRST EDITION. Two volumes. 8 vo. Contemp. half calf with marbled boards, rebacked, the bindings signed in gilt. "Hector Bossange a Paris." xi, (1), 405; (4), 443, (1, errata) pp. Six folding engraved plates. The COPY of Josiah P. Cooke (1927-94), the important 19th century American chemist (the 1914 Nobel laureate in chemistry, Theodore W. Richards (1865-1928), was his student and collaborator). Early in Cooke’s Harvard career, he spent time in Europe where he acquired chemicals, apparatus, and books. The books were characteristically bound as here by Bossange, Paris. A fine, crisp set.

The great French chemist, Gay-Lussac began in 1808 his fruitful collaboration with his friend, Thenard. They developed a method of making sodium and potassium in quantity introducing their use as reagents. Previous to the chemical method, they used the large voltaic battery (illustrated in the plates) which Napoleon had given to the Ecole Polytechnique, but were only able to obtain small quantities of the reactive metals. These researches, previously reported in papers, along with

"...masterly summary of contemporary organic chemistry..."

57. **GERHARDT, CHARLES (1816-56). Traité de chimie organique. Paris: Didot, 1853-56. FIRST EDITION. 8 vo. Contemp. three-quarter leather with marbled boards, 3 volume set. Rebacked with the orig. spine laid down and vol. 4 rebacked very closely matching the set. (4), iii, (1), 848; (4) 976, (1, errata); (4), 1008; (4), 1110 pp. The COPY of the American chemist, Josiah P. Cooke (1827-94), with his bookplate in each volume. Cooke is regarded as the founder of the chemical and mineralogical departments at Harvard where he was Erving professor. He did basic work on determining the atomic weights of elements, and his student, Theodore W. Richards (1868-1928), who collaborated with Cooke and followed the line of his researches, was awarded the 1914 Nobel Prize in chemistry, the first American to be so honored. A fine, crisp set.


$1,100.

Foundation of Chemical Thermodynamics
The Phase Rule

58. **GIBBS, J. WILLARD (1839-1903). Graphical methods in thermodynamics of fluids. Bound with: A method of geometrical representation of the thermodynamic properties of substances by means of surfaces. Bound with: On the equilibrium of heterogeneous substances. (New Haven: published by the Academy, 1873, 1873, 1874-78). FIRST PRINTING of the chemical thermodynamics in a volume formed in the period, and like others recorded in its period black cloth, they are identical bindings with gilt spine title 'Thermodynamics Studies - J.W. Gibbs.' The volume is composed of extracts from the 'Trans. Connecticut Acad. Arts & Sciences.' The fact that Gibbs intended a single volume reprint version of these works is noted in his posthumous 1906 'Scientific Papers', see volume one, pp. vi and 418. Perhaps the present volume, and others like it, were prepared to fulfill the requests received for these thermodynamic papers that could not be met with the limited stock of offprints available; see Gibbs offprint distribution tables in the appendix of L.P. Wheeler's 'Josiah Willard Gibbs', 1951 or 1952, though there is no mention of the existence of these black cloth volumes. The present volume has these unusual characteristics: (1) 'Graphical methods' has four and a quarter leaves at the end of the paper in a period secretarial hand completing the text, (2) 'Geometrical representation' has one and a half leaves in the same hand at the beginning of the paper competing it, and (3) the first leaf of Part I of 'Heterogeneous substances', which begins on the verso, is mounted to a leaf covering the text on recto to an unrelated journal paper. All of these changes are neatly period done on paper closely matching the original printed text paper and have been a part of the volume since Gibbs' day. In addition there are a small number of pencil errata at the beginning of Part I which correct errors and change the meaning of the statements printed. Only one of these changes is in the brief errata list printed at the end of Part I. Incidentally, the errata in Part I and II are not reprinted in the 'Scientific papers' of 1906 (see below), but are corrected within the new setting of the text. Also the additional pencil corrections referred to in the present copy are not in the reprinted text. In summary, the present volume represents an apparently unstudied version of Gibbs' key works made up and likely distributed, much as were his offprints, by Gibbs himself. Certainly further elucidation would be a worthy undertaking.

Three volumes in one. 8 vo. Orig. pebbled cloth, rebacked with the orig. spine laid down. Gilt title and author on spine. Orig. speckled brown edges. (309) - 338, (9, manuscript); (3, manuscript), 383-404; (108)-248, (343)-524 pp. Text woodcuts. Light uniform browning; a very good copy.

'Willard Gibbs is, in my opinion, one of the most original and important creative minds in the field of science America has produced.' (A. Einstein). The Connecticut Academy consisting of only 100 members at the time with membership dues of only $5.00/yr., neither had the funds to
ANTHONY SCIENTIST

publish an extensive and mathematically complicated paper as Gibbs' 'Heterogeneous substances', nor did anyone on the publication committee profess to understand it. The paper was published with funds raised for the cause; A.E. Verrill, the Academy's president, said at the time: "...we know Gibbs and took his contributions on faith." Many thought then only one man could understand the work: Maxwell. Gibbs succeeded "...in laying the basis of physical chemistry. In a style difficult for his colleagues to follow, he outlined the conditions determining the equilibrium attained by increasing entropy in a thermodynamic system. Gibbs evolved the 'phase rule' or law determining the number of physical phases or states possible to a specific chemical system in equilibrium." (Heralds of Science 49. Grolier/Science 100, no. 40. Milestones of Science, no. 84. Evans, Epochal Achievements, no. 60. Biblio. mechanica, p. 138.

$7,500.


FIRST EDITION IN GERMAN AND FIRST EDITION IN FRENCH. Two volumes. 8 vo. Orig. cloth xiv, (2, errata), 409; xii, 211, (1), 16 (pub. ads) pp. Text figs. The German volume has a small chip missing from the lower spine just below a small library label, blindstamp on title and withdrawn label on front pastedown; a good to very good copy. The French volume is uniformly lightly browned and the spine is a bit faded; a very good copy.

Gibbs' important pioneering work in thermodynamics is translated into German by Wilhelm Ostwald (1853-1934; Nobel prize, 1908) and into French by Henry Le Chatelier (1855-1936), famous for the principle concerning chemical equilibrium named after him.

$950.


FIRST EDITION. Two volumes, vol. two unopened. Tall 8 vo. Orig. cloth. xxxiv, 434; (2), 284 pp. Photogravure frontispiece of Gibbs + text figs. Some minor scuff marks to cloth; a very good set.

This is the valuable well-produced first appearance of Gibbs' papers which were reprinted in 1928 with the fine portrait here changed to a half-tone.

$750.

"The first comprehensive English work on the blowpipe..."


FIRST EDITION. 12 mo. Orig. printed green boards, rebacked with closely matching paper and the remains (about 3/4) of the original spine mounted. Uncut. xvi, 308 pp. Engraved title page as well as a printed one + 4 engraved plates + illus. of apparatus on the front and rear boards. Spotty foxing to plate 1 (as frontispiece), the engraved title, and the plates; otherwise, a clean and crisp copy.

'The first comprehensive English work on the blowpipe: the earlier books of Clarke (London, 1819) and Berzelius (London, 1822) having dealt only with the gas blowpipe and mouth blowpipe, respectively. Griffin gives a history of the use of blowpipes (pp. 1-11)...' (Neville I. 551 with facsimile of frontis and engraved title). J. J. Griffin was first a bookseller and publisher in Glasgow, then he founded a long-lived firm offering chemical apparatus in London. He wrote a number of chemical books right up to the year of his death. Bolton II. 190. Cole 558. Partington IV. 277.

The Discovery That Put American Chemistry on the Map

Robert Hare's Oxhydrogen Blowpipe with a Related Small Collection


FIRST EDITION, very rare. 8 vo. Orig. blue-grey wrappers, stitched as issued. 34 pp. A folding engraved plate containing 8 figures, headed 'Hydrostatic Blow-Pipe' and described 'Engraved for the Chemical Society of Philadelphia by James Akin after Drawings made by himself from the Originals in ye Inventor's possession'. This information is not reproduced in the complete reprint in Edgar F. Smith's 'Chemistry in America' (1914) where the arrangement of the plate is also altered. PRESENTATION COPY with Hare's 4-line holograph inscription on the title to his aunt, Mrs. Eliza Powell. Her name is also in Hare's hand on the front wrapper. Foxing to the plate; a very good copy in its original state.

$1,000.
and minerals, but more so his "gas blowpipe, by the aid of which, the character of infusibility is for
manner, that it 'poured out like water on every side'
never banished from the Sciences of Chemistry and Mineralogy. I have melted Platinum in such an
invention. This elicited a dispute which continued even after Clarke's death (1822).

In which he presented his very similar apparatus as original without acknowledging Hare's earlier
chemist and mineralogist, Edward D. Clarke published in 1819 his text entitled 'The Gas Blowpipe' in
oxyhydrogen blowpipe with a publication of his own experiments with the apparatus. The English
early in his career worked in Hare's chemical laboratory, supports Hare's work with the
state of Hare's oxyhydrogen blowpipe pamphlet

inscription from Hare. Hare's advance is noted in many sources including James Kendall's 'Great

discussions about the controversy with Clarke along with Hare's defense (first pub. in 1820, see Cole
illustrated his blowpipe and its use, and noted that in the Appendix (pp. 19-32 with plate) is a
description of the controversy with Clarke along with Hare's defense (first pub. in 1820, see Cole 597).

For his great discovery, Hare was awarded in 1839 the very first Rumford Medal of the
American Academy of Arts & Sciences. Four letters and an original drawing (5) written by Robert M.
Patterson, as Director of the Mint of the United States (1835-51), to Rumford Professor Daniel
Treadwell at Harvard documents the particulars of the design and striking of the medal. In the Dec.
5th letter, Patterson informs Treadwell that Moritz Furst would execute the design and their Chief-Coiner, Adam Eckfeldt, would sink the dies and strike the medal. Patterson breaks down the cost in gold and silver, and suggests a total charge would not exceed $1,000. In the next letter, Patterson mentions the two portraits of Rumford in the Philadelphia Museum that Furst can access for the medal’s obverse and comments on Treadwell’s suggestion for the lettering on the reverse. He suggests an alternative and encloses a precise ink drawing illustrating his design for the reverse of the 65 mm diameter medal. It reads: “American Academy of Arts and Sciences / Rumford Medal/ for discoveries in / Light and Heat / Awarded to / Robert Hare, M.D. / for his / Compound Blowpipe / 1839”. The letter of Jan. 30 confirms receipt of $100 for the advance to Furst and the “legend” for the reverse. By April 12 Patterson has received another $300 and remarks that the reverse die is finished and will be hardened in a few days. The medal was struck in pure gold. An extant 1873 medal weighs 458.9 grams.

Finally, in (6) is Hare’s further development of his blowpipe with new experiments and a reiterated defense of his priority.


Three Offprints of William Henry Papers Including the Classic: Henry’s Law of Gases


OFFPRINTS from the Philosophical Transactions. Three volumes in one. 4 to. Linen-backed blue boards, paper label on spine, antique style. t.p., 15, (1, blank); t.p., 3-16 + engraved plate by Base; t.p., 3-11, (1, blank) pp. PRESENTATIONS COPIES, the first and third offprints have holograph inscriptions by Henry to George Lee. Though the second paper is not inscribed, all three have the appearance of having been together and they were obtained from the same source. The second and third papers have on the verso of their titles the printed statement implying that offprints precede journal appearances. George Lee (1761-1826) was a partner in the great Manchester cotton-spinning firm of Philips and Lee, noted in Mussen & Robinson, ‘Sci. & tech. in the indust. revol.’ 1969, pp. 99-100 and under Henry in Partington III.825. Henry, from Manchester, also owned a chemical works there. Lee assisted Henry in his experiments to improve coal-gas lighting. A very good, crisp set.

The English chemist, William Henry “…discovers (1803) that when a gas is absorbed in a liquid the weight of the gas dissolved is directly proportional to the pressure of the gas over the liquid. Formally stated in 1808, this is later termed Henry’s Law. It contributes directly to the atomic theory of John Dalton who extends the law to mixtures of gases, in conjunction with his own Law of Partial Pressures.” (C.L. Parkinson, ‘Breakthroughs’, 1985, p. 243). The 1797 offprint is Henry’s first paper which presents “…a refutation of William Austin’s claim to have shown that carbon was not an element (1789).” (D.S.B.). The last offprint concerns Henry’s new experiments undertaken “…after the classic researches of Gay-Lussac and Thénard in France and of Davy in England had provided the evidence for the elementary nature of oxymuriatic and its combination with hydrogen in muriatic acid…” (D.S.B.). Henry’s work appeared to favor the new views. Neville I. 621 offprint. C.A.

A Presentation Copy


FIRST EDITION. 4 to. Contemp. speckled calf, old rebacking preserving the orig. tea. label. (6), (iii)-xi, 696 pp. A folding engraved plate. PRESENTATION COPY to John Davidson with Hutton’s large holograph inscription. John Davidson, Esq. of Stewartsfield was, according to John Playfair in his ‘Biographical Account’ (1803) of Hutton, an old and intimate friend of James Hutton. The famous portrait of Hutton by Sir Henry Raeburn (1756-1823), now in the Scottish National Portrait Gallery, was painted for Davidson. Engraved armorial bookplate of The Right Honorable Sir G. Warrender, Baronet. A bit of wear and rubbing to the binding, occasional light spotty foxing; but a sound very good, crisp copy.
Though best known for his epochal work in geology, *The theory of the earth* (1785/88/95), Hutton contributed to a number of topics in the physical sciences. That work is gathered in this large volume dedicated to his best friend, the man who delivered before the Royal Society of Edinburgh on Hutton's behalf, Hutton's first lecture (1785) on his theory of geological time, the distinguished Joseph Black. The book "...is of considerable interest to the historian of science. The conclusions he reached in this work were often original and sometimes supported by experiments he had carried out himself. The principal subjects discussed are meteorology, phlogiston, and the theory of matter." (D.S.B.). Found within are Hutton's theories of rain and the origin of wind, his views on Lavoisier's chemical ideas, and in the last part, of this three part work, his theory of matter which is aligned with that of Boscovich but independently developed. Included in this third part are Hutton's ideas on heat, light, electricity, and phlogiston. Partington III.628. Cole 667. Smith Co., p. 246. Neville I.670. $6,750.

**The Two Editions of Jacobs' Early American Chemical Textbook**

63. **JACOBS, WILLIAM S. (1772-1843). The student's chemical pocket companion. Phila.: printed for the Author, 1802.**


**FIRST AND SECOND EDITIONS. Two volumes. 12 mo. Contemp. let.-backed boards (1802) and contemp. sheep (1807). (4), 114, (2); 120, (2) pp. The bindings of both are worn with one cover loose, usual staining and browning for American chemical books of this early period; acceptable copies of these rarities.**

The Belgian-American, W.S. Jacobs, arrived in Philadelphia in late 1794. Capitalizing on his medical training in Europe, Jacobs was engaged as dissector at the University of Pennsylvania Medical School where he eventually obtained an M.D. in 1801. His 'Chemical pocket companion' first appeared in 1802, derived from Jacobs' note taking of European period chemical texts that his fellow students encouraged him to publish. It is among the very few original American books published on the subject in the early period. Neither edition in Neville. 1802: Smith Coll., p. 251; Cole 680 (lacks two leaves); not in Bolton or Edelstein. 1807: Bolton I. 551; Smith Coll., p. 251; not in Cole or Edelstein. $775.

**A Presentation Copy in Its Original Presentation Binding**

64. **JACQUIN, NIKOLAUS JOSEF (1727-1817). Anfangsgründe der medicinisch-practischen chymie; sum gebrauche seiner vorlesungen. Vienna: C.F. Wappler, 1783.**

**FIRST EDITION. 8 vo. Presentation Binding: original calf richly gilt within compartments on spine and on covers, edges gilt, the top and bottom edges gauffered. (16), 526, (17) pp. Fine engraved vignettes heading the major subdivisions. PRESENTATION COPY to Molitor, most likely the professor of medicine and chemistry at Mainz, Nicolaus Karl Molitor (1754-1826), with Jacquin's inscription on the title. Besides Jacquin and Molitor having like interests, which may have led to their friendship, they both knew Ingenhousz, Jacquin by family relation and Molitor as translator of two of Ingenhousz's books. The handsome binding is worn but intact; otherwise, a very good copy.**

"...the first chemistry professor in Hungary, Nicholas Joseph Jacquin, a Dutch-born surgeon in the court of Empress Maria Theresa, published an important book concerning his theories in Latin, while his textbook, which appeared in 1783, was written in German." (A. Lundgren & B. Bensaude-Vincent, eds., Communicating chemistry - textbooks and their audiences, 1789-1939, 2000, p. 373 & 375). "A further contribution by Jacquin to chemistry is a chemistry textbook which he designed specifically for the instruction of pharmacists and physicians; enlarged and modified by his son and successor at Vienna, Josef Franz, Baron von Jacquin, the work became a widely known textbook of general chemistry. It appeared in several editions and determined the direction of chemical instruction in Austria for two generations; it was also translated into English and Dutch." (D.S.B.). Edelstein 1245. Both Bolton and Ferguson have only the 2nd edition of 1785. N.L.M. (18th C.), p. 232. Pogendorff I. 1185. Neville Lib. I. 685. $1,100.


**FIRST SEPARATE EDITION. Seven volumes. 4 to. Orig. printed boards, except vol. 5 which has its original front printed wrapper. 93, (1); 45, (1); 66; 72; 39, (1); 28; 20 pp. Ten colotype spectrographic plates**
Heinrich Kayser, in association with Carl Runge, at the Hannover Technical University, set out to investigate the spectroscopy of a number of elements to establish a relationship between spectral structure and periodic classification along the lines of Balmer’s earlier work on hydrogen.

"From the vantage of today, the work of Rydberg and of Kayser and Runge was indispensable to the atomic theory brought forth twenty-five years later by Rutherford and Bohr." (D.S.B.). W. McGucken, "Nineteenth-Century Spectroscopy", 1969, pp. 138-156. $875.

Very Rare French Alchemy


First Issue of “The first salvo in Lavoisier’s campaign...”

LAVOISIER, ANTOINE LAURENT (1743-94), LOUIS BERNARD GUYTON DE MORVEAU, CLAUDE BERTHOLLET, ANTOINE DE FOURCROY. Methode de nomenclature chimique, proposee par MM. de Morveau, Lavoisier, Bertholet (sic), de Fourcroy. Paris: Cuchet, 1787.

"The first salvo in Lavoisier’s campaign to convert the scientific world to his antiphlogistic ‘new chemistry’ was this collaborative work by Lavoisier, Claude Berthollet, Antoine de Fourcroy, and Guyton de Morveau. The new chemical nomenclature, originally developed by de Morveau before he had converted to antiphlogisticism, was adopted by Lavoisier as a means for communicating his new chemistry; its publication in the present work marked a complete break with the past. ...With only slight modifications, Lavoisier and de Morveau’s system remains the basis of modern chemical nomenclature." (H.F. Norman Lib. Cat. 1291). Duveen & Klickstein 126. Duveen, p. 340. D.S.B. 8: 80. Cole 566. Bolton I. 58. Partington III. 372.VI. Smith Coll., p.209. Edelstein 1361. Milestones of Science 126. First issue not in Neville. See: PMM 238. $2,750.

Marking a New Epoch in Chemistry


"Lavoisier’s chemical textbook includes the unified exposition of his four most significant contributions to chemistry. These are first, the use of accurate measurements for chemical researches, such as the balance for weight distribution at every chemical change; second, researches on combustion which effectively overthrew the phlogiston theory of Stahl; third, the law of conservation of mass; and fourth, the reform of chemical nomenclature, whereby every substance was assigned a definite name based upon the elements of which it was composed. The thirteen copperplate
illustrations for the 'Traite' were drawn and engraved by Lavoisier's wife, a highly skilled drafts woman, engraver and painter who had studied under the artist Louis David.' (H.F. Norman Lib. Cat. 1295). Only two copies of the trial first issue in one volume are known, while the second issue in two volumes has added to it two tables (pp. 559-619), approvals (pp. 620-653), and two pages of errata. Also in 1789 a pirated version of this book appeared with the plates re-engraved, the type reset, and the misprints corrected. This pirated edition has the 'Nomenclature chimique' as a third volume. PMM 238. Grolier/Science 100, no. 64. Heralds of Science 43. Milestones of Science 127. Duveen & Kilickstein 154. Neville II.21 with facsimile of first title page. $3,800.

The Foundation of Organic Analysis


FIRST BOOKFORM EDITION. 8 vo. Green boards with lea. label on spine. (4), 72, (2) pp. Two folding engraved plates + one lithographed plate, and a folding letterpress table. The folding table is evenly browned and has a clean tear with old repair on verso, the plates with spotty foxing around margins, the text is clean and crisp, boards rubbed; a very good copy.

Among the rarest works of major significance in nineteenth century chemistry is this "Important publication of the constitution of organic compounds with descriptions in detail of the modern method of chemical analysis." (Grolier/Science 100, no. 67). "Liebig developed a combustion method for determining carbon, hydrogen, and hydrogen in organic compounds, a method still in use. This was first published in Poggendorff's 'Annalen' in 1831. His insistence that chemistry could be applied to agriculture marks the beginning of the practical applications of chemistry which dominated his life." (Heralds of Science 46). The practical large folding table was not included in the 1831 'Annalen' version nor in the appearance in the 'Handwörterbuch der Chemie', also published in 1837. It is clear from Liebig's preface (dated March 1837) that this separate edition was specifically intended for use in the laboratory. In fact, as noted on the folding table, a loose copy of it was to accompany the work for pasting up in the laboratory. These points, coupled with the likely wear and tear for a short, often unbound practical chemical work probably account for its rarity. See item 88 for Raspail's important 1838 edition in French. Paoloni 237. Bolton I. 624. Ferchl, p.315. Not in Neville. A second edition appeared in 1853. $2,400.

Otto Lehmann and the Discovery of Liquid Crystals

A Collection

70. [LIQUID CRYSTALS]. "The ultimate manifestation of the liquid crystal display, or LCD as it has become known, is the large-area flat screen colour television. Today the LCD is ubiquitous and has a similar impact on human life as the discovery of the wheel. ...The science of liquid crystals began more than a century ago with the baffling observation of two melting points in a single pure substance by a German botanist (Friedrich Reinitzer). The botanist passed his results to a physicist (Otto Lehmann), who realized that he was studying something interesting, but misidentified the physical phenomenon as crystalline in origin. Despite his misidentification, Lehmann gave us a name that stuck, liquid crystals, and our subject was born." (D. Dunmur & T. Sluckin, 'Soap, science, and flat-screen TVs - A history of liquid crystals', 2011, Preface).


FIRST EDITION. 8 vo. Contemp. cloth, spine gilt. Rubberstamp of Vienna's Central Library. The spine is faded; a very good crisp copy.


FIRST EDITION. Two volumes. 8 vo. Contemp. three-quarter lea. with marbled boards. x. 852; vi, 697 pp. Eight striking chromolithographed plates + two plain lithographed plates + very numerous text figs. The copy of Karl Söllner (1903-86), the N.L.H. physical biochemist whose work included research on membranes and colloids. The bindings are worn and rubbed but intact; a good to very good copy.

(3). LEHMANN. Die krystallanalyse oder die chemische analyse durch beobachtung der krystallbildung mit hülfe des mikroskops... Leipzig: W. Englemann, 1891.
ANTQUIARIAN SCIENTIST


FIRST EDITION. Large 4 to. Linen with lea. label on the spine. vi, 264 pp. Thirty-nine photolithographs after Lehmann’s photomicrographs + text figs. Light browning, a very good copy.


(9). LEHMANN. Flüssige kristalle, ihre entdeckung, bedeuteung und ähnlichkeit mit lebewesen. In: Jahresbericht des physikalischen vereins zu Frankfurt am Main für das rechnungsjahr 1906-1907, pp. 68-100, Frankfurt am Main, 1908.
FIRST EDITION. 8 vo. Orig. printed wrappers. Text figs. Slight soiling to wrappers, a very good copy.

SECOND EDITION. 8 vo. Orig. printed stiff wrapper, untrimmed. 69, (1), (6, ads) pp. Illus. Slight wear, a very good copy.

FIRST EDITION. 8 vo. Self-wrappers, 12 pp. With the characteristic blue and white gummed label of the library of Henri Becquere (1852-1908) and his family. A very good copy.

FIRST EDITION. 8 vo. Late grey boards with German marbled endpapers. 43 pp. Six plates within the text. A good copy.


FIRST EDITION. 8 vo. Orig. cloth. vi, 388 pp. Numerous text figs. Moderate fading of the cloth, a very good copy.


FIRST EDITION. 8 vo. Orig. stiff wrappers with printed label on cover. 72, (8, ads with microscope illus.) pp. Illus. A very good copy.

(17). LEHMANN. Eleven further offprints from 1885 to 1908.
With his paper in 1888, the German botanist, Friedrich Reinitzer, began the science of the fourth state of matter, liquid crystals. His surprising results with cholesteryl benzoate, two melting points and unusual color phenomena, led him to seek the expertise of the physical chemist and crystallographer, Otto Lehmann. Lehmann applied himself to Reinitzer's problem and published his first paper in 1889 on liquid crystals, 'Über fliessende krystalle' [included in (17)]. From there Lehmann began a lifelong pursuit of liquid crystal phenomena publishing many papers and booklets, and two books (4) and (14). Lehmann's massive 1904 book is richly illustrated with many photomicrographs of liquid crystals reproduced from his own photographs by photolithography. An expert microscopist, Lehmann designed special microscopes to aid in his researches and published in 1910 (13), a detailed manual about them. (5), a paper by the French mineralogist and crystallographer, Frédéric Wallerant (1858-1936), coupled with his other 1905 paper (not present here) in the ‘Comptes Rendus’, signals the first French interest in liquid crystals. By 1909 Lehmann famously delivered with great success an extensively illustrated lecture at the Sorbonne (11). "His results astonished and perplexed the scientific world, since he demonstrated that the fluidity of many organic substances is not only equal to or greater than water but that they also display the double refracting properties of crystals, some being twice as birefringent as calcite." (D.S.B.) Lehmann received many honors for his work and between 1913 and 1922 he was nominated a number of times for the Nobel Prize in physics. Two of the publications [5] and (11) are from the Becquerel library.


The Dublin surgeon, David Macbride, made his reputation with this "…important book…" (Duveen, p. 375) which gives a good view of chemical ideas prior to Lavoisier. Macbride "…dealt with gases produced by fermentation processes… Macbride recognized van Helmont's 'gas sylvestre' as fixed air reported by other investigators. He measured the carbon dioxide content of various gas mixtures, using an apparatus credited to Black (see: Partington III, fig. 15). …Macbride also investigated the carbon dioxide in human blood; he concluded that it was carried in association with the red blood corpuscles." (Ihde, 'Develop. mod. chem.', p. 38). D.S.B. 8: 585-586. Partington III. 143-144. Neville II. 107. Cole 853. Bolton I. 644. $1,100.

"An encyclopedia of all that was then known about chemistry, the 'Dictionnaire' is Macquer's most important work and a milestone of chemical literature. …Containing more than five hundred articles in alphabetical order, it was preceded by a brief history of chemistry and set the pattern for many later chemical dictionaries. …Apart from missing 's' of 'Paris' and the presence or absence of asterisks before or after the signature letters, the title wording and texts of this copy and the copy designated state A are identical." (Neville II.112). Duveen, p. 377. Cole 863. Partington III. 81. Neville & Smeaton 1B. $1,600.

In 1776 Lavoisier said "there are few modern books of chemistry which display more genius than this of M. Meyer." Considered by Neville (II. 168) as the definitive edition of the 1764 original, this book started a controversy with its theory of acidum pingue in opposition to Black's theory. Black held that the presence or absence of fixed air accounted for alkalinity. Despite distinguished support, Meyer's view lost its hold. The book also "…deals with electricity, posing the
On Lavoisier's Chemical Nomenclature by the First Professor of Chemistry in America

MITCHELL, SAMUEL (1764-1831). Explanation of the synopsis of chemical nomenclature and arrangement: containing several important alterations of the plan originally reported by the French academicians New-York: T. & J. Swords, 1801.

FIRST EDITION. 8 vo. Moroccoback marbled boards, the spine gilt within compartments, lea. label. 44 pp. The large (10 2/8 x 21 inches) folded chart: ‘A Synopsis of Chemical Nomenclature and Arrangement’, ruled in black and red and printed on thick laid paper, is bound before the title. A fine, crisp and clean copy.

No complete American version of the important ‘Méthode de nomenclature chimique’ published at Paris in 1787 by Lavoisier, et al ever appeared (for the original see item 67). A number of smaller publications by American authors however were published. ‘The first publication on Lavoisier’s terminology in America by the American Samuel Latham Mitchell, the first professor of chemistry in the U.S., ‘Nomenclature of the new chemistry’ (New York, 1894). Mitchell was destined to become one of the leading medical and scientific personages in the United States in the first decades of the nineteenth century…” (Duveen & Klickstein, ‘The introduction of Lavoisier’s chemical nomenclature into America’, ISIS, vol. 45, pp. 278-292, 368-382, 1954). Mitchill’s chemical course was based on the systematization of the ‘Table of Nomenclature’, and it in its period was akin to the teaching of chemistry based on the periodic table which arose later in the 19th century.

‘In 1801 Samuel L. Mitchell drew up a second work on chemical nomenclature, ‘Explanation…’ a work quite unlike the 1794 ‘Nomenclature…’. The volume contains an oversized chart… accompanied by an explanatory text. …Mitchell formulated his new nomenclature classification on an ‘atomistic’ basis; a lengthy explanation of ‘atoms’ (pp. 3-17) is given in the text. The acceptance of the Boscovich concept of atoms by Mitchell is characterized by the title-headings of the chart… Despite its shortcomings, the Mitchill nomenclature chart was an excellent summation of Lavoisier’s terminology…” (ibid). E. F. Smith, ‘Chem. in Amer.’, 1914, pp. 148-149. B. Silliman, Jr., ‘Amer. contributions to chem.’, 1874, pp. 13-14. Bolton, p. 70. Cole 944. Edelstein 1625. Not in Neville or Smith.

Classic of Military Engineering - Important in the Development of the Steel Industry


FIRST EDITION. Two volumes. 4 to. Contemp. half calf. (4), viii, 231 pp. With 4 folding tables printed on bluish paper. The atlas volume with 60 engraved plates, 36 folding and some especially large. Bindings edge worn, joints of text vol. cracked but tight, very faint dampstain in upper margins of text pages, small inexplicable punctuation hole in front boards of plate vol. not penetrating fly-leaf or plates; still, a very good, crisp set.

‘Applied science under the Terror” (Sotheran/Zeitlinger, vol. 2, no.12018). The inventor of descriptive geometry, Gaspard Monge, was in 1793 with his friend and colleague chemist, Claude Berthollet, engaged in restocking the French arsenals against an anticipated outside attack. “The entire nation was mobilized. Under Monge’s direction bulletins were sent to every town, farmstead, and village in France telling the people what to do. Led by Berthollet the chemists invented new and better methods for refining the raw material and simplified the manufacture of gunpowder. The whole of France became a vast powder factory. The chemists also showed the people where to find tin and copper - in clock metal and church bells. Monge was the soul of it all. With his prodigious capacity for work he spent his days supervising the foundries and arsenals, and his nights writing bulletins for the direction of the workers, and throw on it. His bulletin on ‘The Art of Manufacturing Cannon’ became the factory handbook.” (E.T. Bell, ‘Men of mathematics’, 1937, pp. 188-189). The detailed copperplates illustrate every conceivable aspect of manufacture of cannon at the end of the 18th century, while the implications of this treatise were widely felt in the 19th century in the development of the steel industry and modern machinery. D.S.B. 9: 469-478. Neville II. 182. $3,500.
ANTIQUARIAN SCIENTIST

First Latin Edition of a Classic Text on the Secrets of Glassmaking


FIRST EDITION IN LATIN, first issue. 12 mo. Contemp. vellum over boards with overlapping fore-edges. (26), 232, (2, blank), (233)-455, (16, index), (1, errata) pp. Engraved title page + large engraved vignette on printed title + 6 folding engraved plates + a woodcut in the text. A very good, crisp copy.

"Neri is remembered only for 'L'arte veraria' (1612), a little book in which many, although by no means all, of the closely guarded secrets of glassmaking were printed for the first time. ...The main part of the text deals with the coloring of glass with metallic oxides to give not only clear and uniform colors but also various veined effects. There are chapters on making lead glass of high refractive index and enamel (opaque) glass by the addition of tin oxide." (D.S.B.). Neri's unillustrated book was considerably extended over the next two centuries with the addition of copperplates and commentary. The present edition, the first appearance of the text in Latin (rendered by Andreas Frisius), was translated from the English version prepared by Christopher Merrett for the Royal Society in 1662. Merrett's 'observations' doubled the length of the book and appear here on pages 233 to 455. Duveen, p. 427. Ferguson II. 134. Smith Coll., p. 342. $1,250.


FIRST EDITION. 8 vo. New cloth. vii, (1), 218 pp. Text figs. PRESENTATION COPY with Nernst's holograph inscription on the title page. The recipient is Nernst's former student, Dr. F. Voller, whose 1908 dissertation on specific heats of gases is referred to on page 59. A very good copy.

"Chemical thermodynamics, which was built up during the latter part of the nineteenth century, mainly by Gibbs and van't Hoff, was extended in 1906 by the German chemist, Walther Nernst, by what he himself called its third (and last) law. Its formulation was the result of attempts to find a general method for calculating chemical equilibrium from thermal data. ...It finally became clear that by formulating his principle and by his comprehensive determinations of specific heats at low temperatures, Nernst had made a contribution of fundamental importance to the development of chemistry. The 1920 prize was therefore, awarded to him in 1921 'in recognition of his work in thermochemistry'!" (Nobel - the man and his prizes, 1962). In the present summary work, with the fullest treatment of the new Heat Theorem, Nernst gave "...in a most comprehensive way his mature ideas on chemical thermodynamics." (D.S.B.). Partington IV. 633-636. $800.

"...the first exposition of Stahl's phlogiston theory in English"

78. [NEUMANN, CASPAR (1683-1737)]. The chemical works of Caspar Neumann... Abridged and methodized... by William Lewis. London: W. Johnston..., 1759.


Large as this book is, it is based on an abridged version of Caspar Neumann's lectures which originally appeared in seven volumes. The two volume Zullichau abridgment of 1756 was probably translated into English by William Lewis' (1708-81) assistant, Alexander Chisholm, and supplemented by Lewis, to which he also added his extensive notes. Neumann was Court Apothecary in Berlin, 1719-37. "The work is an epitome of the chemical knowledge of the time and contains the first exposition of Stahl's phlogiston theory in English." (Cole 973). In its three parts, Neumann treats the chemical history of the mineral, vegetable, and animal kingdoms. D.S.B. 10: 25-26. Partington II. 703. III. Bolton I. 698. Ferguson II. 137. Neville II. 222. Neu 2937. See: Hoover Coll., no. 608. $950.


William Nicholson is known for his translations of important French chemical works into English, his chemical dictionary (1795), his influential 'Journal of Natural Philosophy, Chemistry and the Arts' (begun 1797), and the present work. "The text is divided into two books, I. general chemistry includes heat, construction of thermometers, combustion, methods of making experiments with

80. **NOLL, HEINRICH (fl. 1612).** *Naturae sanctuarium: quod est, physica Hermetica.* Frankfurt: N. Hoffmann, 1619.

*FIRST EDITION.* 8 vo. Contemp. calf, 838, (12) pp. Woodcut headpieces and initials. Inserted before the title is a half-leaf transmittal note in a 17th C. hand to Abraham von Frankenberg (1593-1652), Lord of Ludwigsdorff, and author of alchemical and mystical works. The note comments on Noll and is signed by a Beyer, perhaps Joh. Hartmann Beyer (1563-1625), a minor Frankfurt medical author. The binding is edge worn and chipped at that top of the spine but altogether sound, dampstain in inside margin of title, evenly lightly browned; a good to very good copy.

"Heinrich Nolle, or Noll, or Nollius, flourished in the first quarter of the seventeenth century. He was a teacher at the Gymnasium at Steinfurt in Westphalia, professor of philosophy at the newly-founded University of Giessen, and pastor in Darmstadt." (Ferguson II. 139). "This work, written along the lines of Wecker's 'Books of Secrets', contains a discussion of the physical principles and concepts of nature as then understood. Strongly alchemical, as the title page states, the book deals rather with the 'hidden secrets of nature' than with practical chemistry. The appendix (pp. 687-792) comprises two alchemical tracts, containing references to the Smaragdine Tables of Hermes, with quotations from the works of Geber, Lull, Paracelsus, Basil Valentine, Sendivogius, et al. Writing in 1906, Ferguson states that books by Nollius were rare in the 1780's." (Neville II. 234).


$1,100.


"En Francais dans le texte", no. 272. This volume "admirably summarized" Pasteur's "...views on molecular asymmetry and optical activity as they stood at the end of his active research on the problem..." (D.S.B.). His memoir, which had been delivered in 1860 as a paper before the Société Chimique de Paris, was translated into English as 'On the asymmetry of naturally occurring organic compounds' and appeared as the first entry in 'The foundations of stereochemistry', New York, 1901. A German translation had appeared in Ostwald's 'Klassiker' in 1891. Pasteur's "...first major research, done at the École Normale, concerned tartaric acid (a by-product in wine making). Biot (Pasteur dedicated the present memoir to him) had shown that one form of the acid is optically active... Pasteur examined a salt of the optically inactive form of tartaric acid and showed that the crystals were of two kinds, which were non-superposable mirror-images of each other... He separated these and showed they were both active, with equal and opposite rotation. He deduced, correctly, that the molecules themselves must therefore be dissymmetric, a fundamental idea and one that was more fully explored by van't Hoff. It was the beginning of stereochemistry." (Cambridge Dict. Scientists'). Partington IV. 751. A.J. Ihde, 'Development of modern chemistry', 1964, pp. 321-324. See: PMM 336a, Pasteur's 1853 paper for the 'Comptes Rendus' with the same title. Not in Neville.

$1,850.

82. **PAYEN, ANSELME (1795-1871).** *Autograph manuscript books of industrial chemical processes.* (Paris, 1820s).

Six small octavo books, four in original marbled boards, one in original paper-backed plain boards, and the last in self-wrappers (for it the sheets are double-size and folded). A total of approximately 282 written pages with many detailed diagrams of apparatus and equipment. Three of the books in the same orange marbled boards are marked on their first pages: 1826, 1sr Cahier; 1826, 2nd Cahier; and 1826, 3rd Cahier. The manuscripts
The French chemist, Anselme Payen who studied under Vauquelin and Chevreul is perhaps best known for his discovery with J.-F. Persoz of diastase in 1833-34. This was the first enzyme to be isolated. In 1836, Payen isolated and named cellulose. Payen developed processes for refining sugar and starch and to obtain alcohol from potatoes. He invented a decolorimeter. Early in his career, at age 23, his father entrusted Payen with the direction of a borax refinery, one of several chemical manufacturing plants founded by Jean-Baptiste Payen. "After supervising his own best-sugar factory, Payen began teaching industrial chemistry in 1829 at the École Centrale des Arts et Manufactures. Ten years later he was also appointed to teach at the Conservatoire des Arts et Métiers, although he did not abandon his industrial interests." (Neville I. 279, also see pp. 280-281).

Payen became a member of the Academy of Sciences in 1842. The American Chemical Society awards an annual Anselme Payen Prize.

The books cover a number of industrial chemical operations with his drawings being an especial feature of the presentations. These illustrations compare favorably to the more precise ones by him for his master work (offered below) on industrial chemistry. In one Payen reviews the porcelain manufacturing at Chantilly. This account is dated 22 October 1824. Included, as well, is a pedagogical outline of seventeen 'lecons' on botany and in that same book written from the other end are notes dated 1826. These include cost accounting for projects and extensive explanations of numerous mathematical formulae. An important, unstudied resource on the early activities of the leading industrial chemist of the period. D.S.B. 10: 436. Joseph S. Fruton, 'Molecules and life', 1972, pp. 66-67. Poggendorff II.380-382. Partington IV. 429. (See item 83). $3,000.


FORTH FOURTH EDITION. Four volumes in two. Fine contemp. three-quarter calf with marbled boards, edges and endpapers, the spines richly gilt within compartments and with dual lea. labels. (2), III, (1), 598, (2); (4 - half-title & title to Atlas, vol. 1); (2), 756, (4, includes errata); (2 - title to Atlas, vol. 2) pp. Total of 55 engraved plates after Payen, 52 are double-page, 3 are folding, and 3 are hand-colored +268 woodcuts in the text. A fine, crisp set in handsome bindings.

Tutored by his father who owned a sal ammoniac factory outside of Paris, Payen studied chemistry privately with Vauquelin and Chevreul. Like his father, he entered the business world of industrial and agricultural chemistry. "In 1829 Payen began to teach industrial chemistry at the École Centrale des Arts et Manufactures; ten ears later he was appointed to a similar chair at the Conservatoire des Arts et Métiers, although he did not abandon his industrial interests." (D.S.B.). In 1849 appeared his large, well-illustrated work on the subject. "This encyclopedic treatise, his most important publication, provides an in-depth view of the state of chemical technology in the mid-nineteenth century." (Neville II. 279 - 1st ed.). Ferchl considered this work the best on technical chemistry for the period. Many editions appeared including translations into German (1872-74) and English (1878). Bolton I. 724. $750.

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**Important Works in the Development of the Periodic Table**

**A Collection**

84. **[PERIODIC TABLE].** This small collection, arranged in chronological order, only touches on the large literature on the subject of major importance to the history of chemistry: the development of the chemical periodic table. Its history is not simple; there is a priority controversy, ignored publications, and a myriad of proposed systems and graphic forms. Nonetheless, virtually every chemistry classroom or teaching laboratory has a similar periodic table chart on display, the foundation of the science and an essential tool. The **collection contains a number of rarities and special copies.**


FIRST EDITION. 8 vo. As issued with orig. off-white spine strip. 16 pp (last page misnumbered 684). Slight spotty foxing; a very good copy preserved in a fine linen-covered clamsheel case with a lea. label on the spine. Very rare.

3. BÉGUYER DE CHANCOURTOIS, ALEXANDRE-EMILE (1820-1862). Extrait d’un mémoire sur un classement naturel des corps simples ou radicaux appelé vis tellureique. [Colophon (pp. 4 & 12) - Paris: Mallet-Bachelier, (7 April 1862, 21 April 1862, & 5 May 1862)]. OFFPRINT: Comptes Rendus, vol. 54, pp. 757-761, 840-843, 967-971, 1862; here repaginated to pp. 1-12 and with the added extra large periodic table plate (not included in the printed version of the journal paper). This all important added plate ‘Vis Tellureique’, multyfolding and lithographed in black and red on a card stock, is 7 3/4 x 5 1/2 inches. In the upper right corner: ‘Premiere Esquisse / 7 April 1862.’ PRESENTATION COPY inscribed and signed by the author on a slip of what was evidently the original blue wrapper, clipped and mounted long ago at the head of the first page. Bound in modern blue wrappers with endpapers, flyleaves, and printed label on the cover. preserved in a fine linen-covered clamshell case, lax. label on the spine. Also within the case and similarly bound is an issue of the ‘Comptes Rendus’ for 13 Oct. 1862 which contains on pp. 600-601 Béguyer de Chancourtois’ note: “Tableau du classement naturel des corps simples, dit vis tellureique’ describing his periodic table but without a printed illustration. The large table is professionally repaired (no losses) beginning at one of the folds; very good copies of the offprint and the journal issue. Very rare.

4. BÉGUYER DE CHANCOURTOIS, A.-E. Mémoire sur un classement naturel des corps simples ou radicaux appelé vis tellureique. With: Addition au mémoire... With: Addition...

Each paper within its issue: 7 April 1862, 21 April 1862, and 5 May 1862, bound together in fine green linen over boards, paper label on spine. A very good set.


FIRST EDITION, journal appearance. 8 vo. The third 'heft' (issue) complete in orig. printed wrappers, uncut and unopened. Some edge chipping to the wrappers; otherwise, a very good copy.


7. CARNELLEY, THOMAS (1852-90). Author's bound volume of offprints and pamphlets published 1873 to 1890.

Forty-three offprints and pamphlets, ten directly concerning the periodic nature of the elements. Orig. half calf, the spine label: "Scientific Papers by Tho's Carnelley" and in gilt at foot of spine: "1873-1880". A laid-in letter to his widow in 1889 from Manchester solicitors apologizes for the long delay in returning this volume. Signature of Madeleine Carnelley on flyleaf and manuscript table of contents bound in first paper. A few corrective annotations possibly by the author. In very good condition.


FOURTH EDITION, exceptional copy. 8 vo. Orig. fine publisher’s brown cloth with very richly gilt spine within compartments. xvi, 1158, (2) pp. 161 woodcuts in the text. PRESENTATION COPY with Mendeleev’s 6-line signed inscription in Russian to Alexander Crum Brown (1838-1922) dated 1884 at Edinburgh. Crum Brown, professor of chemistry at Edinburgh University from 1869 to 1908, became F.R.S. in 1879. He was on the university’s Tercentenary Committee and there celebration, held in 1884, included the awarding of an honorary LLD degree to Mendeleev. “A. Crum Brown devises structural formulae for chemical compounds, convenient particularly in distinguishing isomers.” (Breakthroughs, p. 364; also see D.S.B.2: 514-516 and Partington IV. 552-553). The binding has the slightest wear at corners and edges and the inferior paper is evenly lightly browned; as fine a copy as would seem possible, crisp and clean.


FIRST EDITION. 8 vo. Contemp. prize calf with the gilt medallion on the front cover of St. Mungo’s College, Glasgow and at the foot of the gilt spine. xxi, (2, errata), 488 pp. Laid in signed and dated 1890 Certificate of Honour, and mounted on flyleaf, the First Prize label. A fine, crisp copy.

FIRST EDITION. 12 mo. Orig. cloth, viii, 39 pp. Two folding tables. PRESENTATION COPY to the English physical chemist, Dr. Thomas Carnelley, with Newland’s two-line holograph inscription on the title page. Carnelley supported Newlands position in the discovery dispute and is quoted by him on page 38: “...and it is to Newlands, and especially to Mendelejeff, that we owe a new field of research and a new and powerful method of attacking chemical problems. The importance of the work of Newlands and Mendelejeff cannot be easily overrated...” In 1864, Newlands made the first great step in advance, which advance was increased and placed on a firmer basis by Mendelejeff in 1869.” Carnelley’s own contribution to the new field [see no.7 above] is noted by Partington IV.897: “...he extended the periodicity of physical properties to compounds.” In 1884 Carnelley stated the relation he discovered between color and atomic weight of the compounds of elements within a periodic sub-group. This copy was later owned by the Edinburgh chemist, David Orme Masson (1858-1937), appointed to the faculty at Melbourne in 1886, worked on co-ordination chemistry, and formed the Australian Chemical Institute in 1918. His pencil signature is on the title, as is his son’s, James Irvine Masson (1887-1962), Sir William Ramsay’s personal assistant, and later Chemistry Chair at Durham. A nearly fine copy.


FIFTH EDITION. 8 vo. Contemp. half roan with marbled boards. (4), (iii)-vii, (1), 780, (1) pp, Woodcut on title of an analytical balance +2 lithographed portraits (Lavoisier and Dalton) on heavy stock paper + woodcuts in the text +a large folding table. Cancelled old library rubberstamp in blank area of title, some edge wear to binding, paper uniformly browned due to inferior quality, leaf 465/466 with old repaired tear (no losses); a good copy.


FIRST EDITION IN GERMAN and the first translation out of the Russian. 8 vo. Contemp. half lea. with marbled boards. (4), 1126, (1) pp. Three tables, one large and folding + 146 text woodcuts. Joints cracked but holding, light browning; a good to very good copy.


FIRST EDITION IN ENGLISH. Two volumes. 8 vo. Orig. cloth. xvi, 611; vi; 487, 12(pub. cat.) pp. 97 text woodcuts + a folding table. A very good set.


FIRST EDITION. 8 vo. Orig. cloth, rebucked with the orig. spine laid down. xv, (1), 700, 14(pub. cat., dated June 1895) 2, pub. ad) pp. Text figs. A good to very good copy.


FIRST EDITION. 8 vo. xiv, (2), 255, (1) pp. Frontispisortrait of the author + 6 plates, some folding [numbered 1-5, 7, no plate 6 (complete)] + text figs. Two rub marks on spine; a very good copy.


FIRST COLLECTED EDITION. Small 8 vo. Orig. printed boards. 134, (2) pp. Folding lithographed table. A very good copy with several old German library marks and labels.


FIRST EDITION IN ENGLISH. 8 vo. Orig. printed cloth boards. (4), 51 pp. Elaborate engraved bookplate of Baron Marcus Rosenkrant. A very good copy.

Beginning with the master’s thesis (I) on molar volumes that the young Mendeleev presented on 9 September 1856 at the Univ. of St. Petersburg, one finds the first signs of his thinking on a periodicity to the chemical elements. ‘In this work he expressed his adherence to the chemical ideas of Gerhardt, to which he remained loyal throughout his life. ‘Among other topics, he made known his agreement with unitary and type theories and his opposition to Berzelius’ electrolyte theory of the formation of chemical compounds’. (D.S.B.). Atomic and molecular weights of inorganic compounds are discussed, and this early work contains the germs of ideas that led him to formulate the periodic law of the elements. ...This work is of the utmost rarity...” (Neville II. 163). Inspection of Mendeleev’s listing of atomic weights reveals that he does arrange some of them in what would later form groups in the periodic table. Further discussion of the relevance of this thesis to the
development of the periodic law is in A. Greenberg’s ‘The art of chemistry’, 2003, pp. 250-259 with facsimiles of the title page and four pages.

Prior to the epochal ‘Principles of chemistry’, Mendeleev published a textbook on organic chemistry (1861; 2nd ed., 1863), translated into Russian Wagner’s ‘Technology’ (1862-69) and the chemistry text (2) by Cahours, professor of chemistry in Paris. ‘Cahours’s book included a full chapter on chemical classifications, which not only reviewed earlier attempts at ordering the elements but also remarked that several properties (volatility, metallic state, density, affinity for hydrogen and oxygen, and so on) underwent gradual changes when elements in each family were arranged in increasing atomic (or equivalent) weights.’ (Kaji et al, ‘Early responses to the periodic system’, Oxford Univ. Press, 2015, chap. 10). Mendeleev chose to translate Cahours even though other textbooks of the period also addressed the issue of classification. The history of the periodic table is populated with very many methods of arranging and displaying the elements based on an understanding of the guiding principles.

The pre-Mendeleev table of the French geologist Béguyer de Chancourtois (3 & 4) was in spiral form on a cylinder with the periodic relationships evident by moving vertically downward along the surface. 'There are valid reasons for declaring that the periodic system was essentially discovered in 1862 by De Chancourtois... (He) appears to have taken not just an important step in the story of the periodic system, in many ways, the single most important step. It was he who first recognized that the properties of the elements are a periodic function of their atomic weights...' (E.R. Scerri, 'The periodic table - its story and its significance', 2007). 'De Chancourtois's system did not create much impression on chemists...The original article (4) failed to include a diagram, mainly because of the complexity faced by the publisher in trying to reproduce it, with the result that its visual force was lost... Frustrated... De Chancourtois had his system republished in 1863 (3), but, because it was published privately, this further article received even less notice...' (Scerri). Here it is offered in a very rare presentation copy of the 'Telluric Screw' table which is nearly six feet long (!) and only reproduced in part, if at all, in scholarly publications.

Perhaps the most important contender for the originator of the periodic system is Lothar Meyer who drew up a table of elements in 1862 (published in 'Die modernen theorie der chemie', in 1864) and published in a classic paper (5) in 1870. His plot of atomic volume versus atomic weight yielded a strong demonstration of the periodicity of the elements. Lothar Meyer's tentativeness and lack of predictions for gaps in the table (unlike Mendeleev) in part led to his also-ran status.

Among the first alternatives to the organization of the elements in a table was a spiral arrangement by the German mineralogist and chemist, Baumhauer who studied under Kekulé. He included in his 1870 pamphlet (6) Mendeleev’s table of 1860 and Lothar Meyer’s table of 1870.

Mendeleev had a high regard for the work of Thomas Carnelley especially his discovery of the periodicity in magnetic properties. Carnelley held the first chair of chemistry at the Univ. of Dundee. Partington IV. 897 notes eight papers on periodicity by Carnelley, and M. D. Grodin (‘A well-ordered thing’, 2004) cites three papers, all present in Carnelley’s own comprehensive volume of his offprints and pamphlets (7). On Carnelley and periodicity also see: Scerri; F. P. Venable, ‘The development of the periodic law, 1869; J. W. van Spronsen’, ‘The periodic system of chemical elements’, 1969.

"One of the best histories of the development of the chemical atomic theory to appear in the nineteenth century" (Neville II.642) was by the French chemist, Adolphe Wurtz, a pioneer of synthetic organic chemistry (8). This book was involved in the Mendeleev/Lothar Meyer priority controversy (van Spronsen, pp. 343-344).

Now we come to Mendeleev himself with a rare significant presentation copy of the fourth edition of ‘Osnovy khimi’ (9) in exceptionally fine condition. Of course it includes his periodic table of elements, and importantly, his second successful prediction in which eka-boron is shown to be the recently discovered scandium. This fourth edition is organized like the third though slightly larger format. Like the third, the chapters were completely reorganized in agreement with the periodic law. The fifth edition of Mendeleev’s textbook (12) was considerably larger and printed for the first time in double columns. More material was now in the extensive footnotes. The chapter on periodic law was expanded to include the history of its discovery and the issue concerning priority. It is this fifth edition that was translated into English, German, and French.

An early account of the periodic law to appear in an English chemical textbook is in Muir’s ‘Principles of chemistry’ (10) of 1884 (Partington IV. 897 and Kaji et al, p. 88). ‘There can be no doubt, that Newlands ranks among the true pioneers of the modern periodic system, particular for being the first to recognize explicitly the existence of the periodic law, which in many ways is the real crux of
the matter." (Scerri). ...he divided them into natural families and periods, but for this law of octaves he gained nothing but public ridicule from the English Chemical Society." (M. E. Weeks, 'Discovery of the elements', 1956). In 1884, Newlands collected his papers on the subject into the present book in an attempt to support his priority over Mendeleev.

In 1891, both the first edition in German and in English of Mendeleev's fifth edition of 'Onsvy khimi' appeared. In the latter we find that Crum Brown [see (9)] is referenced on pages 75 and 296 of volume 2.

The first systematic textbook in English based upon the periodic arrangement of the elements was published in 1891 by the 1904 Nobel laureate, William Ramsay, see: Kaji et al, pp. 88-89. Yet another claimant to priority was the somewhat eccentric German-Amercian Gustavus Hinrichs. Publishing in a number of foreign languages, the present book gives in English an extended discussion of his claims and criticisms; see the account in Scerri, pages 86 to 92, which includes the illustration of his spiral periodic system (also found in van Spronsen, p. 121).

Among Ostwald's 'Klassiker' is this important volume containing the first translation from the Russian of Mendeleev's key 1869 'On the correlation between the properties of the elements and their atomic weights'. Three other papers from 1869 and 1871 by Mendeleev are included along with two by Lothar Meyer.

"Mendeleev was clearly a believer in the ether. His explanation was straight-forwardly chemical and constructed from his Periodic Table and the newly discovered inert gases. ...He postulates that the ether is composed of atoms of an as-yet-unknown superlight inert gas. ...He fits the 'ether element' into his Periodic Table in Group O to the left of hydrogen and the alkali metals." (A. Greenberg, 'A chemical history tour', 2000, pp. 257-258 with facsimile table).


This Copy Printed on Special Paper

FIRST EDITION. Small 8 vo. Old half lea. (6), xvi, 295, (1) pp. Text figs. Unlike the regular issue on plain unwatermarked paper susceptible to browning, this copy is printed on fine, thick, laid paper with a strong watermark, and is crisp and bright. PRESENTATION COPY to Sir William Ramsay (1852-1916), the 1904 Nobel laureate in chemistry, with Jean Perrin's fine signed holograph inscription. Perrin was the 1926 Nobel laureate in physics. Laid in is an undated ten-line holograph letter (c. 1913) on the Journal of the American Chemical Society letterhead to Prof. Ramsay signed by the distinguished American chemist and editor of the Journal, William A. Noyes (1857-1941), in which he refers to his forthcoming 'Text-book of chemistry' (1913). A very fine copy.

An influential book of the period in a remarkable presentation copy on special paper. 'His most fundamental conclusion - that he had finally uncovered irrefutable proof for the real existence of atoms - contrary to the assertions and expectations of Ostwald, Mach, and others - was soon universally accepted and popularized in his book 'Les atomes' (1913), which went through many editions and translations.' (D.S.B.). Jean Perrin was awarded the 1926 Nobel Prize 'for his work concerning the discontinuous structure of matter, and especially for his discovery of the equilibrium of sedimentation.' Sir William Ramsay's "achievement is unique in the history of the discovery of the chemical elements. Never before had a single scientist found a whole group of new elements. Moreover, they were chemically inert, and thus of a hitherto unknown type of great theoretical interest. ...Ramsay received the Prize for Chemistry for his discovery of the inert gaseous elements in air and his determinations of their place in the periodic system..." (Nobel - the man and his prizes', 1962, pp.366-367).

$1,750.


FIRST EDITION. 4 to. Orig. printed wrappers. Preserved in a folding clam-shell cloth case with a leather label on the spine. 96 pp. PRESENTATION COPY with a four-line inscription to Madame Reflets signed by Perrin. A few professional repairs to edges, lightly browned due to paper quality; a very good copy.
Perrin's valuable detailed summary of his scientific achievements which he divides into four broad categories: rayons cathodiques et rayons X, électrisation de contact, atomistique, enseignement et publications diverses. With a bibliography and a list of awards and titles. $775.

PRIESTLEY, JOSEPH (1733-1804). Experiments and observations on different kinds of air, and other branches of natural philosophy, connected with the subject. Birmingham: T. Pearson, 1790.


Priestley's most important work detailing his experiments 'on different kinds of air' and 'various branches of natural philosophy' (1774-77, 1779-86) appeared at London in six volumes. Here in 1790 Priestley notes "...a complete set cannot be had new, it seemed more advisable to reprint the former volumes." It is here that Priestley "...declared specifically that he told Lavoisier of his experiments (on oxygen) during his visit to Paris." (D.N.B.). In this edition are also his experiments on the thermal conductivity of gases. Partington III. 244. VI. Crook S/460-462. Neub 3364. Cole 1065. Neville II. 336. $1,500.

Including a Classic on Analytical Organic Chemistry and
An Early Text on Chemistry Under the Microscope
A Period Sammelband Likely from the Author's Library

RASPAIL, FRANCOIS V. (1794-1878). A period-bound volume likely from Raspail's library.


(2). Essai de chimie microscopique appliqué à la physiologie... Paris: for the Author and Meilhac, 1830.

(3). Expériences chimiques et physiologiques, ayant pour objet de déterminer le mécanisme de la circulation dans les entre-noeuds de Chara... (Paris: Plassan, 1829).


FIRST EDITIONS of (1), (2), (5) and (6); (3) is an offprint and (4) are extracts. 8 vo. Contemp. half calf with marbled boards. About 450 pages with the requisite number of engraved plates and two added folding woodcut plates, a few partially hand-colored. The Leroi is an inscribed presentation copy to Raspail. Some spotty foxing and browning; a very good, crisp copy.

Though there is no ownership bookplate or signature, it is likely that this volume came from Raspail's library. The pieces and letters focus on his output and activities in the decade of the 1830s. Of scientific publications credited to him, two salient chemical works are here: Raspail's critical edition of Liebig's important treatise on organic analysis (1), see item 69 for the 1837 original edition and Neville II. 72. Also present is Raspail's 1830 'Essai de chimie microscopique' (2) published three years in advance of his famous text on the subject that is the recognized foundation work of histochemistry, the 'Nouveau systeme de chimie organique' (1833), see Neville II.354. The plates for Leroi's work on the itch mite are amplified by the inclusion of those prepared by Raspail. It was Raspail who had determined the agent for scabies. The volume concludes with the long poem by Brucker in appreciation of Raspail the revolutionary. D.S.B. 11: 300-302. D. B. Weiner, 'Raspail, scientist and reformer' (1968). Paoloni 261.

$3,000.
Early Chemistry Sets

89. REECE, RICHARD (1775-1831). The chemical guide, or complete companion to the portable chest of chemistry. London: Longman..., 1814.

FIRST EDITION. 8 vo. Original boards, rebuck with most of the original printed paper label preserved. Uncut. xxiv, 335, (1) pp. Large woodcut of 'Guyton's Portable Laboratory' as manufactured by R. and G. Knight, Foster Lane, London. Early book ticket of Noble's, Book, Music, & Fancy Warehouse, Boston. Two small holes to blank area of title page and one to dedication leaf just touching two letters of a word; a very good copy.

"A rare book that was intended to accompany Reece's 'Portable Laboratory'. The chemistry set, or 'portable laboratory', came into use at the end of the eighteenth century, and with the advent of lectures at the Royal Institution and other places chemical experiments by amateurs and professionals became a popular pastime. ...A successful London physician, Reece sold drugs and 'chemical preparations of the purest quality' at the Chemical and Medical Hall, in Piccadilly. He also sold portable chests of chemistry, drugs, minerals and apparatus..." (Neville II. 361). Pages viii-xii describe and price such sets. Cole 1103. Not in Bolton, Duveen, Smith, Edelstein, or Partington. $1,250.

"anticipatory glimpse of what was to become a fundamental chemical discovery"

90. REY, JEAN (c. 1582/83-1645 or after). Essays sur lerecherche de la cause pour laquelle l'estain & le plomb augmentent de poids quand on les calcine. Paris: Ruault, 1777.

SECOND EDITION, first obtainable, and with important additional matter. 8 vo. Contemp. gilt lea.-backed marbled boards. xxxii, 216 pp. Two engraved plates. A little wear; a nearly fine copy.

The historian of science, Douglas McKie, in his introduction to the facsimile (London, 1951) of the 1630 original Rey 'Essays' discusses the rarity of it (at the time: 7 copies known, 5 in French libraries) and its rediscovery by Bayen in 1775. "From the time of Bayen's letter Rey's 'Essays' have exerted a continuous fascination upon all chemists, perhaps on account of the author's quaint and confident style, perhaps because of his anticipatory glimpse of what was to become a fundamental chemical discovery [describing for the first time that metals gain weight on calcination by combination with the oxygen of the air], and perhaps because no one who has laboured in the scientific quarry can fail to be stirred by Rey's assertion that 'by a single experiment all opinions contrary to mine are utterly refuted' ('Essay' XXV)." D.S.B. 9: 389. Partington II. 631ff & III. 112. Bolton I. 772. Neville II. 372. Cole 461. Hoover Coll. 683. $3,600.

"anticipatory glimpse of what was to become a fundamental chemical discovery"


FIRST EDITION. Two volumes. 8 vo. German-style marbled boards with gilt lea. spine labels. xxiv, 333, (1, errata); xxii, 316, (1, errata) pp. With 247 mounted colored specimens. Old library rubberstamps on titles; a very good, crisp set.

"An important treatise on the preparations, properties, and uses of inorganic pigments and dyes, by the co-discoverer of aniline dyes made from compounds isolated from coal tar. ...In these two volumes 'the colors of chemical bodies, precipitates, etc., are indicated by pigments inserted on squares in the text' (Bolton)." (Neville II. 407). Partington IV. 183-184. D.S.B. 11: 615-616. $1,500.

Nobel Prize, 1912 - The Author's Copy


FIRST EDITION. 8 vo. Orig. cloth. xxiv, 406, (1, pub. ad) pp. PRESENTATION COPY with a fine inscription from the translator to the author dated Nov. 15, 1922. A very fine copy, the cloth and gilt title especially bright.

Paul Sabatier was professor of chemistry at Toulouse from 1884 to 1930. "In 1897 Sabatier showed how various organic compounds could undergo hydrogenation... (He) discussed the whole problem in his book, 'Le catalyse en chimie organique' (1912), published the same year in which he was awarded the Nobel Prize for chemistry for his work on catalytic hydrogenations." (Biog. Encyclo. of Scientists). Sabatier's translator of this work, E. Emmet Reid (1872-1973), a student of Ira Remsen,
ANTIQUARIAN SCIENTIST

was professor of chemistry at John Hopkins where he pursued research in organic synthesis and became a pioneer in chemical warfare. $1,200.


FIRST EDITION. 4 to. Contemp. mottled calf, spine richly gilt. xxiv, 367 pp. Two engraved plates, one folding + a large engraved vignette in the text. Slight edge wear; a fine, crisp copy.

The engraving heading the first page of text puts two putti in a laboratory, one is seated playing with a Saussure hair hygrometer while the other gives him a haircut! In this way we are introduced to a classic of experimental science in which the Swiss geologist and physicist describes his findings with his hair hygrometer (pl. 1). Saussure capitalizes on the 2.4% change in length of an individual strand of human hair between dry and saturated atmospheric conditions to obtain a measure of relative humidity. Here "(he)...also enunciated his theory of the evaporation of water in hydrogen, carbon dioxide, and other gases. Cuvier regarded this book as one of the greatest contributions to science of the eighteenth century." (Neville II. 427). D.S.B. 12: 119-123. Milestones of Science 174. H. F. Norman Lib. Cat. 1894. $1,300.

Scheele's Discovery of Oxygen in English

93a. SCHEELE, CHARLES-WILLIAM (1742-86). Chemical observations and experiments on air and fire. With a prefatory Introduction by Tobern Bergman; translated from the German by J. R. Forster. To which are added Notes by Richard Kirwan with a letter to him from Joseph Priestley. London: J. Johnson, 1780.

FIRST EDITION IN ENGLISH. 8 vo. Contemp. plain boards with a green cloth spine, rebacked somewhat amateurishly. xl, 259, (1, pub. ad) pp. Engraved plate of apparatus as frontispiece. Slight offsetting of the plate to the title page, bookplate of a 19th C. medical society library; a very good, crisp copy with some leaves untrimmed.


"A monumental work containing a collection of essays on discoveries by Scheele, which had been published in Swedish in the Stockholm Academy transactions." (Neville II.429). The translation is due to F. X. Schwediauer and improved by Thomas Beddoes who also added notes. "Some of Scheele's most important memoirs are included: e.g., his discovery of hydrofluoric nitrosulphonic, molybdic, tungstic, arsenious and arsenic acids among inorganic compounds; and benzoic, citric, gallic, lactic, malic, oxalic, uric and other organic acids. Scheele also independently discovered or prepared chlorine baryta, oxygen, hydrogen sulphide, glycerol, lactose, and other compounds." (Neville). Other discoveries and methods are also included. Partington III.211. Sotheran/Zeitlinger, vol. 1, no.4229. Bolton I.802. Cole 1167. Duveen, p. 533. $1,800.

95. SHEPARD, CHARLES UPHAM (1804-86). Syllabus to lectures on chemistry. Charleston, South Carolina: S. Babcock, 1841.
ANTIQUARIAN SCIENTIST

FIRST EDITION. 8 vo. Contemp. three-quarter roan with marbled boards, iv, 204 pp. Woodcut diagrams of crystal forms in the text. Interleaved with some contemporary notes in ink and pencil at beginning and end. Ownership signature on front fly-leaf of Alexander B. Brumby dated April 29, 1854 at Columbia, South Carolina and in gilt at foot of spine: BRUMBY. An R.T. Brumby was professor of chemistry and geology at South Carolina College, c. 1849. Spotty foxing, joints partially cracked but tight, edge wear and moderate rubbing to boards; a good to very good copy.

Shepard had joint appointments at Amherst College, Yale, and the Medical College of the State of South Carolina where he was professor of chemistry 1834-60 and 1865-69. His 'Syllabus' gave a larger space to organic chemistry than usual "...occasioned by a desire to bring forward the new and profound results in this department; and which are too recent in their origin to be found as yet in the text-books and systems of science." (Advertisement, p. iv). The stab holes visible in the gutter margin suggest that the 'Syllabus' was issued in wrappers and/or in parts. See item 115 for his text on mineralogy. Bolton I. 831. Cole 1209. Not in Neville, Smith, or Edelstein. $875.

96. SLARE, FREDERICK (1647?-1727). Experiments and observations upon Oriental and other bezoar-stones... To which is annex'd A vindication of sugars against the charge of Dr. Willis... Together with further discoveries and remarks. London: Tim. Goodwin, 1715.

FIRST EDITION: Two parts in one volume. 8 vo. Contemp. paneled calf; rebacked. (4), v, (1), xvi, (8), 47, (1); (10), 63, (1) pp. Scattered spotty foxing; a very good copy.

"The distinguished chemist and physician F. Slare was elected F.R.S. (1680) and graduated M.D. (Oxford, 1680)... In the present work Slare disproves the supposedly miraculous medicinal virtues of animal calculi, by means of 'chemical fires' (i.e. chemical analysis). In the second part he argues cogently for the inclusion of more sugar from various sources in the diet. Many chemical experiments are described, some of which represent very early attempts to analyze an organic compound. ...Newton owned a copy of this work." (Neville II. 483). Fergusson Coll., p. 657. Neu 3851. $1,250.

Classic of Atomic Weight Determination
With Remarkable Provenance: Stas to Kekulé then Baeyer's


FIRST EDITION IN BOOKFORM. 4 to. Contemp. half pebbled cloth with marble boards. (2), 311 pp. Folding lithographed plate + 23 text wood engravings of apparatus. A special copy linking three major nineteenth century chemists who at different times worked together in their laboratories and whose researches are interlinked. PRESENTATION COPY from Stas to August Kekulé (1829-96). Stas was pivotal in bringing the young Kekulé to the University of Ghent and awarding him a chair in chemistry in 1858. At Ghent Kekulé was promised a new laboratory and the introduction of practical chemistry into the curriculum. One of his first private students was Adolf von Baeyer (1835-1917), the famous organic chemist who was awarded the 1905 Nobel Prize in chemistry. Baeyer became the second owner of this volume, on the title page are two rubberstamps: 'Kekulé - Bibliothek' and 'Farbenfabriken vorn. Friedr Baeyer & Co. Bibliothek Elberfeld' and the illustrated bookplate on the front pastedown, 'Bayer Kekulé - Bibliothek der Farbenfabriken Leverkusen'. On the half-title is a very personal four-line holograph inscription to Kekulé signed by Stas. The spine is a bit worn on the edges and has a chip at the top, there is an unimportant crease to the upper area of a number of early leaves, lightly uniformly browned, the plate has an old repair to the fold with no losses; a good to very good copy.

"The second of the two great milestone works of Stas, in which he describes further experiments on the very accurate determination of atomic weights of the elements by chemical methods. ...The appearance of this monumental work, which will remain one of the classics of chemistry, created a great impression. Its effect persists to this day. It constituted a model and furnished a standard which each successive worker has striven to emulate, with the result that atomic weights today are among the best ascertained of physical constants." (Thorpe, 'History of Chemistry', II, 75-77)." (Neville II.517). Kekulé contributed significantly to this accomplishment by Stas: his work is reported as a collaborator in at least five locations in the text. Kekulé, of course, is well known for his structure of the benzene ring and for laying the foundation of structural chemistry. Baeyer's Nobel achievement was described by a member of the Committee and a former student, O. Widman: "Baeyer has worked in all possible fields off organic chemistry. Everywhere his work has broken new ground. ...He has shown comparatively little interest in theories, even though we owe to him several brilliant ones. In this respect he has been, as he himself said recently, the direct opposite of his teacher Kekulé. Kekulé was the born general who wanted to command nature."
In his doctoral thesis, 'Studien...', published in 1907, Svedberg communicated his first results in the field of colloid research. He described a method he had worked out for the production of metal colloids in various media by electric pulverization, with which he had succeeded in producing an entire series of new systems of great interest. His thesis also included investigations of the peculiar movement of colloidal particles called the Brownian movement after the discoverer, the English botanist, Robert Brown. (Nobel - the man and his prizes, 1962). Some years later, Svedberg invented the ultracentrifuge which became an indispensable aid in studying high molecular substances and their molecular weights.

Svedberg received the 1926 Nobel Prize in chemistry: "for his work on disperse systems". "In his doctoral thesis, 'Studien...', published in 1907, Svedberg communicated his first results in the field of colloid research. He described a method he had worked out for the production of metal colloids in various media by electric pulverization, with which he had succeeded in producing an entire series of new systems of great interest. His thesis also included investigations of the peculiar movement of colloidal particles called the Brownian movement after the discoverer, the English botanist, Robert Brown." (Nobel - the man and his prizes, 1962). Some years later, Svedberg invented the ultracentrifuge which became an indispensable aid in studying high molecular substances and their molecular weights.

Presentation Copy to His Colleague, Gaspard Monge

FIRST EDITION. Four volumes. 8 to. Original orange boards with gilt roll around edges, uncut. (6), x, 606; (6), 762; (6), 658; (4), 333, (3) pp. Thirty-two engraved plates of apparatus and 5 folding tables.
PRESENTATION COPY inscribed to his colleague at the École Polytechnique, Gaspard Monge (1746-1818). On Monge's contributions to chemistry see Partington III.453-456 and item 75 of this catalogue. He is especially celebrated for his pioneering treatise on descriptive geometry published in 1799. Some edge wear to the boards and upper portion of joints, orange paper covering missing from bottom fifth of vol. 4; otherwise, a very good crisp set.

Thenard, who began his chemical career as a laboratory assistant to Vauquelin, eventually succeeded him at the École Polytechnique. He dedicated this large work to Gay-Lussac with whom he collaborated. Partington (IV.90-96) called it "an excellent text-book." Only the fourth volume on chemical analysis received an edition in English (1819). A sixth edition appeared in 1834-36. 'Thenard was the author of a large and important chemistry textbook... The first two volumes dealt with inorganic chemistry, the third with organic chemistry, ... and the fourth with analytical chemistry. ...Besides drawing on previous textbooks - such as those of Lavoisier, Fourcroy, and Thomson - Thenard incorporated the most recent researches of his contemporaries. ...The detailed index included in each volume makes Thenard's book a particularly useful reference for chemistry of its period.' (D.S.B. 13: 309-314). Bolot I. 867. Cole 1263. Neville II. 541. Edelstein 2242.

First Edition of a Set of Large Chemical Tables for Laboratory Display

FIRST EDITION. Tall folio. Twelve large bifolium leaves of printed tables laid in a thirteenth bifolium leaf forming the letter press title page and the 'Vorbericht'. The tables are printed on recto only. The title page and table six have had expert binder's repairs with no losses, title and verso of last leaf with minor dustsoiling; a very good copy preserved in a custom-made portfolio with a paper label on the front cover.

Trommsdorff "...was first apothecary and then professor of physics and chemistry in the University of Erfurt from 1795 till its dissolution in 1816. He also founded in 1796 a Chemico-Physical-Pharmaceutical Institute in Erfurt, which boarded the pupils and functioned for 33 years. Trommsdorff was a very highly esteemed man, well known in public life, becoming Director of the
The systematic tables of Trommsdorff give his classification of chemical substances as acids, alkalies, metals and salts (three classes). Also the author presents, in words, tables of single and double elective attractions. Trommsdorff takes into account the works of Bergman, Kirwan, Klaproth, Scherer, Richter, Wenzel and others as well as the new French nomenclature. (Cole 1291). Like Fourcroy’s contemporaneous chemical tables, these were intended for laboratory display and are, therefore, by their nature very scarce in sound, complete condition. Neville II. 566 - “...important work...” Edelstein 2323. Ferchl, p. 543. Poggendorff II.1137. Bolton I. 79 - Gotha, 1800 edition. Ferguson I. 473-474, not noted. $2,000.

The Fruit of "...scouring the countryside for telltale bubbles"
The Discovery of Methane


FIRST PRINTED ANNOUNCEMENT, very rare, of the discovery of methane. Small 8 vo. A single folded sheet, unbound, unopenened and untrimmed. 16 pp. Preserved in a fine linen covered clamshell case with lei. label on the spine. The pamphlet centered in a recessed opening of a raised support with ribbon release and protected in an acid-free mylar cover. A fine copy.

Among the great rarities of eighteenth century chemical literature is Volta’s initial report in two letters to his friend, Padre Campi, of his discovery of the gas methane. Only a handful of copies are known, the work is better known by the book with the same title (Milan, 1777) containing seven letters and extended to 147 pages. The two letters here are dated 14 and 21 November 1776 at Como. Stirring up the mud of Maggiore, Volta collected inflammable marsh gas that bubbled up into an inverted bottle filled with water. “His first pneumatic studies concerned ‘inflammable air from marshes’ (chiefly methane), which he discovered in November 1776 in Lago Maggiore. It was not a chance find. Inflammable air from metals (hydrogen released from acids) had been known since its isolation by Cavendish in 1776, and Franklin’s description of natural source of inflammable air had just been published by Priestley in a book quickly known in Italy. In the autumn of 1776, Volta’s friend P. Carlo Giuseppe Campi had found a natural source near Pavia; and Volta himself, intrigued by the ‘ever more remarkable and interesting subject of the different kinds of air’, scoured the countryside for telltale bubbles. The testing of his new gas - new in source, flame color, and combustability - led him into the faddish field of eudiometry.” (D.S.B.). For an important Italian account see: G. Polvani, ‘Alessandro Volta’, Pisa, 1942, chap. 6, plate 55, and p. 419. Partington III. 814-815 (1777 book and later editions only). Ronalds, p. 519. Not in Neville or the other published chemical collections. $16,500.

The Great Swedish Mineralogist's Last Book as an Academic


FIRST EDITION. 8 vo. Contemp. mottled calf, spine gilt. (18), 440 pp. Engraved title page + a folding engraved plate. The binding is worn around the edges with a small chip to the upper spine, joints partially cracked; internally a very good copy.

Wallerius’ 1747 treatise on mineralogy “…was received as an outstanding handbook of contemporary knowledge; never before had such a wealth of minerals been presented so systematically.” (D.S.B.). In 1750 he became the first professor of chemistry in Sweden at Uppsala. His responsibilities included also lecturing on metallurgy and pharmacy. In the mid-1760’s Wallerius’ health was undermined by poor working conditions in the laboratory causing his early retirement in 1767. The following year his last book as an academic was published, his lecture on metallurgy of which he said “…(it) has cost me innumerable experiments and much trouble.” Poggendorff II. 1252. Bolton I. 902, Smith Coll., p. 500. Not in Neville, Duveen, or Cole. $1,250.

The New Chemical Nomenclature

103. WHITE, ROBERT. An analysis of the new London pharmacopoeia, explaining the nature, principles, elective attractions, qualities, uses, and doses... Newmarket: W. Burrell, for T. Cadell, 1792. Bound with: A summary of the pneumato-chemical theory with a table of its
nomenclature, intended as a supplement to the Analysis of the new London pharmacopoeia. (London): Cadell and Davies, n.d. (1796).

FIRST EDITIONS. Two volumes in one. 8 vo. Half calf with raised spine bands, lea. labels, antique style. vi, (2, printed table of attractions), 192; vi, 26 pp. Large folding letterpress table facing second title: 'A table, exhibiting the chemical nomenclature proposed by Messieurs De Morveau, Lavoisier, Berthollet, and De Fourcroy, in May 1787'. Repair to blank gutter margin and to a tear (no losses) of first title, last leaf of first work reinforced in outside margin; lightly uniformly browned; good to very good copies.

'An Analysis' first appeared in 1792 at Newmarket and again four years later when the new chemical nomenclature had "...at this time generally (been) adopted..." (quotation from verso of title of 'A Summary'). 'A Summary' was "...principally intended as a Supplement to the Analysis,..." i.e. to accompany the rare 1792 first edition, Cole 1369; here Cole notes that it is not in the N.U.C. or Supplement nor in any of the chemical collections. 'A Summary' on its own is Bolton I. 914, Duveen 618, Neu 4343, Ferchl 578 and Nat. Lib. Med. (18th C.), p. 488. The interesting table of nomenclature to 'A Summary' is adopted from James St. John's English translation of 'Méthode de nomenclature chimique' published in 1788 (see item 67 for the original French of 1787). Not in Neville. $1,500.

An English Chemistry at the End of the Seventeenth Century

104. WILSON, GEORGE (1631-1711). A compleat course of chymary. Containing three hundred operations... Also, the structure of several furnaces... And such instruments and vessels as are necessary in a compleat elaboratory. London: printed, and sold at the Author's house... and by Walter Kettilyby, 1699.

FIRST ÉDITION. 8 vo. Contemp. paneled polished calf, rebacked with the orig. spine laid down, new lea. label. (16). 358 pp. Nine engraved plates with four letterpress explanatory leaves. Title within ruled borders. Foremargins of two plates just shaved; a very good copy.

The rare first edition of a successful chemistry text (5th ed. - 1736) here with nine plates though several sources give eight only (Partington II. 760; Duveen, p. 622; Sotheran/Zeitlinger, vol.2, no. 15557). "Wilson dedicated this excellent chemical textbook to Lord Paston, who possessed an 'Exquisite Skill in whatever relates to Chymistry'... Part I (pp. 1-193) deals with chemical processes and inorganic compounds. Part II (pp. 195-288) covers vegetable materials, and Part III (pp. 289-341) discusses animals and insects. Page 343 describes Wilson's courses (2.5 guineas), and pages 344-358 list the preparations carried out during the April and September courses." (Neville II. 632 - 1700 ed.). A 1691 edition is mentioned by a number of sources, but as Neville, Wing, and OCLC indicate, it is a ghost. Not in Bolton, Ferguson, Smith, Edelstein, or Cole. Wing W2892. Thorndike VIII.166-167.

$3,600.

GENERAL SCIENCE

Important Letters on the Founding of the Lawrence Scientific School and the Museum of Comparative Zoology at Harvard


Four autograph letters, two small envelopes, and an oval photograph, 6 x 5 inches, of Charles W. Eliot mounted on its original card backing and signed by Eliot below the image. 4 to. Detailed below, all are preserved in a fine linen-over-boards clamshell case with lea. label on the spine.

Lawrence, Massachusetts, to help with the purchase of Louis Agassiz' collection and fulfilling Agassiz' desire for permanent support. Here are the seeds of the eventual solution, the Harvard's Museum of Comparative Zoology. "...I know you will readily agree, that he (Agassiz) should be induced to remain among us during the rest of his life. I am doing what I can to secure this result by obtaining a sufficient subscription to purchase his collection, & thus give him the means to making another." Eliot also gently asks for further support of the Lawrence Scientific School. Complimenting the efforts of Prof. Eustis in building his engineering Department, Eliot assesses the accomplishments of the school thus far. See: E. Lurie biography of Agassiz (1960/1988), p.190.

(2). A.L.S. from Louis Agassiz to Abbott Lawrence, 1/2 page, dated 30 Aug. 1853. With wax sealed hand-written envelope. Overflowing letter of thanks for his support. "I shall for ever refer to you the foundation of this change in my existence." Agassiz refers here to a future "Museum".

(3). A.L.S. from Louis Agassiz to Abbott Lawrence, 2 1/4 pp., approx. 800 words, dated 20 May 1853. An important and revealing letter in which he pleads for the establishment of a museum at Harvard. He informs Lawrence that he has been offered a professorship in the newly founded scientific school in Zurich with mention of the liberal endowment of a museum. He writes that his friends have appealed to his patriotism to accept. Emphatically Agassiz quotes and underlines the words of Prof. Heer on the offer, "...which would leave nothing to wish to the incumbent..." Here Agassiz recalls "...a vague plan of another building connected with the Sc. school... To compete with similar institutions abroad the Lawrence scientific school ought to be enlarged & endowed with a Museum & other appliances. I am ready to devote all my energies to it." Agassiz complains about his working conditions resulting in his being unable to publish the results of his investigations. He notes that he has himself paid out $3800 for the maintenance of the collections after they became the property of the University, yet his salary is only $1500. Agassiz writes of his constant efforts on behalf of improving the collections and continues with pledging his dedication to the goal of establishing a formal museum. Unfortunately Lawrence died the following year. Eventually a member of the Corporation prominent in the shipping business, Francis Calley Gray, provided $50,000, the legislature $100,000, and a public subscription $71,000 resulting in the founding of the Museum of Comparative Zoology in 1859. The draft of this letter, from which Edward Lurie (‘Louis Agassiz - a life in science’, 1960/1988, pp. 193, 215) has twice quoted, is in the Houghton Library, Harvard. This revealing letter is also cited in C. Irmscher's 'Louis Agassiz - creator of American science', 2013, pp. 111-112.

(4). A.L.S. from Charles W. Eliot to the children of Abbott Lawrence, 9 pp., approx. 1600 words, headed 'Confidential' and dated 23 March 1871. This frank and factual statement of the state of the Lawrence Scientific School penned by the new president of Harvard sets out his financial considerations, educational goals, and reorganization plans. "The presidency of Charles William Eliot played out on an epic scale like no other, from his record-setting 40 years in office to his transformation of Harvard into a modern research university to his far-reaching impact on U.S. higher education." (Harvard University web site). Eliot states his purpose in sending this detailed analysis of the School: "I have made this full statement of the present condition, wants and possibilities of the School because I have felt that the children of the founder of the School ought to know that it is dying, and why it is dying, and what may be done to save and reestablish it." Eliot's bold signature as President concludes the eighth page verso, the ninth continues with a summary entitled: "Schedule of the Instruction which the School would offer upon this plan."

(5). Photograph of Charles W. Eliot as a formally dressed young man possibly taken at the time of his appointment as Assistant Professor of Mathematics and Chemistry at Harvard in 1858.

"The Lawrence Scientific School was, down to 1871, the only department of the University in which advanced instruction in the physical and natural sciences was offered; and some of the great departments of science now established under other faculties had their origin, or first significant development, in that school." (Samuel E. Morison, 'The development of Harvard Univ.', 1930). Also published in 1930 was H. James' account of Charles W. Eliot as president of Harvard where note is made of Eliot's 1861-62 proposal for the 'Plan' of the Lawrence Scientific School' a radical recommendation ultimately not accepted by the faculty. Here (4) in 1871 we have significantly Eliot's confidential assessment of the School. $6,250.
ANTQUARIAN SCIENTIST

FIRST EDITION. 4 to. Contemp. sheep. xxxii, 568, (2, errata) pp. Six folding engraved plates. For provenance see below. The original binding is worn and rubbed with a small piece lacking at the foot of the spine, usual age toning and browning, heavier in the vicinity of the plates; a good copy.

Of important provenance, this first volume of the first scientific journal published in New England comes from the library of the third Hollis Professor of Mathematics and Natural Philosophy at Harvard, Samuel Williams (1743-1817). A co-founder of the academy and a member of its Council, Williams contributed four papers to its proudly produced first volume. His paper entitled, "Astronomical observations, made in the State of Massachusetts" (pp. 81-123 and plate I) is well known for the description and illustration of Baily's beads observed during a Penobscot Bay solar eclipse over 50 years in advance of Francis Baily's published account in 1836. This volume came to us from the estate of Williams' descendent, the late Frank Williams Oliver, Esq., (1920-2006), the great-great-grandson of Samuel Williams. Oliver inherited family books and manuscripts going back to Warham and John Williams (on this notable American family see R.F. Rothschild, 'Two Brides for Apollo - the life of Samuel Williams', 2009). Laid in is Oliver's characteristic typed cataloguing of this book, and a bookmark manuscript account fragment dated 1785 with Williams' name on verso. $1,200.

Presentation Copy from the Author to His Son, the Editor of the Posthumous Second Volume


FIRST EDITION. 8 vo. Contemp half lea. with marbled boards. xxv, 150 (bis-ter), 151-272 pp. A large folding plate containing two letterpress tables. PRESENTATION COPY to his son, Jean-Jacques (1800-64), who edited the posthumous second volume (1843) usually found with the second edition of the present book. The inscription is cleverly taken from the title of the poem Ampère composed as a memory aid for his synoptical book, both of which are on the folding plate. In Latin, the inscription can be translated: "The best and dearest son, A. Ampère." Ampère's signature agrees with those at the end of known letters, and includes his characteristic small symbolic flourish at the end of his name. A later owner has named his father as having obtained this book from J. J. Ampère. A brown stain at the end affecting the last few leaves and the folding table; otherwise, a very good copy.

Ampère, pioneer of electrodynamics, culminated his life's work with a classification of all the sciences, "...and by a process of subdivision, reached a total of 128 sciences and subsiences including one he called 'Cybernetics.'" (B. Dibner, 'Ten founding fathers of electrical science', (1954). The D.S.B. has a detailed discussion of this work as does J. E. Hofmann's biography of Ampère (1995), chapter 10. From the biography: "Ampère's last major composition was published in two volumes, the first by Ampère himself in 1834, and the second posthumously in 1843 under the supervision of his son. The 'Essai' represents the culmination of Ampère's abiding conviction about the holistic nature of human knowledge. It is unique in that it represents the only case in which Ampère managed to organize his philosophical views into a publishable format. ...Based upon the manuscripts Ampère had amassed by the time of his death, the second volume of the 'Essai' was published by Jean-Jacques Ampère in 1843."

"...it is now a rare book" - Fulton

$4,500.


FIRST EDITION, two parts in one. 4 to. Contemp. speckled calf, old rebacking (Hodson, Binder, Liverpool). (18), 128, (8), 419, (18) pp. Title within ruled border. As is often the case, without AI, the label-title. Engraved armorial bookplate of James Earl of Derby, 1702 on verso of half-title and another engraved armorial bookplate on front pastedown. Early marginalia in part one. Minor wear to edges of binding, a clean, crisp, very good copy.

Fulton 50: 'A long and detailed work, being put into type in London and Oxford by the same printer... The first edition was probably very small, as it is now a rare book (written in 1930). Both issues of the second edition are common... The work as a whole shows a most surprising knowledge of natural history, medicine, physics, and chemistry, in many respects far in advance of his age, and is of special importance for its comments on medicine. For example, in discussing of the usefulness of natural philosophy to medicine (Part II, see p. 117), the 'Physiological, Pathological, Semiotical, the Hygienical, and the Therapeutical.' He then systematically describes each of the five divisions of medical knowledge.' Neville l. 210 - 2nd edition (1664).

$4,500.
An Important Presentation Copy


SECOND (last) EDITION. 4 to. The text volumes in contemp. calf, sometime rebacked, and the plate volume in contemp. lea.-backed boards. viii; 760; ii, 628 pp. Engraved frontispaitrout, vol. 1 +forty-one engraved plates + numerous text woodcuts. PRESENTATION COPY to the author’s close friend, J. B. Wise, inscribed by Hutton in all three volumes. In addition, there is a long letter tipped into vol. 1 penned by Hutton on 8 March 1815 to "My Dear & Worthy Friend" (conjugate leaf addressed to J. B. Wise, Boyne Hill). He complains of the medical hardships his wife endured that winter and of the death of his grandson of 15 while in their care. During this, he notes he occupied himself with correcting the proof sheets for this new edition of his dictionary. The letter and a copy of the new edition of his 'Recreations' were made ready for Wise's son to collect them. On p. 474 of vol. 1 is a handsomely lettered 6-line addition in the margin initiated by Wise; on p. 696 is a 3-line comment on the calendar. In vol. 2, p. 67 is a marginal correction on the Moon's age; on p. 137 an addition to a planetary orbital table and a similar on p. 194. Hutton cites his "ingenious friend," J. B. Wise at least twice in the text for Wise's contributions to the articles on Magic Squares and the Geometry of the Compases. The volumes have some edge wear, more so the plate volume; still, a very good, special set.

Charles Hutton, professor of mathematics at the Royal Military Academy in Woolwich, was elected F.R.S. in 1774. His large mathematical dictionary first appeared in 1795-96 and "...is probably the best known of Hutton's works. ...the dictionary has served as a valuable source for historians of mathematics." (D.S.B.). "...a splendid monument of late eighteenth-century Newtonianism and a most useful source, also sets out the kinetic theory of heat, that is the effect of motion of particles." (D. Knight, 'Natural Science Books in English', 1972, p. 154). "...a valuable contribution to scientific biography..." (Encyclo. Brit., 13th ed.). This second edition adds four plates and a portrait of Hutton. Plate 14 is a full-page engraving of Herschel's telescope.

$2,500.

Revealing the Truths of Science by a Demonstrative Logic


FIRST EDITION. 8 vo. Contemp. mottled calf, old rebacking with the original gilt paneled spine laid down. (70, includes errata leaf), (2, blank), 429 pp. Title within ruled borders. Front joint partially cracked but tight, lightly uniformly browned; a very good copy.

An interesting, early, and scarce treatise on method in science by the Roman Catholic convert and controversialist, John Sergeant. His writings during an active 40 year period engaged all the major Protestants, especially Dr. Stillingfleet, the Bishop of Worcester, his greatest and most frequent adversary. The violent reaction to Sergeant's writings caused him to publish under assumed names or cryptically, with initials only. His approach here is one of applying logical structure, 'a demonstrative logic', to the pursuit of improving science. His method puts aside (with all due respect) the philosophy of Descartes, and the approach of the experimentalist, like Boyle, for his application of logic. In a word, 'tis Connexion of Terms which I onely esteem as Proper to advance Science. Where I find not such Connexion, and the Discours grounded on Self-evident Principles, or (which is the same) on the Metaphysical Verity of the Subject, which engages the Nature of the Thing, I neither expect Science can by gain'd, nor the Method to Science Establish'd." (Preface). Wing S2579. N.L.M. (17th C.), no. 11023.

$1,400.

GEOLOGY AND MINERALOGY

"...the first important mineralogical text published in the United States" - D.S.B.

110. CLEAVELAND, PARKER (1780-1858). An elementary treatise on mineralogy and geology. Boston: Cummings and Hilliard, 1816.
Parker Cleaveland's large treatise of 1816 on mine ralogy "...was easily the best book on the subject in the country and one of the best in the English language. He made a thorough job of it, basing it mainly on the French system of Brongniart and Haüy, and attracted the sympathetic attention not only of his colleagues in America, but also of scientists abroad, primarily because of its information on American sites of minerals..." (D. J. Struik, 'The origins of Amer. sci.', 1957). "A review in the 'American Monthly Magazine and Critical Review', possibly written by Samuel Latham Mitchell and signed 'K', praised Cleaveland's book as 'auspicious of the advancement of the physical sciences in the United States'..." (J.C. Greene & J. G. Burke, 'The science of minerals in the age of Jefferson', 1978 which includes on pp. 80-90 a detailed account of Cleaveland's book.). G. P. Merrill, 'The first one hundred years of Amer. geology', 1924, pp. 41-46). Geology Emerging 487. Hazen 2420. Rink 775. $2,000.

"One of the most significant contributions to American mineralogy and the science as a whole..."


Dana's first book is "Very scarce. One of the most significant contributions to American mineralogy and the science as a whole was made when Dana, at the youthful age of 24 published his 'System of Mineralogy'... The text is a very complete and readable compendium of all mineralogical data available at that time." (C. Schuh, 'Mineralogy and crystallography: a biobibliography, 1469-1920', no. 1207). Dana's worldwide reputation was cemented with his participation as geologist and mineralogist on the Wilkes Expedition, 1838-42. With the departure of Couthouy, Dana also took on responsibility for marine zoology. Hoover Coll., no. 247. Geology Emerging 586. $1,900.

"...marks the beginning of crystallography in the modern sense"


"An important work in the history of the development of chemical crystallography, in which Haüy correlates the crystal habit of minerals with their chemical analysis. ...represents a great advance in the author's thinking... This work on crystals marks the beginning of crystallography in the modern sense." (Neville Lib. I. 602-603). Smith Coll., p. 223. D.S.B. 6: 1816. Geology Emerging 1025. $1,100.


"Taking a broad cosmogonical view of creation, LaMétherie regarded the major features of the earth as the result of the combined action of crystallization, moving water, and shifts in the planetary-motion characteristics of the earth. Major alterations in the crust, he believed, had not occurred since the main valleys and mountains were created by the primordial crystallization process. Mountain upheavals, violent floods, and other agents of change were generally rare and isolated events." (D.S.B.). Within two years a second edition appeared. Zittel, 'Hist. geology & palaeontology', 1901, pp. 77-78. Geology Emerging 1318. 'Theories of the Earth 1644-1830' (Linda Hall Lib., 1984), no. 90 - German trans., 1797-98. Wheatland, p.132. $1,000.
ANTHROPOLOGICAL SCIENTIST

Eighteenth Century Italian Mineral and Fossil Collection

   A very scarce title of chemical, mineral, and geological interest by the Italian collector, Silvestro Marcellini. He describes the fossil, mineral, and gem specimens with considerable attention to their chemical composition. Marcellini’s interest in the subject began in 1785 with the opening of a pyrite mine near Fabriano which produced a wide variety of fossils and minerals. Despite the chemical content of Marcellini’s treatise, it is not found in any of the usual chemical bibliographies and collections except Neville (II. 138). It is not in Poggendorff, Sinkankas, or the Hoover Collection.

114. NICOLS, THOMAS. A lapidary: or, the history of precious stones. Cambridge: Thomas Buck, 1652.
   FIRST EDITION, first issue. Small quarto. Contemp. polished calf ruled in blind on spine and sides. (10), 239, (1) pp. Folding table. Without the blank signed AI, as usual. Minor edge wear, owner’s signature on title; a very good, clean and pleasing copy.

Complete First Edition Set of Shepard’s Early American Mineralogy

   FIRST EDITION. Three volumes in one. Thick octavo. Antique style half calf with marbled boards, the original fly-leaves preserved. six, (Lerrata), 256; xiv; 300; 331 pp. Over 650 text woodcuts. Two ownership signatures at head of first title; a very good, crisp copy with only occasional light spotty foxing.
   Charles U. Shepard, a graduate in 1824 of the newly founded Amherst College, studied with Thomas Nuttall for a year and then became Silliman’s assistant in 1827 continuing until 1831. In 1830, Shepard was appointed to a lectureship in natural history at Yale which held to 1847. Late in 1844, Shepard became professor of chemistry and natural history at Amherst. His major work was ‘Treatise on mineralogy’ (1832-35). Shepard’s collection of minerals was reported to have been the largest in America at the time of his death, this despite the fact that his first collection was destroyed in an Amherst fire in 1882. In his obituary in the Charleston News it was written: "Prof. Shepard discovered more new species of minerals which have attained permanent recognition than perhaps any other scientist of the present day." This book was important in promoting mineralogy in America, see W. E. Wilson (ed.), ‘Mineral Books’, 1995, p. 63. Very uncommon with the three volumes in first edition and contemporaneously bound together. Roller & Goodman II. 429 - separate entries for the 1832 and the two 1835 volumes. $975.

115a. SNOW CRYSTALS, see items 241 and 246.
The Origin of Fossils and the Forms and Manner of Crystals

"...an entirely new scientific approach to nature, one that opened up the dimension of time"


FIRST EDITION. 4to. Contemp. vellum over boards with small author's name in manuscript at top of spine. (2), 2, blank), 78, (1, errata), (1, blank) pp. Title in red and black with large engraved arms of the Grand Duke of Tuscany. Large folding engraved plate and large folding descriptive letterpress plate. A fine copy in a well preserved contemporary vellum binding.

"In 'A Dissertation concerning a Solid Body' (Steno) described the composition of the earth's crust in Tuscany and a famous diagram in his book shows six successive types of stratification: the first attempt ever made to represent geological sections. This was a sequence which he believed would be found all over the world. He explained the true origin of fossils found in the earth as being remains of once living things, and he discriminated between the volcanic, chemical and mechanical modes of the origin of the rocks. He was the first clearly to recognize that the strata of the earth's crust contain the records of a chronological sequence of events from which the history of the earth can be reconstructed. He attempted to find the principles of stratigraphy. ...his book marks a great advance in geology and it cleared the path for the modern sciences of palaeontology and geology as they were gradually established by Leibniz, Lamarck, and particularly by James Hutton. Steno also made important and original observations on the forms and manner of crystals..." (PMM 151).

Beyond Steno's formidable achievements on a new and correct theory of fossils and interpretation of rock strata, his accomplishment "...was that he drew up a blueprint for an entirely new scientific approach to nature, one that opened up the dimension of time. As Steno wrote, 'from that which is perceived a definite conclusion may be drawn about what is imperceptible.' From the present world one can deduce vanished worlds." (A. Cutler, 'The seashell on the mountaintop', N.Y., 2003). Grolier/Science 100, no. 96. Heralds of Science 90. Milestones of Science 185. Epochal Achievements 63. H. F. Norman Lib. Cat., no. 2013. Parkinson, 'Breakthroughs', pp. 108-109 with four citations for this book.

$25,000.


In 'Thoughts on the creation and change of the world, particularly of the earth', the Swedish chemist and mineralogist, J. G. Wallerius, presented his theory of the origins of the earth. Though Wallerius cites many important contributors to this subject (e.g. Hooke, Burnett, Whiston, Sturm, Leibniz), "...he assigned the highest authority to the biblical account of the history of creation." (D.S.B.). Geology Emerging 2286. Poggenderff II.1252.

$750.


An important book in the development of a theory of the earth by the professor of physic at Gresham College in London (from 1692) and F.R.S. (1693), John Woodward. 'Woodward's 'Essay' was valuable in its time for its methodology (combining first-hand observation with a unified method of obtaining information from distant sources), its strong argument in favor of the organic origin of fossils, and its stimulation of interest in geological matters." (H.F. Norman Lib. Cat. 2262).


$2,500.
ANTiquarian Scientist

LIFE SCIENCES

Large Collection of Surgical and Medical Prize Essays
A Very Fine Eight Volume Set

FIRST EDITION (N.L.M., 18th C.). p. 2 records an overlapping three volume quarto edition, 1753-59. Eight volumes, 12 mo. Contemp. mottled sheep, spines richly gilt within compartments; xi, (1), 392, (3, errata for vols. 1-3); (4), 498; (7), (4)-478; (2); (5), (4)-400; (7, errata for vols. 1-4); (5), (2)-367; (5), (2)-272, (1, errata for vols. 6-8), (2, privilège) pp. Engraved frontispieces in vols. 1, 3, and 6 after E. Boucher and an engraved medal on title of vol. 6. A very fine, crisp set.

The Royal Academy of Surgery in Paris beginning in 1732 proposed questions for its gold medal prize and gathered the winning essays in these eight well-produced volumes. The authors represented are Le Cat, Medalon, Bassius, Faure, La Sone, Alary, Kulbel, Hugon, Mopillier, Grassot, Guyot, Louis, Grashu, Eschenbac, Charmetton, Nannoni, Flurant, Goursaud, Bordeu, Majaut, De La Bissiere and Grillon. The 1752 date, which clearly appears in Roman numerals in volume six of this set, may be a printer’s error and should be 1757. The N.L.M. N.18th. C. printed catalog has of the duodecimo edition an incomplete first edition set and a later mixed set. OCLC notes only one set at the N.L.M. Not in Wellcome, Waller, Blocker Collection, Heirs of Hippocrates, Pybus, or Cole. $1,800.

Presentation Copy


"...a short work in which he gave an account of the history of the introduction of the electro-cautery and described the cautery loop or galvanic ‘écraseur’ and the cases for which he used it." (Rowbottom & Susskind). Bakken, p. 128. $750.

Monumental Four Volume Treatise on Surgery with Masterful Illustrations

FIRST EDITION, second issue (the sheets of the original 1801-1808 first edition with cancel title pages). Three volumes in four (vol. 2 in 2 parts). Large quarto. Antique style half morocco with marbled boards. Uncut. (8), 674; (5), viii-xxxi, 288; (6), 289-849; (6), 298, (2, pub. cat. includes vol. 1 & 2) pp. Two engraved title pages (vol. 2, pt. 2 dated 1808) + 88 engraved plates (12 hand-colored & 2 folding) + 69 engravings in the text. Old inobstrusive medical library rubberstamps to title, verso of plates, and one or two other leaves. Scattered foxing and browning with some offsetting of plates to text leaves - more so in vol. 3 (as is usual); still, a very good, large uncut set attractively rebound preserving all the original endpapers and fly-leaves.

Charles Bell’s elder brother, John, was Scotland’s premier teacher of surgical anatomy, a field he made major contributions to. ‘His monumental ‘Principles of surgery’ presented ‘not only the surgical knowledge of the period, but also a scholarly, historical review of the treatment of the conditions dealt with, together with a wealth of clinical description and shrewd comment…’ (Wallis, ‘Medical history’, 8, 1964). The work is particularly remarkable for its illustrations, which display Bell’s considerable artistic talents." (H. F. Norman Lib. 177, 1st ed.). G-M 5581 (1st ed.). Wellcome II. 138. $3,200.

SECOND EDITION, greatly enlarged. Two volumes. 8 vo. Contemp. mottled lea., spines gilt within compartments; (4), xxxiv, ii, 522; (1, errata); (4), iv, 510, (2, errata) pp. Six folding, engraved plates of apparatus and electrotherapy methods. Minor wear to bindings mainly along spine edges; a very good set.
Offered here in presentation copies are the last two of six important papers (his best
scientific and philosophical basis of a 'specific' remedy and reveals a rather surprising insight into the
modes in which death is produced by certain vegetable poisons. London: printed by W. Bulmer,

Neural Control of Animal Heat - Presentation Copies

123. BRODIE, BENJAMIN C. (1783-1862). Experiments and observations on the different
modes in which death is produced by certain vegetable poisons. London: printed by W. Bulmer,
1811.

Offered with: Further experiments and observations on the action of poisons on the
animal system. London: printed by W. Bulmer, 1812.

Including a Section on the Chemical Properties of Light

122b. BORELLI, GIOVANNI A. (1608-79). De motu animalium. Leyden: Boutesteyn,
Bound with: De motionibus naturalibus, a gravitate pendentibus. Leyden: Vander Aa, 1686. For
complete entry see item no. 227.

Boyle on Medicine

122a. BERTRAND, MICHEL (1774-1857). Essai touchant l'influence de la lumiere sur les etres
FIRST EDITION. Small 8 vo. Antique style three-quarter polished calf, spine gilt. 66 pp. Title and last leaf slightly disbound, ownership stamp of Dr. Roy Neville, the important late collector of chemistry books, at foot of dedication and last leaf; a very good copy.

A rare book of essays of medical and chemical interest presented to the faculty of l'Ecole de
Medecine de Paris by Michel Bertrand. Considered are the actions of light on vision, on the animal
economy, on vegetation, and on the atmosphere, with a final section on the chemical properties of
light. Later in his career Bertrand published on the properties of the thermal waters of Mont-d'Or.
The present book is lacking from the N.L.M. Cat., Wellcome, Waller and the usual chemical sources
and collections. Neville L.142.

$750.

122. BOYLE, ROBERT (1629-91). Of the reconcileableness of specifick medicines to the
FIRST EDITION. 12 mo. Late nineteenth century three-quarter lea. with marbled boards by W. S.
Wilson & Son, Cambridge. (14), 226, (14, 'Cat. physick and other books on sale by Samuel Smith') pp. Title
within ruled border. The divisional title printed as A8 and headed 'Pag 137.' has not been inserted after p.
(136) as intended, but remains in signature A and is bound before page 1. Early ownership signature on title
of a Jos. Bromhead. Some browning, boards a bit rubbed; a very good copy.

'The Specific Medicines', a rare and little known tract of Boyle, entitles him to a place
among the principal contributors to medical science in the seventeenth century. In it he examines the
scientific and philosophical basis of a 'specific' remedy and reveals a rather surprising insight into the
nature of a great variety of common diseases, e.g. nephritis, the failing heart, gangrene, etc." (Fulton

$3,000.
many experimental results which seriously "...challenged the whole chemical theory of animal heat, with respiration (and, by implication, combustion) as the actual source of heat production. The results were indisputable. He destroyed the animal's brain by pithing, decapitation, or poisoning (the present two papers), yet maintained respiration and heartbeat artificially... If respiratory changes were the immediate cause of heat in animals, then the temperature of the animals should be maintained. This did not occur. Moreover, Brodie inactivated the higher cerebral centers by poisoning, then gradually allowed the animal to recover, as the 'sensibility' was recovered so was the power of generating heat..." (D.S.B.). Though Brodie did not advance any new theories to account for these results, eventually it was shown that animal heat production and maintenance are controlled by nervous centers, and over sixty years later, Claude Bernard was quoting Brodie in his work on the subject. Rothschild, 'Hist. physiol.', 1973, pp.184-85, citing these papers. $750.

Foundation Work of Paleobotany


In 1822 Brongniart published his first important memoir, on the classification and distribution of fossil plants. In it he conceived of paleobotany as a part of botany and gave it a theoretical value of prime importance for biology as well as for geology. ...The masterworks of 1828, the 'Prodrome' and the 'Histoire des végétaux fossiles', mainly confirmed and extended his early ideas, giving them foundation and breadth of perspective. The 'Histoire'... was a long, methodical, detailed, and precise study... Its general principles and theoretical views were expressed in condensed form in the 'Prodrome', to striking effect. In it Brongniart recognized the existence of four successive periods of vegetation, each characterized geologically. ...Brongniart then divided the vegetable kingdom into six classes... This excellent classification clearly indicated modern views... "(D.S.B.). 'En Francais dans le text', no. 24 1. Heralds of Science 95 - 'Histoire', not noting 'Prodrome'. Pritzel 1171. Zittel, pp. 368-369. Geology Emerging 329. M.J.S. Rudwick, 'The meaning of fossils', 1985, pp. 146-149, 162.


Georges Cuvier's First Book


FIRST EDITION. 8 vo. Contemp. mottled sheep, spine gilt and with black lea. label. xvi, 710 pp. Fourteen engraved plates on strong paper, and duplicates of plates one through eight on a lesser paper. Minor early ink-spotting to the half-title and title page, slight wear to corners; otherwise, a fine, attractive copy.

The French naturalist and founder of vertebrate paleontology, Georges Cuvier, published his first separate work in 1798. With this publication he established the science of comparative anatomy. The text is based on a course of lectures he delivered two years earlier at the l'École du Panthéon, and is important for containing Cuvier's first general statement of his natural classification of the animal kingdom. His 'magnus opus' on the subject appeared nineteen years later in four volumes, 'Le règne animal' (see next item). Milestones of Science 44. Cole Lib. II. 70. Wood, p. 307. N.L.M. (18th C.), p. 170. Waller 11798. See: Heralds of Science 195 and PMM 276. $1,300.

"...the greatest body of zoological facts that had yet been assembled"

ANTIQUARIAN SCIENTIST

FIRST EDITION. Four volumes. 8 vo. Contemp. half lea. gilt with marbled boards and edges. xxxvii, (1), 540; xviii, (1), 532; xxx, (1), 653; viii, 255 pp. Fifteen engraved plates. Occasional light browning to text (the plates clean), piece torn away from outside margin not affecting text of leaf 319/320, vol. 2; a very good set.

PMM 276. "The most influential exposition of the typological approach to animal classification, representing the greatest body of zoological facts that had yet been assembled; it served as the standard zoological manual for most of Europe during the first half of the nineteenth century. Using the taxonomic system that he had introduced in 1812..., Cuvier divided the animal kingdom into four main types or 'embranchements': Vertebrata, Mollusca, Articulata and Radiata, each with its own subgroups. This represented an attempt at a 'natural' classification system, based upon the assumption that the characteristic interrelationship between an animal's function and structure placed it within an exclusive group (i.e., that species were 'real'), as opposed to the more artificial systems of the past..." (H. F. Norman Lib. Cat. 567, also the headline quotation). In volume four is found on pp. 95 to 170 'Table alphabétique des auteurs cités', an annotated bibliography of zoological literature. D.S.B. 3: 521-528. Heralds of Science 195. Milestones of Science 42. Wood, p. 307. G-M 327 (3rd ed.). $2,500.

The Great Darwin Book - First Issue of the First American Edition


FIRST AMERICAN EDITION, first issue with two quotations facing the title. 8 vo. Orig. brown pebbled cloth, expertly rebacked with the orig. spine mounted on very closely matching pebbled cloth. Orig. brown endpapers preserved. 432 pp. A folding lithographed plate. Upper corners of covers a bit worn, but cloth otherwise fresh. Early circular embossed stamp in blank area of title: "S.C. Griggs & Co., Publishers...Chicago." A very good, crisp copy.

The first issue of the first American edition "...of the most important biological book ever written..." (Freeman). The official publication date of the Murray edition was November 24, 1859, while the Appleton edition appeared in the middle of January, 1860. 'By observing the special biology and geology of isolated islands during the cruise of the 'Beagle', Darwin's reflective mind saw, in the struggle for existence, that favourable variations would tend to help survival, with the resulting formation of new species. Fossil remains and the extinction of species, such as the dodo and solitaire birds, further supported such a position. This, the most important single work in science, brought man to his true place in nature." (Heralds of Science 199 - citing first edition). Freeman 377 & p.83.

$8,500.

The Discoverer of Osmosis


FIRST EDITION. Two text volumes and an atlas. 8 vo. Contemp. half calf with marbled boards. xxxi, (1, errata), 576; 573, (1, blank), (1, errata); 36 pp. Atlas with 30 engraved plates; 4 folding. Ownership signature in vol.1 of the professor of natural history at Leiden (1823-45), C.G.C. Reinwardt (1773-1854). Top of spine of vol. 2 chipped, light wear at binding edges, some spotty foxing; otherwise, a very good set.

As pointed out by Julius Sachs, and more recently by A.G. Morton, in their histories of botany, Dutrochet's influence on the subject through his publications was of paramount importance for the period 1804 to 1840. This treatise represents "the final results of Dutrochet's thirty years of research into plant and animal physiology, replacing a series of earlier papers that he considered 'null and void'. Dutrochet's most important contribution was the discovery of osmosis, to which he gave its name; he was the first to investigate the phenomenon systematically, and to recognize its fundamental significance in living organisms. ...He recognized that only plant cells containing green matter were capable of absorbing carbon dioxide, and was the first to detect the production of heat in both a plant and an insect muscle during activity." (H. F. Norman Lib. Cat. 673). Of some importance in considering the significance of this publication is Dutrochet's own statement in the introduction that his memoir on osmosis, with which the collection starts, was entirely reworked for publication here. G-M 110. Pritzel 2566. Blocker Coll., p.119. Cole Lib. II. 92. Wellcome II. 506 - atlas only. $1,100.
ANTIKUARIAN SCIENTIST

Nobel Prize in 1967


PREPRINT of a paper submitted to 'Die Naturwissenschaften'. 8 vo. Orig. printed wrappers. 145, (3) pp. + unpaginated preliminaries, divisional titles, figs., tables, and references printed on yellow paper.

PRESENTATION COPY to F. O. Schmitt (1903-95) with a hologram inscription signed by the Author. The American biologist, Frank O. Schmitt, was head of the biology department at M.I.T. His research focused on biomolecular nerve structure and mechanisms: myelin layer structure, axonal perfusion studies demonstrating ion gating and excitation; also studied wound healing, fibrogenesis. His pencil note indicates this monograph was read on 5 May 71.

FIRST EDITION, 8 vo. Orig. cloth with dust jacket. 311 pp. Plates and colored text figs.

PRESENTATION COPY to F.O. Schmitt with a signed 5-line hologram inscription by the Author noting Schmitt’s 85th birthday.


FIRST EDITION IN ENGLISH. 8 vo. Orig. cloth with dust jacket. xii, 173 pp. Colored text figs.

PRESENTATION COPY to Clifford Matthews (1921-2016), professor of chemistry at the Univ. of Illinois (1969-1992), who conducted researches in cosmochemistry and the origin of life. Eigen signed inscription is dated July 1993 at Barcelona.

The spine of the preprint is faded, otherwise, fine copies.

Manfred Eigen shared the 1967 Nobel Prize in chemistry for the investigation of rapid chemical reactions by means of very short pulses of energy. In more recent research, Eigen has been a pioneer in research on self organizing systems and the origin of life.

$875.

Insight into a Beloved Natural Science Writer - An Essay from His Youth


Original Typescript on 8 1/2 x 11 inches plain paper, 19 leaves, approx. 4,000 words, signed: "Loren C. Eiseley/Geology 105". The first and last leaves with browning and slight chipping at corners, signs of being old paper in blank corners; overall, good condition.

"A short while ago, I peered through a microscope at a minute dot of grey; shapeless and yet moving, or rather flowing over the field of vision. It was one of many, clustering toward the light in the aquarium by the window. Sightless, without brain, hardly more than bits of primeval slime with a few chemical changes taking place in them, they were nevertheless imbued with the unrest of life. Compelled by unquessably dim impulses - chemical affinity - call it what one will - they crawled and yearned toward a light they could not see." (First paragraph of typescript).

Already one hears the voice of the later Eiseley, master of natural science writing and bestselling author. Eiseley, who rose to Benjamin Franklin Professor of Anthropology and History of Science and curator of the Early Man section at the University Museum at the University of Pennsylvania, was (and is) well known to the reading public for his many engaging books on natural science and evolution. Here in this early college essay, Eiseley reviews the theories on the origin of life for his Geology 105 class. This course is still given at the University of Nebraska in Lincoln and entitled, 'Life of the past'. The essay, though undated, falls in the 1925 to 1927 period as determined by internal evidence [J. Loeb is noted as 'late' (d. 1924); E. R. Lanketer (d. 1929) and Arrhenius (d. 1927) are noted as still living. Eiseley entered the University of Nebraska in 1925 and dropped out in 1929 due to illness (TB). He resumed his studies in 1930 and graduated with a B.S. in June 1933. While an undergraduate, Eiseley wrote for the 'Prairie Schooner' and eventually became its editor. Concerning his personal papers, they were "incinerated" shortly after his death as he wished. It is likely that few survive outside of archives at the University of Pennsylvania and the Loren Eiseley Conference Room which contains his library and a collection of his books.

Offered here is perhaps the earliest of his essays to survive. (On this, and for background see, E. F. Carlisle, 'Loren Eiseley - the development of a writer', 1983). Eiseley published his first book...
ANTiquarian ScienTIST


Massive and Important Early Botany of the South Published in Charleston, South Carolina


FIRST EDITION. Two volumes. 8 vo. Orig. green-gray boards, neatly rebucked with the orig. printed labels preserved. Uncut. (4), 1-583, vi, (584)-606; viii, 743 pp. Twelve engraved plates containing 48 plant species. Scattered spotty foxing, more so to Plate I, paper flaw to leaf 329/330 of vol. I affecting a couple of words on verso, old light medical library stamp on titles and versos of plates, bookplates; a very good set, uncut in the original boards.

Born in Beaufort, South Carolina, Stephen Elliott spent the early part of the 19th century there engaged in his studies for his chief botanical work published in two thick volumes at Charleston in 1821 and 1824 (the parts began to be issued in 1816). He received his A.B. from Yale College in 1791. Under arduous circumstances, Elliott managed to add 180 genera and 1,000 species to those listed in Thomas Walker's pioneering 'Flora Caroliniana' (London, 1788). He extended his gratitude to many fellow botanists (especially Henry Muhlenberg to whom he glowingly dedicated his 'Sketch') whose work he relied on or who acted as his correspondent. Correa da Serra considered Elliott the ablest botanist in the United States and Hooker praised his 'Sketch'. Elliott's botany "...also included number of botanical discoveries of W. Baldwin that might have been lost to view for many years because of Baldwin's early death." (Biog. Dict. Amer. Sci.). "Elliott is commemorated by the beautiful flowering shrub 'Elliottia', and various species such as 'Carex Elliottii', 'Juncus Elliotti', 'Solidago Elliottii', 'Aster Elliottii'. The Elliott Society of Natural History, of Charleston, established in 1853, was named for him." (Kelly & Burrage). A facsimile reprint of this important and rare botany was published in 1971. John C. Greene, 'American Science in the Age of Jefferson', 1984, p.112. Pritzel 2664. $3,500.

Contribution to the Spontaneous Generation Controversy


The archdeacon of Bologna, Felice Marsilli, in 1683 addressed to Malpighi his report of the discovery of the snail egg as a contribution to the spontaneous generation controversy current at the time. It immediately was taken up in European circles. Malpighi sent a copy to the Royal Society (they included it in their 1687 Malpighi 'Opera omnia'), and in the following year (1684) it was published in Latin with engraved plates. D.S.B. 2: 591b. NLM (17th C.), no. 3982. Manchester Univ. Lib. Med. Books 814. Cole Lib. I. 1002. Not in Wellcome. $875.

With a 'Quiet' Reminder to Charles Darwin


FIRST SEPARATE EDITION. 8 vo. Orig. printed wrappers. 40 pp. Nineteenth century label of Libraire Scientifique A. Hermann on front wrapper. PRESENTATION COPY to Liouville, likely the Collège de France mathematician, Joseph Liouville (1809-82), with inscription signed by Geoffroy St. Hilaire. Thereafter the COPY of American entomologist and champion of Lamarck, Alpheus S. Packard Jr. (1839-1905), with his signature on the front wrapper and his pencil notes and comments in the margins, including in chapter three on Lamarck. See item 143 of this catalogue and D.S.B. 10: 272-274. Small stab holes near the spine from Bowdoin College's old folder binding, minor wear and dustsoiling to the wrappers; a good to very good copy.

Isidore Geoffroy Saint-Hilaire's "...important views on the persistence of infantile characteristics among primates and on 'parallel' evolution appear to be original. ...In 1859 he published 'Résumé des vues sur l'espèce organique', in which he quietly reminded Darwin of his predecessors in France: Buffon, Lamarck, and Étienne Geoffroy Saint-Hilaire." (D.S.B.). $800.

*FIRST EDITION.* 8vo. Quarter speckled leather, lea. spine label and cream boards in the style of the period. Untrimmed, orig. fly-leaves preserved. (6), 86, (2, orig. blank F) pp. Early owner’s name on title, spotty foxing as usual; otherwise, a very good copy.

“This botanical research amid the lush Italian vegetation, as well as at home in the harsher German climate, resulted in a modest book first published in 1790 with the rather cautious title of Attempt to Explain the Metamorphosis of Plants. This work, whose size belies its significance, marked a turning point in Goethe’s own intellectual life, and, in the words of historian Robert J. Richards, “seeded a revolution in thought that would transform biological science during the nineteenth century.” (The Metamorphosis of Plants by Johann Wolfgang von Goethe. Introduction and photography by Gordon L. Miller, 2009). “Goethe argued that all plants derive from a ‘supersenuous archetypal plant’ or Upflanze, and that individual genera were modification of this ideal plant type. …Goethe’s concept of the ideal type gradually evolved into the concept of a common ancestor from which different species develop over time…” (H. F. Norman Lib. Cat. 913). D.S.B. 5: 442-446. Milestones of Science 86.

$1,850.

Graaf’s Early Experiments on the Pancreatic Juice


Graaf’s classic and very rare treatise on the pancreas first appeared at Leiden in 1664 (G-M 974). “He collected the pancreatic juice of dogs by means of artificial pancreatic fistulae, commenting on the small quantity of juice secreted and on its alkaline character.” (G-M). This enlarged second edition includes a letter (pp. 209-216) dated 30 May 1671 from Graaf to Luca Schacht on the reproductive system. Heirs of Hippocrates 636, with facsimile of the fine engraved title. Waller 3678. Wellcome III. 142. Cushing G348.

$1,400.

First Description of Ovarian Follicles and the Corpus Luteum


The Dutch anatomist and physiologist, Graaf, “…demonstrated ovulation anatomically, pathologically, and experimentally. He opposed the Aristotelian doctrine of the egg being formed in the uterus as a result of activation of the menstrual blood by the male semen, but held that generation takes place from the ovum pre-existent in the ovary. He herein gives the first description of ovarian (Graafian) follicles and the corpus luteum. His was an advanced and accurate understanding of the anatomy of the female genitalia.” (Heirs of Hippocrates 638 - facsimiles of the portrait and the female genitalia with major blood vessels). G-M 1209. Cushing G344. H. F. Norman Lib. Cat. 926.

$2,500.

Chlorine as an Effective Disinfectant Agent


*FIRST EDITION.* 8 vo. Contemp. lea. - backed boards, spine gilt, xxxii, 306 pp. The paper (dark orange) on the boards was at one time renewed a bit amateurishly; a very good copy.

“A classic book in the history of chemistry and hygiene, in which the use of gaseous chlorine to fumigate churches and hospitals to destroy contagion and disease is first described. …this book was the most influential on the subject, and he is credited with the introduction of chlorine as an effective disinfectant.” (Neville I. 562). Partington III. 529-30. Cole 573.

$750.
MEMOIR
ON THE
SUPPLY AND APPLICATION
OF THE
BLOW-PIPE.

CONTAINING
AN ACCOUNT OF A NEW METHOD OF SUPPLYING THE BLOW-
PIPE EITHER WITH COMMON AIR, OR OXYGEN GAS: AND
ALSO OF THE EFFECTS OF THE INTENSE HEAT PRODUCED
BY THE COMBUSTION OF THE HYDROGEN AND OXYGEN
GASES.

ILLUSTRATED BY ENGRAVINGS.

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1802.
AN INVESTIGATION
OF
THE LAWS OF THOUGHT,
on which are founded
THE MATHEMATICAL THEORIES OF LOGIC
AND PROBABILITIES.

BY
GEORGE BOOLE, LL.D.
professor of mathematics in queen's college, cork.

LONDON:
WALTON AND MABERLY,
UPPER GOWER-STREET, AND IVY-LANE, PATERNOSTER-ROW.
CAMBRIDGE: MACMILLAN AND CO.
1854.

170. Boole
ELEMENTA CHEMIAE,
QUAE
ANNIVERSARIO LABORE DOCUIT,
IN PUBLICIS, PRIVATISQUE,
SCHOLIS,
HERMANNUS BOERHAAVE,
TOMUS PRIMUS.
QUI CONTINET HISTORIAM ET ARTIS
THEORIAM.
CUM TABULIS AENEIS.

LUGDUNI BATAVORUM,
Apud ISAACUM SEVERINUM,
M. D. CCCXXII.

31. Boerhaave
EXPERIMENTS
ON THE QUANTITY OF
GASES ABSORBED BY WATER,
AT
DIFFERENT TEMPERATURES,
AND UNDER
DIFFERENT PRESSURES.
BY MR. WILLIAM HENRY.

FROM THE
PHILOSOPHICAL TRANSACTIONS.

LONDON:
PRINTED BY W. BULMER AND CO. CLEVELAND-ROW,
ST. JAMES'S.
1803.
AN ACCOUNT
OF A
NEW EUDIOMETER.

By Mr. CAVENDISH, F.R.S.

Read at the ROYAL SOCIETY, January 16, 1783.

LONDON:
Printed by J. NICHOLS.
MDCCCLXXIII.

39. Cavendish
8. Kepler
Vergleichende Betrachtungen
über
neuere geometrische Forschungen

von

Dr. Felix Klein,
o. o. Professor der Mathematik an der Universität Erlangen.

Programm
zum Eintritt in die philosophische Facultät und den Senat
der k. Friedrich-Alexanders-Universität
zu Erlangen.

Erlangen.
Verlag von Andreas Deichert.
1872.
RECHERCHES
SUR L’ORGANISATION
DES CORPS VIVANS,
ET PARTICULIÈREMENT

Sur son origine, sur la cause de ses développements et
des progrès de sa composition, et sur celle qui, ten-
dant continuellement à la détruire dans chaque in-
dividu, amène nécessairement sa mort;

Précédé du Discours d’ouverture du Cours de Zoologie, donné
dans le Muséum National d’Histoire Naturelle, l’an X de
la République;

PAR J. B. LAMARCK,

De l’institut National de France, l’un des Professeurs-Admi-
nistrateurs du Muséum d’Histoire Naturelle, des Sociétés
d’Histoire naturelle, des Pharmacien et Philomatique
de Paris, de celle d’Agriculture de Seine-et-Oise, etc.

A PARIS,

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CHEZ MAillard, Libraire, rue du Pont de Lodi, n° 1.
ПОЛОЖЕНИЯ,

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А. Менделеевым.

изданная в 1856 году.

САНКТПЕТЕРБУРГЪ.

въ типографии департамента внешней торговли.

1856.
Monatsbericht

der

Königlichen
Preuß. Akademie der Wissenschaften
tzu Berlin.

November 1859.

Mit 1 Tafel.

Berlin.

Gedruckt in der Druckerei der Königl. Akademie
der Wissenschaften.
1859.

In Commision in Fred. Dümmler's Verlags-Buchhandlung.

204. Riemann
Dissertatio Inauguralis
Sistens
Historiam Metamorphoseos,
quam
OVUM INCUBATUM
Prioribus Quinque Diebus
Subit.
Auctore
CHR. PANDER,
Riga·Rutheno,
Medicinae Doctore.

Wirceburgi 1817.
Typis Francisci Ernesti Nitrifitt, Universitatis
Typographi.
SCIENTIAE BACCALAUREUS

Vol. I February, 1891. No. 3

Geometrical Researches
ON
THE THEORY OF PARALLELS,
BY
Nicolaus Lobatschewsky,
IMPERIAL RUSSIAN REAL COUNCILLOR OF STATE AND REGULAR PROFESSOR OF MATHEMATICS IN THE UNIVERSITY OF KASAN.

BERLIN, 1840.

Translated from the Original
by
GEORGE BRUCE HALSTED.

A. M., Ph. D., Ex-Fellow of Princeton College and Johns Hopkins University, Professor of Mathematics in the University of Texas.

AUSTIN, 1891.
HALES, STEPHEN (1677-1761). Statical essays: containing vegetable staticks; or, an account of some statical experiments on the sap in vegetables. London: W. Innys, T. Woodward and J. Peele, 1731. With: Statical essays: containing haemasticks; or, an account of some hydraulick and hydrostatical experiments made on the blood and blood-vessels of animals. ...To which is added, An appendix, containing observations and experiments relating to several subjects in the first volume. ...With an Index to both volumes. London: W. Innys and R. Manby, and T. Woodward, 1733.

FIRST COMPLETE EDITION of the proper set: second of volume one and first of volume two; Hales' Preface, vol. 2, indicates the joint Index is based on the second edition of vol.1 and that the volume includes amendments to vol.1. Two volumes. 8 vo. Matching contemp. calf with old, very skillful rebacking. (6), viii, (4), 376; xxi, (26), 361, (23) pp. Nineteen engraved plates in vol. 1. The COPY of the English engineer, Matthew Boulton (1728-1809; F.R.S., 1785), member of the Lunar Society, partner of James Watt (1772-1809, with whom he built the first Watt steam engine. Boulton is also credited with numerous engineering inventions and patents. Each volume has Boulton’s woodcut bookplate and the small bookplate of Christie’s stating sold December 1886 at their Boulton Library sale. For more on Boulton see: Musson & Robinson, 'Sci. & tech. in the indast. revol.', 1969. A small, not very noticeable puncture hole near the lower edge of the front cover of vol. 2. continues in the lower blank margins of the first two signatures, some light staining to early margins of vol. 2; still a very good set.

Sir Francis Darwin has written: 'In first opening the way to a correct appreciation of blood pressure, Hales' work may rank second in importance to Harvey's founding the modern science of physiology.' In the Haemastickks "...is recorded Hales' invention of the manometer, with which he was the first to measure blood-pressure..." (G-M 765). In the 'Vegetable Staticks', which first appeared in 1727, Hales gave "the first complete account of the physiology of plants, including the reaction with air and movement of the sap." (Grolier/Science One Hundred, 45a). PMM 189 a & b. Heralds of Science 26. Milestones of Science 91. Grolier/Science One Hundred 45b and their Medicine One Hundred 41. Lilly Notable Medical Books, p. 109. Neville I. 576 & 578. $7,500.

"The First Systematic Elaboration of an Association Theory of Mind and Brain"

"Dictionary of the History of Ideas"

HARTLEY, DAVID. Observations on man, his frame, his duty, and his expectations. London: J. Leake & W. Frederick, 1749.

FIRST EDITION. Two volumes. 8 vo. Contemp. speckled calf, xix, (1), 512; xv, (1), 455, (10) pp. Title of vol. 1 with browned margins from the binding, top of spines slightly chipped, joints of vol. 1 cracked but tight; a very good set.

"In the century following the publication of Hartley's 'Observations', the work came to be seen as the fountainhead of some of the most important ideas in biological, psychological, and social thought. Viewed in a narrow perspective, it was the first published work in English to use the term 'psychology' in its modern sense. ...His speculations about the physiology of the nervous system laid the foundations for the dominant sensory-motor interpretation of neurophysiology and the experimental localization of functions in the cerebral cortex. ... His book is the central document in the history of attempts to apply the categories of science, both directly and by analogy, to the study of man and society." (D.S.B.). 'Mind and Body', no. 29. Stigler, 'Statistics on the Table', chap. 15. H. L. Norman Lib. Cat. 1003. $2,750.

Galen Overturned: The Great Classic on Circulation of the Blood in English

HARVEY, WILLIAM (1578-1657). The anatomical exercises...Concerning the motion of the heart and blood. With the preface of Zachariah Wood physician of Rotterdum. To which is added Dr. James De Black his discourse of the heart... London: Francis Leach for Richard Lowndes, 1653.

FIRST EDITION IN ENGLISH. Small 8 vo. (152 x 99 mm). (38), 111; (20), 123; (2), 86 pp. Without initial blank. Contemp. calf, expertly rebacked in the style of the period. Near early ownership signatures on the title of I. Walton and Tha. Cleene. Signature or small stamp removed in blank portion of verso of last leaf. One page near end lightly inked in lower portion (perfectly readable). A very good copy.

Harvey's small book is usually considered the most important single medical work ever published. ...In this book, Harvey announced his discovery of the circulation, gave a clear
description of the heart's action, and reported the experiments that provided proof of his assertions. He had performed these studies by himself over a period of several years on many classes of vertebrate and invertebrate animals." (Lilly Notable Medical Books, p. 63 - citing the first edition, in Latin, Frankfurt, 1628). "This great work stands by itself. In the medical sciences there is nothing else in the same class. …Its achievement was more than a discovery: it was a revolution." ('Circulation of the blood - men and ideas', ed. Alfred P. Fishman and D. W. Richards, 1964. Chap. II continues with a detailed analysis of the 1628 book.).

The English translation was rendered from the Latin 1648 Rotterdam edition which included the commentaries. Also included here is the important first English translation of Harvey's 'Exercitation anatomica de circulatione sanguinis' from the Rotterdam 1649 edition (first published at Cambridge in 1649). Consisting of two letters, the second provides further experimental proof of the circulation of the blood. Keynes 19. Osler 714. Cushing H137. H. F. Norman Lib. Cat. 1008. Heirs 422. Waller 4105. Blocker Coll., p. 182. NLM (17th C.), no. 5338. Wellcome III.219. Citing the exceedingly rare first edition: PMM 127; Grolier 100/Science, no. 46; Grolier 100/Medicine, no. 27a. Heralds of Science 123 (also noting first English); GM 759. $44,000.

The Principia of Physiological Acoustics in a Prize Copy Signed by Lord Kelvin


FIRST EDITION, 8 vo. Contemp. prize full calf by Maclehose, Glasgow, spine gilt within compartments, gilt crest of the University of Glasgow and gilt double rules to covers, marbled edges and endpapers. xi, (1, errata), 608 pp. Engravings in the text. Prize bookplate for the award in physics at the Univ. of Glasgow, May 1865 to a John Macleod. SIGNED by William Thomson, Lord Kelvin (1824-1907), the pioneer of thermodynamics and electromagnetic theory who was professor of natural philosophy at Glasgow for 53 years. Small chip at head of spine, upper joints partially cracked, a bit rubbed; a very good, crisp copy.

"Helmholtz's 'Tonempfindungen' laid the groundwork for all subsequent research in the field of audition. It contains Helmholtz's resonance theory of hearing, the first elaborate theory of the mechanism of the ear. …Helmholtz's resonance theory remained unchallenged for over two decades. Helmholtz also explained differences of timbre as caused by differences in patterns of upper partial tone, and applied his discoveries to music theory…" (H. F. Norman Lib. 1044). G-M 1562. Grolier 100/Science, no. 49a. Noted in PMM 233. See: Milestones of Science 95 for the English translation.

$2,100.

Classic of Botany in English

HOFMEISTER, WHILHELM (1824-77).  On the germination, development, and fructification of the higher cryptogamia and on the fructification of coniferae. London: Ray Society, 1862.

FIRST EDITION IN ENGLISH, greatly supplemented and revised by the author from the German of 1851. 8 vo. Orig. cloth, xvii, (1), 506 pp. Sixty-five lithographed plates by Tuffen West after the author's drawings. A very good, crisp copy, partially unopened.

"Entirely self-taught, Hofmeister attained full professorship and rank among the foremost botanists of the 1800's. He revealed the process of fertilization in non-flowering plants (cryptogams) as a regular alternation of sexual and asexual generations in the mosses, ferns, horsetails and liverworts. The asexual generation propagated by means of spores, alternating with one in which spermatozoids unite with ova." (Heralds of Science 34). "...the most outstanding figure among a constellation of brilliant botanists of the century, and one of the great botanists of all time…" (A. G. Morton, 'History of botanical science', 1981). Epochal Achievements, no. 89A.

$975.
good to very good copy. Signature and library stamps on title trace a long line of American ownership: early manuscript entry. "Robert Trroup Paine to Harvard College" and with their stamp as sold, blindstamp of Boston Medical Library Assoc., and stamp of Brooklyn Academy of Medicine Library. Robert Trroup Paine (1829-51) was the son of Dr. Martyn Paine (1794-1877).

G-M 309. From John Hunter's press in his home was issued this collection of fourteen papers: "one of Hunter's major works... (containing) many of his studies and observations, including those on the descent of the testis into the scrotum, the structure of the placenta (see: Radcliffe, 'Milestones in midwifery', p.58), the mechanism of digestion, the air sac in birds, the secondary sexual characteristics of the free-martin and pheasant, and his original description of the olfactory nerves." (Heirs of Hippocrates 971 - 1840 Amer. ed.). Garrison has written of Hunter: "Hunter remains one of the great all-around biologists like Haller and Johannes Müller, and with Pare and Lister, one of the three greatest surgeons of all time... Hunter found surgery a mechanical art and left it an experimental science." J. Kober in 'The reluctant surgeon' has written: "(Hunter) not only transformed the medical theory and practice of his epoch, but profoundly influenced scientific thinking everywhere down to our times." N.L.M. (18th C.), p.226. Wellcome III. 137. Osler 1222. Waller 11845. H.F. Norman Lib. Cat. 1118.

$1,350.

The Founder of Scientific Surgery


FIRST EDITION. Five volumes: four 8 vo. - text, one 4 to - atlas. Orig. green pebbled cloth with orig. printed paper labels on spines of text volumes. xxiv, 643, (1); xvi, 488; xx, 685; xii, 506; 27, (1) pp. An engraved silhouette portrait as frontis of vol. 1 and engraved frontispicture by Sharp after Reynolds to the atlas volume. Sixty-one engraved plates, 7 folding + a folding facsimile of a letter. Vol. 4 has an inserted divisional title supplied from another copy. Waterstain to upper blank margin of silhouette, scattered spotty browning and uniform toning of text leaves, spine labels rubbed; a good to very good set.

G-M 78. This impressive set with all volumes in the original cloth bindings encompasses the important contributions to anatomy and medicine of John Hunter, "...one of the great all-around biologists,... (and) one of the three greatest surgeons of all time..." (Fielding H. Garrison). Heirs of Hippocrates 974 & 975. Osler 1231. Cushing H520.

$1,500.

The Copy of Lamarck's Champion with His Annotations


FIRST EDITION. 8 vo. Cloth. viii, 216 pp. A folding letterpress table. The ANNOTATED COPY of the champion of Lamarck, his first book-length biographer, and co-founder of the neo-Lamarckian movement in America, the entomologist and invertebrate embryologist, Alpheus S. Packard, Jr. (1839-1905), see D.S.B. 10: 272-274. Packard was first at Bowdoin (their withdrawn bookplate is on the front pastedown) and then at Brown as professor of zoology and geology. His ownership signature is on the half-title and is dated May 8, '99 at Paris. Packard went to France at the end of the 19th century with explicit purpose of gathering materials on Lamarck. In 1901 Packard published 'Lamarck, the founder of evolution, with translations of his writings on organic evolution' which included commentary on and translations into English of key passages from this book (pp. 132-141, 208-212 of Packard). It is of interest to note his long-term attraction to Lamarck with his remarks in T.D.A. Cockerell's 'Biographical memoir of Alpheus Spring Packard' (1920/2009): "From Miss Ann Jackson, when a boy, I first heard of Lamarck... Jan. 20, 1855. Got the key to the Peucinian Library... got out one vol. 'Naturalist's Library, containing the life of Lamarck..." Packard annotated in pencil this copy of Lamarck's 'Recherches sur l'organisation des corps vivans' evidently for his biography. Aside from the non-descript Bowdoin Library sticker, a very good copy.

This historically significant copy of Lamarck's treatise is the "first full-length exposition of his evolutionary theories" (D.S.B.: 587a). Here Lamarck presents his two main principles, (1) it is not organs which have given rise to habits, but habits, modes of life, and environment which have given rise to organs, and (2) life is an order and condition of things in the parts of all bodies which possess it, which renders possible all the organic movements within. "Lamarck's two most famous hypotheses appear here as explanations of evolutionary phenomena: spontaneous generation, as a means of generating the simplest life forms; and the development, through repeated use, of new and heritable organs, as a means of producing more complex species." (H. F. Norman Lib. Cat. 1264). Heralds of Science 109 - noted.

$3,250.
Early History of Worm Infestations in Man and Animals


FIRST EDITION. 4 to. Contemp. calf, spine richly gilt within compartments. 456 pp. Fourteen folding engraved plates. Title in red and black and with large woodcut printer’s device. Edge worn; otherwise, a very good, crisp copy.

"A Swiss physician, Le Clerc was born at Geneva and studied medicine at Montpellier and Paris. He received the M.D. degree in Valencia in 1670 and returned to Geneva to enter private practice. Although successful as a physician, and later as a politician, Le Clerc expended great energy in writing and scholarship. Considered by authorities to be the father of the history of medicine, Le Clerc is best known for his monumental ‘Historie de la médecine’ (1697). The present treatise reviews the history of worm infestations in man and animals from the time of Hippocrates to the author’s day. The plates (facsimile of plate 8, tapeworm, on p. 241 of ‘Heirs’) depicting various types of worms and their internal and external anatomy were taken from the author’s work as well as that of such individuals as Redi, Siegel, Ruysch, Bidloo, and Leeuwenhoek.” (Heirs of Hippocrates 681). N.L.M. (18th C.), p.261. Wellcome III. 470. Cole I. 1107. $1,100.

Prize Essay by Linnaeus on the Sexes of Plants


Linnaeus' second published work (D.S.B. 12: 471-472) originally appeared in 1760 in Latin at St. Petersburg, the translator was the English botanist and founder/first president of the Linnean Society in London, James Edward Smith (1759-1828). This dissertation was submitted by Linnaeus to the Imperial Academy at St. Petersburg as a participant in their contest for the best essay on the sexes of plants, a favored topic of Linnaeus. He was awarded 100 ducats at a public assembly of the Academy on 6 September 1760. Copies of the original were, according to Smith, little known, hence his interest in the translation. Freeman/Brit. Nat. Hist. Books, no. 2280. Soulsby 2117. $975.

A Fine Set of Magendie’s ‘New Physiology’


FIRST EDITION. Two volumes. 8 vo. Contemp. half calf with marbled boards, spines gilt and with dual lea. labels. (4), 326; (4), 473 pp. A fine, crisp set.

G-M 597.1. "...Magendie devoted his career to the discovery and collection of facts, and exerted strong influence in orienting the discipline (physiology) toward experimental investigation. His ‘New physiology’, which he taught in a series of private courses, led him to write the ‘Précis’, a new type of physiological textbook in which doctrine and deductions founded upon anatomy were replaced with simple and precise descriptions of experimental facts. Volume two contains Magendie’s description of the importance of protein (nitrogenous substances) in the food supply of mammals; in his experiments on dogs given non-nitrogenous foods, Magendie induced the first experimental cases of an avitaminosis (specifically, lack of vitamin A)." (H. F. Norman Lib. Cat. 1416). D.S.B. 9: 8-9. Wellcome IV. 24. Heirs of Hippocrates 1379. Reynolds 2599. $1,250.

Early Treatise on Pestilential Fever by a Pre-Vesalian Anatomist


FIRST EDITION. Small 4 to. Early, possibly contemporary, Italian boards with old renewal of endpapers. 76 leaves. Contemporary marginal annotations and manuscript on verso of last leaf. Old marginal staining in places, more so at the end, wear to spine along cords; a good to very good copy.

This very scarce early book on pestilential fever is noted in the various medical histories, but little written is about it. Its author is the celebrated pre-Vesalian anatomist, Niccolò Massa, a
ANTIQUARIAN SCIENTIST

graduate of Padua and a teacher and practitioner in Venice. When Maggs Bros. Ltd. of London offered a copy in their 1929 catalogue, they commented: "He wrote several books, this one, on smallpox, being consulted even up to the present time." It was, as well, recognized as a significant book in its day as suggested by Gesner's inclusion of it in his 'Universal Library' of 1545 while he did not include Massa's 'Liber introductorius anatomiae' of 1536, see Thorndike, vol. 5, p. 514 and D.S.B. 9: 165-166. A. Castiglione, 'Hist. med.', p. 467. On Massa, see: Thorndike, vol. 5, pp. 514-519; G-M 1536 & 2365; Heirs of Hippocrates 195-199; R.H. Major, 'Hist. med.', vol. 1, p. 467. N.L.M. (16th C.), no. 2988. Wellcome I. 4105. Pybus 1311. Edinburgh Lib. Cat. 1571 and Cushing M177 - 2nd edition, 1556. $2,000.

With a Praised Suite of Plates Drawn from Microscopical Observations


FIRST EDITION. 4 to. Contemp. marbled boards. (6), (v)-viii, 319, (1, errata) pp. Two title pages for the Teyler's Prize, the first with two engraved medallions + the printed title for the Meyen treatise + 21 fine lithographed plates on thick paper. Old Amsterdam library stamp on first title, crack in spine but the binding remains tight, minor wear to boards otherwise, a very good copy.

The decade of the 1830's, a time of intensive microscopic investigations of plants and animals, culminated in the Schleiden-Schwann cell theory. The young botanist, F. J. F. Meyen published at the beginning of this period his significant 'Phytotomie' (1830) which presented the new field of microscopic plant anatomy with excellent illustrations on 13 plates. Here again Meyen unfolds the latest advances in vegetable anatomy and physiology with 21 fine plates after his own drawings. "...praise is due to his drawings from the microscope which are beautifully executed..." (J. Sachs, 'Hist. botany' (1890/1967), pp. 285-292. D.S.B. 9: 344-345, whose bibliography cites publication at Berlin in 1837. Pritzel 6136. $1,500.

With Reid's 'Proposals for a Subscription to Support a Plan for Inoculating Persons...'

149. MIHLES, SAMUEL. The elements of surgery... Adapted to the use of the camp and navy, as well as of the domestic surgeon. The second edition, altered and considerably augmented... By Alexander Reid. London: R. Horsfield, 1764.

SECOND EDITION. 8 vo. Contemp. speckled calf. (12), 368, (14, index & errata), (2, pub. ad), 4 (Reid's 'Proposals for a subscription to support a plan for inoculating persons in private apartments, at a moderate expense' - signed by 23 physicians & apothecaries) pp. Eighteen folding engraved plates. Ends of spine a bit worn, one plate with repaired tear (no loss); a good to very good copy.


Protoplasm Named - Herds of Science No. 32


FIRST EDITION. 4 to. Antique style half morocco with marbled boards sympathetic with the original marbled edges. viii, 442 pp. Thirteen lithographed plates, 5 with hand-coloring. Light browning to the first few leaves, scattered light spotting foxing; a very good copy.

"After a century Mohl remains famous for his works on the microscopic anatomy of plants and for his contributions to knowledge of the plant cell." (D.S.B.). The present key volume in Mohl's publications gathers dissertations and papers from journals published from 1830 to 1842 and reprints them with additional material. "Von Mohl, professor of botany at Tübingen, gave the name protoplasm to the mucilaginous material within the plant cell adjacent to the membrane, a term that has grown to connote living substance." (Heralds of Science 32). Evans Epochal Achievements in the History of Science 87. Pritzel 6349. Sachs, 'Hist. botany', pp. 296-297. $1,500.

FIRST SEPARATE EDITION. 8 vo. Contemp boards. 152 pp. An engraved plate + woodcuts in the text. PRESENTATION AUTOGRAPHED LETTER SIGNED by Mohl to his colleague Alexander Braun (1805-77), professor of botany and director of the botanical gardens at the University of Berlin, best known for establishing the doctrine of spiral phyllotaxis (Schimper-Braun theory) and for his suggestion of the phenomenon of 'rejuvenescence' to distinguish the organic realm from the inorganic. In addition, Braun contributed to the cell theory opposing Schleiden and Schwann's emphasis on the cell wall and insisting that the cell contents were the site of all the physiological activities of the cell. Braun was an outstanding "morphologist" (Stafleu & Cowan). In the presentation letter of 14 lines, dated 29 May 1851 and tipped to the front pastedown, Mohl congratulates Braun on his new appointment at Berlin and briefly discusses his publication. His ownership signature is on the front fly-leaf. For more on Braun, see D.S.B. 2: 425-427. The boards are rubbed and chipped on the spine, old cancelled rubberstamp on title, minor occasional spotty foxing; otherwise, a very good copy.

G-M 114. An important publication in the history of cytology in which Mohl "...summarized his own work, claiming priority in certain cases, and subjected the publications of his predecessors and contemporaries to a critical examination. He recalled that he was the first to demonstrate the fusion of aligned cells in the formation of ducts and to observe intracellular movements. He examined the structure of the cell and its derivatives, its generation by division or free formation, and its physiology as an organ of nutrition, of reproduction, and of movement." (D.S.B.). This first separate edition is the scarcer of two issues - it has the added 'Vorrede' and 'Inhalt' with the text repaginated, but not reset, from the original appearance in Wagner's 'Handwörterbuch'.


152. AN EXTENSIVE COLLECTION OF PUBLICATIONS BY, AND RELATED TO, SAMUEL GEORGE MORTON (1799-1851) OF PHILADELPHIA

"Imagine a series of 600 skulls, most of Indians from all tribes who inhabit or once inhabited all of America. Nothing like it exists anywhere else. This collection, by itself, is worth a trip to America." (Louis Agassiz, December 1846).

THE COLLECTION

(1). MORTON, SAMUEL GEORGE. Tentamen inaugurale de corporis dolore. Edinburgh: P. Neill, 1823. FIRST EDITION. 8 vo. Contemp. tree calf; (8), 37 pp. PRESENTATION COPY to the Academy of Natural Sciences of Philadelphia inscribed in Morton's hand and with a few corrections in the text. The Academy's wooden bookplate acknowledges the presentation. Slight wear to edges of binding, a fine copy.


(5). MORTON. Crania Americana; or a comparative view of the skulls of various aboriginal nations of North and South America: to which is prefixed an essay on the varieties of the human species. Phila.: J. Dobson, 1839.
FIRST EDITION. Folio. Orig. diced green cloth with black label. label on spine. Uncut. (6), (iii)-v, (1, blank), 296, (1, errata), (1, blank) pp. Seventy-eight lithographed plates by John Collins of Phila. on thick paper + engraved hand-colored world map + text woodcuts. Following the last plate is a quarto 'Circular' signed in print by John Collins at Phila., 11th mo. 1st, 1839 inviting new clients for lithography at his premises on Dock St. He notes that the 'Crania' took two years to complete. Spotty foxing in places, but a large, very good copy.


(7). MORTON. Crania Aegyptiaca; or, observations on Egyptian ethnography, derived from anatomy, history and the monuments. Phila.: J. Pennington, 1844. FIRST BOOKFORM EDITION. 4 to. Contemp. half lea. with marbled boards, rebacked. (4), 67, (1, blank), (1, errata), (1, blank) pp. Fourteen lithographed plates by T. Sinclair of Phila. + text woodcuts. PRESENTATION COPY to the Malta Garrison Library with Morton's holograph inscription. Spotty foxing to the plates, lightly rubbed; a nearly very good copy.


(9). Bound Contemporary Volume of Offprints, a Monograph, and Introductory Lectures. Three quarter lea. with marbled boards binding is broken, the content is in good to very good condition.

a. MORTON. Brief remarks on diversities of the human species... Introductory lecture... Pennsylvania Medical College... Phila.: Merrihew & Thompson, 1842. 24 pp.

b. MORTON. Additional observations on hybridity in animals... Charleston: Walker & James, 1850-51. 69 pp.

c. MORTON. Introductory lecture to a course of demonstrative anatomy. Phila.: Mifflin & Parry, 1831. 16 pp.


e. MORTON. Catalogue of skulls of man and the inferior animals. Phila.: Merrihew & Thompson, 1849. 84 pp. Woodcuts in the text.


g. RUSCHENBERGER, W. S. W. A notice of the origin, progress, and present condition of the Academy of Natural Sciences of Philadelphia. Phila.: Collins, 1860. 102 pp.


FIRST AMERICAN EDITION. Two volumes. 8 vo. Contemp. sheep. viii, 462; (2), 509, (3, includes ads) pp. Bronzing and spotty foxing; a good to very good set.


FIRST EDITION. 4 to. Orig. green cloth with gilt illustration by Whipple on both covers. Binding signed by Colton & Jenkins. All edges gilt. 142 pp. Folding lithographed frontispiece by Bufford, N.Y. which is a remarkable 18 feet long on india paper. The COPY of Thomas G. Morton, M.P. (1835-1903), Samuel George Morton’s famous son, sec. G-M 3569 and 4341. The bookplate is signed by his daughter, B.(ertha) M.(Orton) Gittings. Also mounted on the front pastedown is a slip of paper with Samuel George Morton’s signature dated Oct. 25/42. Some edge wear to the binding and some minor stains; otherwise, a very good copy.


South Americans migrated across the Bering Straits based on linguistic, somatic, mythic and other
the Musee Nacional de Anthropologica, Mexico City. Delafield concluded that native North and
Delafield, Jr. has a fragile, exceptionally long lithographed frontispiece of the Botturini Codex, now in

(16).

human anatomy which was the earliest native American  book on microscopic anatomy and

(15).


(16).


(17).

FIRST EDITION - Subscriber's Copy. 4 to. Cloth with lea. label on the spine. 656 pp. (includes subscriber's list). Extra-large folding colored lithographed chart, 'Ethnographic Tableau' + a large folding colored lithographic chart of monkeys + monochrome lithographed frontispiece by Duval of Phila. +8 lithographed plates (several monochrome) + numerous woodcuts in the text. Morton Family Copy: bookplate of Samuel George Morton's son, Robert P., a subscriber; ownership signature of James St. Clair, S.G. Morton's son, a distinguished Brigadier General of the Engineer Corps, a professor at West Point, and responsible for defensive structures in the Civil War; and bookplate of Bertha Morton Gittings (Mrs. John Constable Gittings, daughter of Thomas G. Morton, M.D.). A very good copy.

(18).

FIRST EDITION. 8 vo. Orig. cloth. 350 pp. PRESENTATION COPY to Thomas G. Morton from
the publishers. Possibly a number of pencil comments in the margins are his. The spine is distressed and has received old repairs; internally very good.

The eminent American craniologist, Samuel George Morton, published the leading works on the subject: 'Crania Americana' (5), which is G-M 201, and 'Crania Aegyptiaca' (7). The former "...by its use of physical measurements, the classification and comparison of data, and its accurate drawings, was a landmark in anthropology. In an 'Introductory Essay' of ninety-five pages Morton asserted that the American Indians are a separate race, not descendents of migrants from Asia. ...Morton had devised ingenious ways to measure and calculate the capacity of craniums and concluded that races are distinguished by their skulls as well as by color." (D.S.B.). Stephen Jay Gould disputed Morton's measurements, presumably in favor of Morton's bias towards Caucasians. Following his 1978 paper on the subject, Gould presented this view in his 'The mismeasure of man' (1981). In 1996, Gould revised his book to accommodate remeasuring work done by John Michael. Then an analysis (2011) by University of Pennsylvania students (Lewis et al) turned the tables showing that it was Gould's work that showed a bias. And finally in 2014, Michael Weissberg at the Univ. of Penn. revisited both sides and concluded "...Gould's charge that Morton analyses exhibited racial bias seems well-justified." Gould's analytical errors uncovered by Lewis et al stand, "...but his two most important claims...are sound." (Weissberg).

Morton also published an important treatise on pulmonary tuberculosis (3 & 4), the first book on the subject published in the U.S. and G.M 3222. (1) is Morton's thesis for his M.D. at Edinburgh having already received one at Penn in 1820. (9) contains Morton's important catalogue of crania which was updated by J. Aitken Meigs (16). In 1849 Morton published his large textbook on human anatomy which was the earliest native American book on microscopic anatomy and histology. The remarkable production, (11), a book by the prominent New York banker, John Delafield, Jr. has a fragile, exceptionally long lithographed frontispiece of the Botturini Codex, now in the Museo Nacional de Anthropologia, Mexico City. Delafield concluded that native North and South Americans migrated across the Bering Straits based on linguistic, somatic, mythic and other proof. In (12), by Latham, there are, as in other works in this collection, references to the publications of Samuel George Morton. The important memoirs of Morton published shortly after his death (13, 14, 15) have been relied on by modern biographers for details of his life and work. J. Aitken Meigs definitively catalogued Morton's skull collection (16), a collection which has continued to grow after
ANTHROPOLOGIST

Morton’s death in 1851. Wood wrote that Morton’s Crania Cabinet cost Morton 10 to 15 thousand dollars. Forty-two gentlemen paid Morton’s executors $4,000 for it and donated the collection to the Academy. Following on the very successful ‘Types of mankind’ of 1854, Nott and Gliddon’s ‘Indigenous races’ (17) of 1857 was issued to subscribers (trade issue in smaller format in American Culture Series). They attempted to prove in their two books that each of the different races of man sprang from a fixed type. (18) includes a number of references to Morton and the ‘Crania Americana’.


An Important Bibliographic Discovery
Ether Day - A Very Early Unrecorded Broadsides

153. MORTON, WILLIAM T. G. (1819-68). The most agreeable, easy, pleasant and natural style of setting teeth. / Dr. Morton, (late Wells & Morton,) No. 19, Tremont Row, Boston. (Headline of second section): Teeth extracted without pain. (Boston): From the press of the Evening Gazette, n.d. [after Oct. 28, 1846, on or before Nov. 12 or 24, (1846)].

Broadside, 8 3/8 x 14 inches with text in small type in three columns, once folded for posting as a stampless letter to Samuel Houghton (1796-1866) of Sterling, Massachusetts, an active member of the Whig Party committee. The postal rubberstamp and address are on the central panel of the blank verso of the broadside. The manuscript address compares very favorably with Morton’s hand. The red postal rubberstamp, though not solidly stamped, appears to be Nov. 12 at Boston (clearer under UV light). The broadside is in fine condition with very light browning at two folds, one with a small split reinforced on the verso. A very good, crisp copy.

This important document, unlocated in world collections and not noted or described in the literature of early surgical anesthesia, was issued by Dr. William Morton at Boston on or before November 12 or 24, 1846. The famous surgery at Massachusetts General Hospital was undertaken by Dr. John Collins Warren on October 16, 1846 with Morton administering ether as an anaesthetic for the first time. "Warren removed a benign angioma under the jaw of his patient. It was immediately recognized that complete anaesthesia could be produced by the inhalation of ether vapour. Bigelow, a surgeon who witnessed the operation, left an excellent account… which was read before the Boston Society of Medical Improvement on 9 November 1846, an abstract having been previously read before the American Academy of Arts and Sciences on 3 November." (G-M 5651). The first part of the broadside concerns Morton’s promotion of his innovative artificial set of teeth. The long list of persons supporting his dental methods is headed by Drs. J. C. Warren and G. Hayward, and an October 28, 1846 testimonial by Dr. Charles T. Jackson praises his use of 20 ct gold solder to unite the gold plates. Further, a valuable detailed account of his premises is given by an anonymous visitor.

It is the second part of the broadside which is of greater historical interest, therein Morton presents several news accounts of the successful October 16 procedure, under surgical anesthesia with sulphuric ether. Included are Warren’s statement of October 17, Hayward’s of October 20, and Heywood’s of October 22. In addition to testaments of the momentous event, Morton includes notice of the extraction of teeth without pain using his "new preparation". The latest date cited on the broadside is October 28, 1846. There is no mention of the new term ‘Letheon’ for the secret anesthetic agent. In the chronology of the early publications on Ether Day and its immediate aftermath this broadside is among the earliest. Fulton and Stanton in their extensive and much researched catalogue for the centennial celebration at Yale (‘The centennial of surgical anesthesia - an annotated catalogue of books and pamphlets bearing on the early history of surgical anesthesia’, 1946) declared: ‘The first printed document on anesthesia issued and signed by Morton was a single-page folded sheet addressed ‘To Surgeons and Physicians’ stating that the ‘Subscriber’ is prepared to furnish ‘a person fully competent to administer his compounds.’ (Also see, R. J. Wolfe, ‘Tarnished Idol’, 2001, pp. 103-104 and fig. 20, and Grolier 100/Medicine, no. 64B). The copy preserved in the Library of the Massachusetts Historical Society, addressed to Dr. J. Mason Warren, bears a postmark of 20 November [1846]. ‘A second copy of Morton’s notice (both are Fulton and Stanton IV.6) in the Essex Institute is postmarked Boston, Nov. 23. These ‘To Surgeons and Physicians’ postmarks fall within the two possible readings of the postmark on the present broadside. Hence this unrecorded broadside qualifies as either the first or second earliest ‘printed document on anesthesia issued and signed by Morton’.

Fulton and Stanton IV. 8 refers to an undated ‘Testimonial Circular’ noted as a ‘handbill’ by N. I. Bowditch in his 1848 publication. Bowditch gives its text, which is not nearly as lengthy as that on the present broadside. Both, however, include the three testimonial quotations by Warren,
Hayward, and Heywood with italicized phrases concerning Morton's participation introduced, in Fulton and Stanton's judgment, by Bowditch in his 1848 description of the handbill (no italicized phrases in the quotations on the offered broadside). Bowditch specified no title and Fulton and Stanton located no copies of the handbill. The recently uncovered broadside offered here is not in Fulton & Stanton, Keys, 'Tarnished Idol', OCLC, or any of the consulted anesthesia and dental collections and websites.

"With the patient still lying like a log upon the table, Dr. Warren turned to the audience and said slowly and emphatically: 'Gentlemen! this is no humbug.'" (Dr. A. A. Gould, present at the landmark procedure). $25,000.

**Grolier One Hundred Books Famous in Science, No. 76**


*FIRST EDITION. 8 vo. Antique style paper-backed boards. x, 117, (1) pp. Minor foxing; a very good copy.*

G-M 1456. The great German physiologist, Johannes Müller's, "exposition of the doctrine of specific nerve energies..." (Grolier/Science 100, no. 76). In 1840 he stated in his 'Handbuch' the law of specific nerve energies - each nerve of special sense, however excited, gives rise to its own peculiar sensation. D. Albert, 'Source book of ophthalmology', no. 1622. Heirs of Hippocrates 1631. H.F. Norman Lib. Cat. 1567. Cushing M570. $1,200.

**'The Religious Philosopher' - First Comprehensive Manual on Intelligent Design**


*FIRST EDITION, second issue (a small number of copies have a 1714 dated title page). 4 to. Antique style paneled calf with gilt compartmented spine and lea. label, original marbled endpapers preserved. (12), 916, (18) pp. Engraved title + printed title in red and black + engraved portrait + 28 folding engraved plates. Light water staining (mostly marginal) to last 75 pages and some of the plates, a few plates trimmed close, pencil marks here and there in margins; otherwise, a very good copy of this large book.*

The Dutchman, Bernard Nieuwentyt, a small town (Purmerend) physician, is known primarily for two large works, 'Analysis infinitorum' (1695) and 'The religious philosopher' (1714/15) to give its title as applied to the English translation of 1718. In the former, "...the first comprehensive book on 'analysis infinitorum'...", Nieuwentyt "...reveals his full acquaintance with the mathematics of his period and a remarkable self-reliance." (D.S.B.). The present book is of interest in the current debate concerning Intelligent Design. Nieuwentyt's massive work is "...intended to demonstrate the existence of God by teleological arguments. Never before had this been tried on such a scale, and none among Nieuwentyt's numerous imitators equaled his completeness. ...he was one of the first who, rather than relying on a few examples, reviewed the whole of natural sciences to show in detail how marvelously things fitted in the world. His work looks like a manual of up-to-date science and as such it may have contributed to the propagation of knowledge." (D.S.B.). Besides the 1718 English translation, a French (1725), and a German (1732) edition also appeared; the book remained popular past the mid-century. Bierens de Haan, no. 3561 (1714 ed.). Poggendorff II. 289. N.L.M. (18th C.), p. 325. Wellcome IV. 238-239 (1720 & 1725 eds.). 'Beads of glass: Leeuwenhoek and the early microscope' (1983), pp. 10-11 (1715 ed.). Neville II. 230 - 3rd English ed. with facsimile of a plate. $1,800.

**The 'Opera Omnia' Containing Noteworthy Studies of the Glands Includes the 'Canal of Nuck'**


*FIRST COLLECTED EDITION. Three volumes. Small 8 vo. Contemp. three-quarter vellum with floral patterned boards. Uncut. (4), 170, (10); (22), 158, (16), (2, blank); (14), 152, (28), 64 pp. Two engraved titles, first printed title in red and black + 17 folding engraved plates (2 misbound). Ownership signature of*
Anton Nuck practiced first at The Hague and then became professor of anatomy and surgery at Leyden in 1687. He was well known as an oculist, aurist and dentist. His studies of glands and lymph glands were noteworthy. His best known works were 'Sialographia et ductum aquosorum anatome nova', Leyden, 1695, and 'Adenographia', Leyden, 1692. His anatomical description of the various glands were (sic) highly praised by Soemmering a century later. In anatomy, his name is perpetuated by the canal of Nuck.* (R. H. Major, 'Hist. medicine', 1954). This set, the first collected edition, was made up from the sheets of the final editions of Nuck's works. See: G-M 110 & 1213 for the original editions; Becker Ophthal. Coll. Cat., nos. 276 & 277. Heirs of Hippocrates 674; otherwise this collected edition is lacking from the usual medical collections. Hagelin, 'The womans booke' (1990), pp.76-77, reproducing the engraved title to 'Adenographia' (1722), as here.

$1,500.


FIRST EDITION. 4 to. Orig. gilt black leather with all edges gilt, likely a presentation binding. Neatly and expertly rebound. 87, (1, errata) pp. Five chromolithographed plates by J. Bien (1), F. Moras (3), and L.N. Rosenhal (1) + 4 lithographed plates after photographs by Bien, William Bell, and Morgan + numerous text woodcuts. Minor dampstains in outer margins; a very good, crisp copy.

"...the strength of this work is in the spectacular plates, five of which are chromolithographs. More important, some of the plates are engravings taken from actual photographs. These are among the earliest examples of such a process in American surgical texts." (Rutkow OR18 - figs. 84 & 86, facsimiles of plates) . Kelly & Burrage, pp. 924-925. Orr 1417. Cordasco 60-1350. $975.

The Work of Pander and Von Baer "Revolutionized Embryology"
Pander's Thesis - "Legendary Rarity"


FIRST EDITION. 8 vo. Contemp. dark orange boards with gilt-ruled spine, all edges gilt. (2), 69 pp. The COPY of the American entomologist and invertebrate embryologist, Alpheus S. Packard, Jr. (1839-1905), see D.S.B. 10: 272-274. Packard was first at Bowdoin (their withdrawn bookplate and blindstamp is on the title) and then at Brown as professor of zoology and geology. His ownership signature is on the front flyleaf dated 1885. Packard, a champion of Lamarck, published in 1901 a biography of him with English translations from his work, see item 143. Earlier ownership: on front pastedown "Gymnac. 283" (Latin for women's apartment) and in same neat, small hand on the title, "Davidson". Edgewear to boards; a very good copy.

"First edition of a fundamental work in embryology and legendary rarity. ...Pander studied at the University of Würzburg under the great biologist and teacher Ignaz Döllinger, who had expressed the hope that one of his students would investigate the development of the chick embryo. Pander took up the task for his doctoral thesis. Building upon the work of Malpighi and Caspar Friedrich Wolff, Pander's thesis methodically describes the different layers from which the various organs of the chicken embryo emerge. He discovered the three-layered structure of the blastoderm, a term he coined. "In the twelfth hour of embryonic development he reported that the blastoderm consisted of two entirely separate layers: an inner layer, thick and opaque; and an outer layer, thin, smooth, and transparent. Between these two a third layer developed, in which blood vessels formed and from which 'events of the greatest importance subsequently occur.' (D.S.B.). Pander sent a copy of his thesis to his friend and colleague Karl von Baer, who immediately began his own investigations of the subject, leading to his identification of the mammalian ovum. Together the work of the two biologists revolutionized embryology..." (H. F. Norman Lib. Sale, Christie's 29 Oct. 1998, lot 1232). G-M 474. Cole II.267. Noted in Grolier/Medicine 100, no. 59. $9,500.

Presentation Copy to His Assistant, Colleague, and Close Friend

First Edition of Rush's Two-Volume Medical Inquiries and Observations (1789-1793)
Rush's Cullen Eulogium (1790)
Samuel Stanhope Smith's Essay...on the Human Species (1787)


First Editions. Four volumes in two. 8 vo. Contemp. sheep. 206, 39, (1); 30; (4), 111, (1), 31; (4), iv, 321, (1), (1, errata) pp. Both volumes with the usual signs of wear for 18th C. American books, vol. 1
with smooth rodent intrusions into the upper margins never near the text or running headlines, the usual light browning; in all, nearly a very good set in period bindings.

"A professor for much of his life, (Rush) trained as many as three thousand doctors, a great proportion of all those who practice 'physick' in the United States. He also composed a huge array of pamphlets full of firm advice on every aspect of the healing art. As a result he was probably the most influential figure in American medicine and remained so until long after his death." (B. A. Weisberger, 'The paradoxical Doctor Benjamin Rush', American Heritage, Dec. 1975, pp. 40-47, 98-99). One of Rush's more important medical books appeared in 1789 as 'Medical inquiries and observations', cited as G-M 5470 for 'An account of the bilious remitting fever' (pp. 89-100): "One of the first important accounts of dengue ('breakbone fever'). Rush described the Philadelphia outbreak of 1780." The book is dedicated to Dr. John Redman with whom the young Rush apprenticed for 5 1/2 years before studying at Edinburgh and Leyden. Also included are his tracts on American Indian medicine (G-M 5422 - orig pub., 1781), on the effect of climate on the body, on pulmonary consumption, on the external use of arsenic in the cure of cancers, on the influence of military and political events of the American Revolution on the body; and in the appendix, the new method of inoculating for smallpox (G-M 5422 - orig pub., 1781), and the duties of a physician.

At Edinburgh, Rush came under the influence of Dr. William Cullen (1710-90) and his theory of disease based on life energy. For 20 years before developing his theory, Rush was an ardent defender of Cullen. His 'Eulogium' in his honor was delivered before the College of Physicians of Philadelphia on 9th July 1790. With these Rush publications is bound "…the first significant anthropological work produced in American, (in which) Smith (1750-1819) argued that racial differences were produced by environment, contradicting the prevalent theories of separate creations of discrete and different races." (G-M 156.1). Rush Bibliography: 1789-17, 1790-2, 1793-13. Austin 1659, 1641, 1776. N.L.M. (18th C.), pp. 393, 394, 422. $2,500.

"Unexampled Fidelity" - Rare Classic of Brain Anatomy

162. SOEMMERRING, SAMUEL THOMAS (1755-1830). Tabula baseos encephali. Frankfurt am Main: for the Author, 1799.

FIRST EDITION. Folio. Contemp. boards, possibly original boards as issued. 16 pp. Two superb aquatint engraved plates by P.M. Alix after Christian Köck. Slight foxing to title, dustsoiling to boards and backstrip with wear; but, a fine copy with original laid-in tissue guards (creased) to the plates.

Among the rarest of works in neurology is Soemmerring's brief but beautiful follow-up to his doctoral dissertation of 1778, the 'Tabula baseos encephali', which was published at his own expense in an edition of only 300 copies. Choulant/Frank (p. 307) remarks: "The brain is represented with an unexampled fidelity." The important feature of this publication is the two aquatint plates based on the brain of a three-year-old boy drawn by the artist Köck and engraved by Pierre M. Alix (1762-1817) of Paris. From this work, and Soemmerring's earlier dissertation, comes the modern classification of the cranial nerves. See: G-M 1383. Heirs of Hippocrates 1133 with inferior full-page facsimile of the plate on page 367. Waller 9050. Garrison/McHenry, pp. 93-97. Pybus 1980. $3,250.

Finely Illustrated Mid-Eighteenth Century Fetal and Adult Skeletal Anatomy


FIRST EDITION. 4to. Contemp. boards. (2), xxiv, 24, 56, (2), 126 pp. Complete with sixty-one engraved plates on sixty folding sheets, all in strong impressions on fine laid paper. Plate number VII skipped in second gathering of plates (also not included in 'Explication', p. 56), and in third gathering of plates, plates XXVII and XXVIII on one folded sheet. Minor edge wear to the boards; a very good, crisp copy.

The French anatomist, Pierre Tarin, "...was responsible for the section on anatomy in Diderot's 'Encyclopédie' and is eponymously remembered for the 'valves of Tarin'. This atlas of the skeletal system of the fetus and adult contains excellent detailed engravings. Several of these plates were taken from Albinus. Following a lengthy introduction to the study of human anatomy in French, the remainder of Tarin's text is presented in Latin and French on opposite pages." (Heirs of Hippocrates 961). A series of nine plates treat the skull and its structures in considerable detail, and a number of long folding plates illustrate the full skeleton. Choulant, p. 283. $1,500.
"Surprisingly modern study..." of Comparative Brain Anatomy


"...a classic in theoretical biology"


"Spontaneous Generation Laid to Rest - Offprint Set"

166. TYNDALL, JOHN (1820-93). The optical deportment of the atmosphere in relation to the phenomena of putrefaction and infection. With: Further researches on the deportment and vital persistence of putrefactive and infective organisms from a physical point of view. London: Trübner, 1876-77.

THIRD EDITION, revised and enlarged. Two volumes. 8 vo. Contemp. lea., rebacked, raised bands on spine and orig. labels preserved. xxii, (1), 380, 3(supplement); xiv, (2, Directions to the binder), 52, 188, (2), 53-176 pp. Folding table of a comparative analysis of milks. Faint old rubberstamp on titles, early bookplates, occasional minor spotty foxing, edges of bindings with wear; still, a very good set.

In the first edition (1794) of this classic of pediatrics, Underwood gave "...the first description of sclerema neonatorum ('Underwood's disease'), the first discussion of pediatric luxations and fractures since Wurtz's treatise 200 years earlier, pioneer essays on infant psychology and artificial feeding,... and descriptions of approximately forty 'new disorders' of children." (H. F. Norman Lib. Cat. 2121). In the second edition is the first account of poliomyelitis in children. The main and substantial addition to the revised third edition of 1795 is Underwood's dissertation on the nature and properties of human milk based on his experiments (vol. 2, part II, 52 pp. with a folding table). Here Underwood also recognized more than twenty diseases not previously noticed, and he enlarged his 'Directions for the management of nursery.' Grolier 100/Medicine, no. 48 and Lilly Notable Med. Books, p. 137 - first edition. N.L.M. (18th C.), p. 463. Pybus 2170 - this edition only.

$1,000.

MATHEMATICS

"...the most celebrated Italian woman of the scientific revolution" - 'Hypatia's Heritage'

168. AGNESI, MARIA GAETANA (1718-99). Analytical institutions in four books... Translated into English by the late Rev. John Colson. London: printed by Wills and Taylor (at the expense of Baron de Maséres), 1801.


When this large treatise appeared at Milano in 1748 in Italian, it signaled that "the first woman in the Western world who can be accurately called a mathematician... (in 1748 she published) her masterpiece. ...This book won immediate acclaim in academic circles all over Europe..." (D.S.B.). "Agnesi's 'Instituzioni Analitiche' is believed to be the first advanced mathematics book by a woman. The text is one of the earliest by anyone to provide a comprehensive introduction to algebra, geometry, differential calculus, integral calculus, and differential equations." (Grolier/Extraordinary Women in Science, no. 69). "It was the first systematic work of its kind and was widely translated. Fifty years later it was still the most complete mathematical text in existence." (M. Alic, 'Hypatia's heritage', 1986). The Lucasian Professor of Mathematics at Cambridge, John Colson (1630-1760), translated the work into English, though it remained in manuscript until Maséres funded its publication under the editorship of John Hellins. The English translation finally appeared two years after her death. Colson and Hellins each added introductions with the former supplying a useful detailed 'Plan' of the treatise as well. F. Cajori, 'A hist. the conceptions of limits and fluxions in Great Britain', 1919, pp. 247-250 discusses this edition. Riccardi.I. 8.2. Ogilvie, 'Women in science', pp. 26-28. Very scarce.

$3,200.

First Edition of the Bolzano-Weierstrass Theorem, as It Is Now Known
With Bolzano's Doctoral Thesis, "...a bold effort to reorganize elementary geometry"

A valuable volume containing two very rare mathematical works by the Czech mathematician and philosopher, Bernard Bolzano. Foremost is his classic short treatise of 1817 introducing rigor to the calculus. Bound here as well is Bolzano's first published mathematical work, his 1804 doctoral thesis on geometry. Describing the 1804 treatise is this quotation from the D.S.B.: "...in which he tried to base the theory of geometry and parallels on a theory of lines, without recourse to theorems of the plane. The full development of this theory of lines was postponed - and although Bolzano often returned to the theory of parallels (without success), his linear theory was never completed." "The work...consists of three parts: a Preface outlines Bolzano's motivation and what he regards as original in the work. Part I contains a theory of triangles and parallel lines, and Part II is a sketch of ideas for a theory of the straight line." (S. Russ, 'The mathematical works of Bernard Bolzano', 2004 with the title page of this 1804 work reproduced on the dustjacket.).

The theorem at the focus of Bolzano's 1817 landmark treatise, 'Purely analytic proof of the theorem that between any two values, which give results of opposite sign, there lies at least on real root of the equation', is now known as the Bolzano-Weierstrass theorem. "There was a gap of some fifty years between the work of Bolzano and that of Weierstrass, but the unity of effort in this half century and the need for rediscovering Bolzano's work were such that there is a celebrated theorem that bears the name of both men, the Bolzano-Weierstrass theorem: A bounded set S containing infinitely many elements (such as points or numbers) contains at least one limit point. Although this theorem was proved by Bolzano and apparently was known also to Cauchy, it was the work of Weierstrass that made it familiar to mathematicians." (Beyer & Merzbach, 'Hist. math.', 1991; they note that Klein referred to Bolzano as the 'father of arithmetization' due to his full awareness of the need for rigor in analysis.)

The third work in this volume is Bolzano's autobiography with an engraved portrait of him which is reproduced on the dustjacket of Russ' English translations of Bolzano's mathematical works. Parkinson, 'Breakthroughs', 1985, p. 265.

Founder of the Modern Science of Mathematical Logic


FIRST EDITION, early issue with the integral title leaf, London & Cambridge in the imprint, and on verso Dublin, University Press, Gill, note and errata leaves present and bound in before the first leaf of text, and as is usual in prize-bound copies without publisher's ads. 8 vo. Circa 1873 maroon prize leather with richly gilt arms of the King's School, Rochester, Kent on both covers, gilt and blind-tooled borders, and richly gilt spine compartments, leather spine label, (4, title & dedication), (iii-vipreface), (1, blank), (iii-ivcontents), (1, note), (1, blank), (1, errata), (1, blank), 424 pp. On the verso of the front flyleaf is a lengthy manuscript presentation to a student, John Smith, for achievement in classics and mathematics at the King's School in 1873. Several faculty and examination teachers are mentioned. The King's School, a primary and secondary school, was founded in 604 A.D. It is the oldest choir school and the second oldest school in the world. The spine is a bit faded and there is light edge wear, a very good copy.

For a discussion on the issue points of this book, see H. F. Norman Lib. I.226 (second issue), though it is likely more complex than covered there. 'Boole invented the first practical system of logic in algebraic form, which enabled more advances in logic to be made in the decades of the nineteenth century than in the twenty-two centuries preceding. Boole's work led to the creation of set theory and probability theory in mathematics, to the philosophical work of Peirce, Russell, Whitehead, and Wittgenstein, and to computer technology via the master's thesis of Claude Shannon (see item 272a) who recognized that the true/false values in Boole's two valued logic were analogous to the open and closed states of electric circuits.' See: Augustus DeMorgan, no. 177 of this catalogue. ('The origins of cyberspace', no. 69). 'Landmark Writings in Western Mathematics 1640-1940', 2005, chap. 36. Tomash Lib. Hist. Computing I. B198.

$22,500.

$5,000.
ANTiquarian SCIENTIST

Fine Woodcut-Illustrated French Renaissance Geometry


SECOND EDITION, enlarged. Small 4to. Expert antique style vellum over boards with overlapping fore-edge and lea. spine label. 70 numbered leaves. Title within a fine woodcut arabesque ornamental border. Numerous text woodcuts, most by Oronce Finé. Woodcut crible initials. The title page is slightly trimmed at the top with a 1/8 inch loss of the border and just clipped by the binder’s knife on the upper fore-margin, a light insignificant waterstain in the fore-margins of the first 18 leaves; otherwise, a clean, crisp very good copy.

Bouelles, canon of Noyon, published this, the first French geometry, in 1542 under the imprint of Simon de Colines. That edition had the verse and woodcut of drawing instruments as a title page rather than the elaborate ornamental title as here. Instead the verse and woodcut was placed on the verso of the Chaudiére title. This second edition, and the 1551 and 1555 reprints, was enlarged with additional text at the end of chapter 7, and with chapter 8 as entirely new. They deal with proportion, geometrical forms of the letters, and geometry applied to astronomy and astrology.

Bouelles, a pupil of Lefevre d’Etaples, is known in mathematics as a geometer and number theorist, but he also was an important voice in the development of early humanism in France. Among his works are those on the French language, divinity, and metaphysics. This handsome book was printed in Roman and italic type; the woodcut coat of arms at the end is understood to be that of Bouelles. In the D.S.B., the present book is cited as a translation into French of his Latin ‘Geometricae introductionis’ of 1503, however Brunet states that the texts are not the same, see Mortimer, ‘Harvard French 16th C. Books’, nos. 115 & 116. Notable Mathematicians, pp. 75-76. Honeyman Sale 441. $7,000.

To Free Geometry


FIRST EDITION. 8vo. Prize leather binding of Lycee Imperial Louis Le Grand with fine gilt suprailibros on both covers and gilt back within compartments. viii, 188, (4, priced cat. of mathematics books pub. by Duprat) pp. Four folding engraved plates. A nearly fine copy.

Like his mentor Gaspard Monge, Lazare Carnot intended in his work to revitalize pure geometry and “to free geometry from the hieroglyphics of analysis”. Monge had espoused the joint use of analysis and pure geometry, but Carnot refused to use analytic methods and started the championship of pure geometry. ...Thus the principle that Monge called contingent relations and which became known also as the principle of correlativity and more commonly as the principle of continuity is to be found there. To avoid separate figures for various sizes of angles and directions of lines Carnot did not use negative numbers, which he regarded as contradictory, but introduced a complicated scheme called 'correspondence of signs'." (M. Kline, "Math. thought from ancient to modern times", 1972, p.841). In 1803, Carnot extended his work on the subject in his ‘Geometrie de position’. A second edition of 'Correlation' appeared in 1806. D.S.B. 3: 70-79. Poggendorff I. 381. $800.

Brought Rigor to the Calculus


FIRST EDITION. 8vo. Contemp. half lea. with cloth-covered boards, spine richly gilt. (4), xiv, (2, errata), 576 pp. Edgewear to the binding, minor brown stain in far upper margin of most leaves; a good to very good copy.

Cauchy’s revolutionary ‘Cours d’analyse’ is "...the book in which we could see mathematical analysis, in the sense now understood by the term, come into fruition. He expounded the theory of limits in much more detail than anyone before him... (A feature)...of all aspects of Cauchy’s analysis is that they do not rely on geometrical considerations. By using the theory of limits as a source of definitions of basic properties, and the arithmetic of inequalities as the chief device in proofs, Cauchy was able to bring to mathematical analysis an autonomy from both geometry and algebra. A striking feature of ‘Cours d’analyse’, and the ‘Resumé’ on the calculus, is that not a single diagram is used, not even for illustrative purposes." (I. Grattan-Guinness (ed.), ‘From calculus to set
**FIRST EDITION, Geneva issue. Small 4 to. Contemp. limp vellum with yapped edges, ties lacking. Large original calligraphic manuscript labelling of author and title along spine. (42), 383 pp. Woodcut device on title, text woodcuts, and woodcut initials. Early transparent ink spill to last leaf; a very good copy.**  
Clavius, German-born Jesuit mathematician/astronomer, wrote important treatises on the calendar, geometry, astrolabe, sundials, and a commentary on Sacrobosco. "His algebra appeared in 1608 and was one of the best textbooks on the subject that had been written to that time." (D. E. Smith, 'Hist. math. I', pp. 334-335, with portrait facsimile). It "…marks the appearance in Italy of the German plus (+) and minus (-) signs of algebraic symbols used by Stifel. He was one of the very first to use parentheses to express aggregation of terms. As symbol of the unknown quantity, he used the German radix… For additional unknowns he used 1A, 1B, etc…. In his 'Algebra', Clavius did not take notice of negative roots, but he recognized that the quadratic $x^2 + c = bx$ may be satisfied by two values of $x$. His geometrical proof for his statement was one of the best and most complete." (D.S.B.).  

175. **COTES, ROGER** (1682-1716). *Harmonia mensurarum, sive analysis et synthesis per rationum et angulorum mensuras promotae: accedunt alia opuscula mathematica… edidit et auxit Robertus Smith. Cambridge, 1722.**  
**FIRST EDITION. 4 to. Contemp. calf, rebacked with corners strengthened, spine with gilt-ruled compartments and gilt lea. label, (20), 249, (3), 125, (1, errata) pp. An engraved plate + numerous woodcut text diagrams. Engraved armorial bookplate of James Parker Smith (1854-1929) of Jordanhill. Tear in leaf 169/170 with old repair - no losses, light browning of a few signatures, but a crisp, very good copy.**  
Robert Smith (1689-1768), Cotes' cousin, assistant and successor at Trinity College, Cambridge edited Cotes' mathematical papers on his death. The D.S.B. comments: "…then in great confusion, (they) were edited by Robert Smith and published as a book, 'Harmonia mensurarum' (1722). This work, which includes the 'Logometria' as its first part (Cotes' only life-time publication in 1714), gives an indication of Cotes's great ability. His style is somewhat obscure, with geometrical arguments preferred to analytical ones, and many results are quoted without explanation. What cannot be obscured is the original, systematic genius of the writer. This is shown most powerfully in his work on integration, in which long sequences of complicated functions are systematically integrated, and the results are applied to the solution of a great variety of problems." "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…" (Babson/Newton, First Suppl., p. 29). S.M. Stigler, 'Hist. statistics', 1986, p. 16. Tomash Lib. C184. $5,000.  

The Work in Analysis That Made the Author Famous  
**FIRST EDITION. 4 to. Antique style half morocco with marbled boards, lea. spine label, original fly-leaves preserved. (36), 320 pp. Four folding engraved plates. A very good copy with wide margins.**  
Professor of philosophy and mathematics at the Academy of Lausanne, Crouzaez's work in analysis "...made him famous..." (Published) three years after the work of l'Hospital (sic, the second edition actually appeared in 1715), the contents of which Crouzaez examines step by step. Crouzaez had fully assimilated infinitesimal calculus, and had no doubt taught if correctly to his students. ...this book contributed in great part to the nomination of Crouzaez, in 1725, as associate foreign member of the Académie des Sciences of Paris." (DSB). D.E. Smith, 'Hist. math. I', pp. 519-520. $1,400.
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Presentation Copy to His Former Star Student and Colleague

177. DE MORGAN, AUGUSTUS (1806-71). Formal logic: or, the calculus of inference, necessary and probable. London: Taylor and Walton, 1847.
FIRST EDITION, first issue. 8 vo. Orig. blindstamped black cloth. xvi, 336, 16 (Taylor & Walton cat., dated 1 Nov.) pp. Text woodcuts. PRESENTATION COPY to Professor (Charles James) Hargreave (1820-66, Q.C., F.R.S. - 1844), De Morgan's former star student and later colleague at University College, London. In 1848 Hargreave published a paper on differential equations which was awarded the Royal Medal of the Royal Society. In the year of his death appeared a treatise on algebraic equations. There are a number of pencil additions and corrections in the margins, likely by De Morgan. An ownership signature dated 1844 on the upper pastedown is of Henry Hargreaves Faucett. The slightest tear to the cloth at the ends of the spine and minor spotty foxing, but a fine, fresh copy with a bright binding and gilt spine title.

Professor of mathematics at the University College in London, Augustus De Morgan had a formidable reputation as a mathematician, historian of mathematics, and bibliographer of the subject. He had many friends in the field, and was active in the scientific societies of the period. "In his own mathematical work, De Morgan made major contributions in the area of logic. ... The crucial respect in which De Morgan sought to improve on the traditional logic of Aristotle was in the treatment of the logic of relations. ... De Morgan's work on the logic of relations did not become part of the mainstream, due to the shortcomings of his notation. More successful in the reform of logic was George Boole, author of 'The Mathematical Analysis of Logic' and creator of a superior notation. Boole acknowledged his debt to De Morgan, whose name remains attached to two laws of Boolean algebra involving the negations of compound expressions." (R. V. Young, ed., 'Notable mathematicians', 1998). "De Morgan's greatest contribution to scientific knowledge undoubtedly lay in his logical researches; and the subsequent development of symbolic logic, with its powerful influences on both philosophy and technology, owes much to his fundamental work". (D.S.B.). See: Alice's exchange with the caterpillar in 'Alice's Adventures in Wonderland' (1865). Also see, William Hamilton, item 184 of this catalogue. Later issue(s) of this book are known, e.g. the more common one with the gilt price of 6/6 stamped at the foot of the spine and with Walton & Maberly's ads on the yellow endpapers (here yellow but blank), an Edmunds & Remnants binder's ticket, and a later publisher's catalogue. $3,600.


Charles Dupin, a student of Gaspard Monge the dedicatee of the present treatise, held the position of professor of mechanics at the Paris C.N.A.M. until 1854. "His aim is to find the simplest possible presentation of differential geometry, and to exhibit its most important applications. For that reason he always begins by using the methods of pure geometry in the sketchy way common to his predecessors, but then proceeds to re-establish the conclusions by sound analysis. Moreover, he has a vivid imagination and, I personally think, more originality than Monge, so that he gets some really novel results of first importance." (J. L. Coolidge 'Hist. geo. methods', 1940). D.S.B. 4: 257. Sotheran/Zeitlinger, vol. 1, no. 1123. $875.

Creation of the Calculus of Variations


FIRST EDITION. 4 to. Contemp. paneled polished calf with large handsome medallions in blind at center of covers, black lea. label on compartmented spine. (2), 322, (2) pp. Title in red and black with large engraved device and large woodcut headpiece and initial on page one. Five folding engraved plates. A fine, crisp copy.

"...written by Leonhard Euler and printed in 1744 (this treatise) created the calculus of variations as a separate branch of the calculus. In simplest terms, the calculus of variations determines the path between two points for which some integral (property) along the path is maximum or minimum. For example, the brachistochrone, i.e. the path of quickest descent from one given point to another under the force of gravity, is determined by the calculus of variations to a
cycloid. Although many problems of this type had been solved earlier by others, it was this work of Euler that established the general theorems, thus making the calculus of variations a separate and important branch of the calculus." (J.D. Stanitz, ‘Sources of Science and Technology’, no. 57). Bibliotheca Mechanica, p. 104 which emphasizes the importance of the appendix for containing "...the first solution to the problem of the buckling of a column. This study also had considerable influence on the research done by Sophie Germain on plates." Grolier/Science 100, no. 28. Heralds of Science 111. Evans, Epochal Achievements in Science, no. 9. Milestones of Science 60. $7,500.

The First Modern Algebra Text in Its Original Manuscript Language


SECOND EDITION IN GERMAN, the original manuscript language. Two volumes in one. 8 vo. Contemp. three-quarter calf, back gilt within compartments and with contrasting labels. (12), 256; (4), 384 pp. A fine, crisp copy.

Leonhard Euler was totally blind by 1766, but with the help of collaborators he was still able to produce many works. In the case of his classic algebra, he dictated (in German) "...to a young valet, a tailor by profession, the two volume 'Vollständige Anleitung zur Algebra' (1770), first published in Russian translation." (D.S.B.). The Russian translation appeared in 1768-69, and in its original manuscript language in 1770, both at St. Petersburg. The present edition is an entirely reset version with the errata corrected and would appear to be by the same publisher of the 1770 first German language edition. However, Rider's 'Biblio. of early modern algebra', p.115 gives 'Lund' as the place in the imprint with no reference to St. Petersburg. It has been suggested that this book has a false imprint and was pirated by publishers in Lund, Sweden. (Sotheran/Zeitlinger, 2nd suppl., no. 1465 incorrectly calls this St. Petersburg 1771 a second issue of the 1770 edition.)

Euler's 'Algebra' received translations into English, Dutch, Italian, and French. It "...greatly influenced nineteenth and twentieth century texts on the subject." (D.S.B.). "The first volume treats of determinate algebra. This contains one of the earliest attempts to place the fundamental processes on a scientific basis... This work also includes the proof of the binomial theorem for an unrestricted real index which is still known by Euler's name... The second volume of the algebra treats of indeterminate or Diophantine algebra. This contains the solutions of some of the problems proposed by Fermat, and which had hitherto remained unsolved." (W.W.R. Ball, 'Hist. math.', 1924, p.397). Lagrange commented to d'Alembert, citing the German version, that Euler's work on Diophantine equations was "excellent". Roller & Goodman I. 375. $1,400.

Posthumous Works of Galileo

Published by His Famous Student, Viviani, Along with His Own Work


FIRST EDITION, second issue (first complete). 4 to. Contemp. vellum over boards, gilt spine title. (12), 284 (i.e. 286) pp. Two engraved plates + woodcut initials and woodcuts in the text. The COPY of Pietro Ricardi (1828-98), the distinguished 19th century bibliographer of Italian mathematics and science. His Modena bookplate is on the front pastedown. The upper corners of the binding are worn, the rear cover has a number of small worm holes near the spine of which one or two very small ones pierce the plates in blank areas; a very good, well-margined copy.

'This work originates from a fragment of one of Galileo's works given to Viviani by Cardinal De'Medici and to which he added his own elaborations. In Galileo's fragment, some demonstrations of the fifth and sixth definitions of Euclid's fifth book were described in relation to proportional and non-proportional dimensions. In Viviani's opinion, Galileo had not been able to overcome all the difficulties and he undertook this work in which, on the basis of Galileo's demonstrations, he intended to summarise and reorder Euclid's entire fifth book. Galileo himself considered this possible in the fragment entitled 'Principio della Quinta Giornata del Galileo' which follows the 'Scienza Universale delle Proporzioni' in this 'book'. This fragment is followed by: 'Da aggiungersi all'altre quattro de Discorsi e Dimonstrazione Matematiche intorno alle nuove Scienze appartenenti all Meccanica et a' Movimenti locali'. Viviani obtained this piece of writing in manuscript from Torricelli. The interlocutors are the well-known characters Salviali, Sagredo and
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Simplicio. The treatise proceeds with the definition, which is developed in two ways, and five propositions and a corollary that follows the first proposition. This is followed by several chapters of letters how much Galileo still had in his mind waiting to be developed… There are extremely helpful notes throughout the book containing a remarkable amount of personal biographical information about important characters in the life of Galileo." (Cinti 151, English translation).

Also of importance is Viviani's original work here: "With the rigor and prolixity of the ancients, Viviani devoted an appendix to geometric problems, among which was one on the trisection of an angle, solved by the use of the cylindrical spiral or of a cycloid; another was the problem of duplicating the cube, solved by means of conics or of the cubic xy²=k." (D.S.B.).

This 1676 reissue consists of 149 pages plus 3 unnumbered pages with title dated 1674 to which has been added the substantial new text, dated 1676 in the colophon, plus two engraved plates. Riccardi I. 625.2, and under Galileo, Riccardi I. 520.19. See: Stillman Drake, 'Galileo at work', (1978). $7,000.

Gibbs Sole Written Work on Multiple Algebra


FIRST SEPARATE EDITION, only 276 copies printed. 8 vo. Fine linen over boards with the orig. printed wrappers bound in. 32 pp. Blindstamp in blank area of title; a very good copy.

"The principal monument to these studies (abstract and general algebraic systems) in pure mathematics is to be found in his vice-presidential address 'On Multiple Algebra' before the American Association for the Advancement of Science (A.A.A.S.), Section on Mathematics and Astronomy, in 1886 at Buffalo. ...The development of dyadic analysis undoubtedly forms Gibbs' most significant contribution to multiple algebra." (L. P. Wheeler, 'Josiah Willard Gibbs - the history of a great mind,' 1952). D.S.B. 5: 386-393. See: T.L. Hankins, 'Sir William Rowan Hamilton', 1980, pp. 323-325. $1,500.

The Roses of Grandi


FIRST EDITION. 4 to. Contemp. vellum over boards. xvi, 84 pp. Two folding engraved plates. A fine, crisp copy.

The Italian mathematician, Guido Grandi, a student of Girolamo Saccheri, was professor of mathematics at Pisa. Grandi "...worked on the definition of curves. He devised the curves now known as the 'versiera', the 'rose', and the 'clielia', and his theory of curves also comprehended the means of finding the equations of curves of known form. ...In his fascination with the study of curves, Grandi was influenced first by English scientist Isaac Newton. In 1728 he published his complete theory in 'Flores geometrica', an attempt (among other things) to define geometrically the curves that have the shapes of flowers, particularly multipartelled roses." (Random House Webster's Dictionary of Scientists, 1997). Prior to this treatise, Grandi published 'Florum geometricorum manipulus' in a 1723 issue of the 'Philosophical Transactions'. C. Boyer, 'Hist. anal. geo.', 1956, p. 185 remarks on this publication: "Grandi waxes eloquent on the role of geometry in the beauties of nature." "A key step in the mathematicizing of plant morphology was undertaken in the early eighteenth century by Guido Grandi, editor of Euclid and of the first Florentine edition of Galileo's works, who was an innovatory mathematician of curves." (M. Kemp, 'Seen/unseen', 2006, p. 437). D.S.B.5: 498-500, esp. 499b. Boyer/Merzbach, 'A hist. math.', 1991, p. 437. J. Stillwell, 'Math. and its hist.', 2002, p. 109 with illus. Scarce. $2,750.

The Hamilton / De Morgan Controversy in Logic

Signed by William Hamilton

184. HAMILTON, WILLIAM (1788-1856). 1. Testimonials in support of Sir William Hamilton's application for the Chair of Logic and Metaphysics, vacant in the University of Edinburgh. 1836. (Edinburgh, 1836). 2. Preparing for publication by Sir William Hamilton. I. Essay towards a new analytic of logical forms. II. Contributions towards a true history of Luther and Lutherans... (Edinburgh, 1846). 3. A letter to Augustus De Morgan, Esq. on his claim to an
independent re-discovery of a new principle in the theory of syllogism... Subjoined, the whole previous correspondence and a postscript in answer to Professor De Morgan's "Statement". London & Edinburgh: Longman..., 1847.

FIRST EDITIONS. 8 vo. Fine linen with paper spine label. 59, (1); 6, (2, blank); 44 pp. Item 1. - With autograph note of Edward A. Park (1806-1900), the prominent American Congregational clergyman, professor at Andover Seminary, and one of the last champions of old New England theology. Park writes that it was sent to him by Hamilton and that it contains Hamilton's autograph on page ten. Hamilton himself has added two further articles from the Edinburgh Review to his bibliographic list. Item 3. - With Park's ownership signature. Very good copies.

Here is documented Sir William Hamilton's controversy with De Morgan concerning his suggested improvement to Aristotelian logic in his 1833 lectures of 'quantification of the predicate'. On De Morgan's part, he went with the idea and published his 'Formal Logic' in 1847 (see item 177) and further memoirs on the subject in subsequent years. See: D.S.B. 4: 36a (De Morgan) and D.S.B. 6: 80-83 (Hamilton).


FIRST EDITION. 8 vo. Orig. cloth, expertly rebacked with the original spine laid down, orig. endpapers preserved. vi, (2), lix, (1), 762 pp. Small rubberstamp on the title: a very good copy.

Hamilton's 1853 'Lectures on quaternions' was not overly successful, (John Herschel only managed three of the seven lectures) so he undertook a new and what became an even larger monograph. It appeared posthumously in 1866 through his son's intersession. Despite Hamilton's considerable efforts, many came to better understand quaternions through the subsequent books of Tait (1867) and Tait & Kelland (1873). See: PMM 334. $1,500.

Integral Equation Theory, 'Hilbert Space', Coining of the Mathematical Term 'Spectrum'


OFFPRINTS: 'Nachrichten der K. Gesellschaft der Wissenschaften zu Göttingen', Heft 1-6 (complete). Twentieth century cloth for nos. 1-5 with the original front printed wrapper bound in for no. 5, separately no. 6 is in original printed wrappers. Approx. 300 pages. No. 4 with some staining to the first leaf. The bound volume is very good condition, and no. 6 in wrappers is fine.

This important series of papers published separately over seven years at Göttingen was later collected as a book (Leipzig & Berlin, 1912). Morris Kline in his 'Mathematical Though from Ancient to Modern Times' (1972, pp.1060-1070) provides a detailed analysis of the many significant results published here. Summarizing, Kline writes: "...Hilbert's major results, first of all he established the general spectral theory for symmetric kernels K. Only twenty years earlier, it had required great mathematical efforts to prove the existence of the lowest oscillating frequency for a membrane. Another noteworthy result due to Hilbert is that the development of a function in the eigenfunctions belonging to an integral equation of the second kind depends on the solvability of the corresponding integral equation of the first kind. Here he inaugurated the spectral theory of bilinear symmetric forms." The D.S.B. comments: 'the most important landmark ever set out in mathematics: the linear space method in analysis, with its geometrical language and its numerous applications, quite a few of which go back to Hilbert himself." See: C. Reid, 'Hilbert', 1970. $1,800.

The 'Erlanger Programm'


FIRST EDITION. 8 vo. Orig. printed wrappers. 48 pp. The extreme edges of the wrappers have been almost imperceptively expertly repaired with very closely matching paper. Very lightly browned, light old private library rubberstamp on title; a very good copy.

"Klein's Erlangen Program was his review of contemporary methods in geometry. It became, some 20 years later, the work from which a new generation of mathematicians came to see how geometry was being done and to appreciate the importance of group theory in the study of geometry. The reason for this delay, and also for its subsequent and continuing impact, was the novelty with which Klein re-united the disparate fields of geometry through his emphasis on the role of groups in geometric transformations." (Landmark Writings in Western Mathematics, Chap. 42).

$3,850.

Original Lithographed Edition of Klein's Lectures
On Function Theory and the Riemann Surface


FIRST EDITION. Small 4to. Contemp. half cloth with marbled boards. (4), 280 pp. Lithographed manuscript text with numerous hand-drawn text figs. The front joint and corner tips show some wear; still, a very good, crisp copy.

The place and date of publication of these 1880-81 lectures is taken from Klein's forward which discusses the origin of this manuscript version of his lectures at Leipzig eleven years earlier. "Klein considered his work in function theory to be the summit of his work in mathematics. He owed some of his greatest successes to his development of Riemann's ideas and to the intimate alliance he forged between the latter and the conceptions of invariant theory, of number theory and algebra, of group theory, and of multidimensional geometry and the theory of differential equations, especially in his own fields, elliptic modular functions and automorphic functions...It is through Klein that the Riemann surface is regarded as an indispensable component of function theory and not only as a valuable means of representing multivalued functions." (D.S.B). Shortly after these lectures, "...Klein provided a comprehensive account of his conception of the Riemann surface in 1882 in 'Riemann's Theorie de algebraischen Funktionen und ihre Integrale'." (D.S.B.).

$1,250.

189. [KUMMER, E. E. (1810-9), KRONECKER, L. (1823-91), KIRCHHOFF, G. (1824-87), BRUNS, E. H. (1848-1919)]. An offprint and manuscript lectures. The Offprint


OFFPRINT. 8vo. Disbound. 20 pp. PRESENTATION COPY to E. E. Kummer, Kronecker's former teacher who profoundly influenced him and was a lifelong close friend. Kummer "...was one of the creative pioneers of nineteenth century mathematics." (D.S.B.). "Kummer was one of those rarest of all scientific geniuses who are first class in the most abstract mathematics, the applications of mathematics to practical affairs, including war... and finally in the ability to do experimental physics of a high degree of excellence". (E. T. Bell, 'Men of mathematics', 1937, chap. 27). Kronecker continued Kummer's investigations on quadratic forms and group theory. Minor edge darkening of title page; preserved in cloth-backed archival folder.

This paper concerns singular families of quadratic forms. Kronecker and Camille Jordan engaged in a controversy concerning Kronecker's theorems about singular families and disciplinary ideals they epitomized. For more on Kronecker, see (3) below.

The Bound Volume of Manuscript Lectures

A quarto volume, (2)-5), in original half cloth with marbled boards, gilt author's names on spine. These are the manuscript lecture notes of Archibald Lamont Daniels (1849-1918), an American graduate student at Göttingen and Berlin (1877-83). He received his D. Sc. at Johns Hopkins in 1883. Daniels became Williams Professor of Mathematics at the University of Vermont and chair of the department. His writing, in German on both sides of the leaves, is easily read. Daniels' text includes diagrams and dates for the lectures. With the small red leather bookplate of the late Prof. Sidney Ross of R.P.I. In very good condition.


28 April 1881 - 28 July 1881. 63 leaves.

(3). KRONECKER, LEOPOLD. Theorie der algebraischen gleichungen. 1880-1.

29 Oct. 1880 - 27 Nov. 1880. 27 leaves.


25 April 1881 - 29 Mai 1881. 31 Leaves.


25 April 1881 - 20 Mai 1881. 28 leaves.
These manuscript lectures, captured by the American mathematician, Archibald L. Daniels, provide insights into the ways of thinking and the pedagogical influences of major German mathematicians of the period.

With the presence at Berlin at mid-century of Weierstrass, Kronecker, and Kummer "...that city began to experience a new flowering of mathematics. ...While Weierstrass and Kronecker offered the most recent results of their researches in their lectures, Kummer in his restricted himself ...to laying firm foundations. ...Kummer's Berlin lectures, always carefully prepared, covered analytic geometry, mechanics, the theory of surfaces, and number theory." (D.S.B. - Kummer).

Kronecker's greatest mathematical achievements lie in his efforts to unify arithmetic, algebra, and analysis, and most particularly in his work on elliptical functions. "...Kronecker also introduced a number of formal refinements in algebra and in the theory of numbers..." (D.S.B. - Kronecker).

Kirchhoff, in collaboration with Robert Bunsen, laid the foundation of spectral analysis (1860). "...His teaching had a considerable influence on the development in Germany of a flourishing school of theoretical physics during the first three decades of the twentieth century." (D.S.B.). In 1875 he accepted the chair of theoretical physics at Berlin. "...The excellence of Kirchhoff as a teacher can be inferred from the printed text of his lectures... They set a standard for the teaching of classical theoretical physics in German universities, at a time when they were taking a leading position on the development of science."

The mathematician/astronomer, E. H. Bruns, was professor of astronomy at Leipzig from 1882 and director of the observatory. Previously he had been at Berlin and had studied under Kummer and Weierstrass.

A Clear Picture of Mathematical Analysis - From G. B. Amici's Library

190. LACROIX, SYLVESTRE F. (1765-1843). Traité du calcul différentiel et du calcul intégral. Paris: Courcier, 1810-14.9, 3 vols. 8vo. Contemp. half Italian vellum with marbled boards. (2), lvi, 652, (1, errata); xxv, (1), 816, (4, errata); xxiv, 771, (3, additions & errata) pp. Ten folding engraved plates. From the library of Gozani Battista Amici (1786-1868), the Italian optician and biologist, though unmarked (this and other books from his library have passed through our hands, some signed). Two sheets of equations in Amici's hand are laid-in. Scattered minor foxing; a very good, crisp set.

Two important editions of his major mathematical treatise were prepared by Lacroix. "...The first volume of Lacroix's treatise on the calculus, in which he 'united all the scattered methods, harmonized them, developed them, and joined his own ideas to them,' appeared in 1797. It was followed by a second volume in 1789, and a third appeared in 1800 under the title 'Traite des différences et des series' [a second edition appeared in three volumes (1810, 1814, 1819)]. This monumental work constituted a clear picture of mathematical analysis, documented and completely up to date. While Lacroix followed Euler on many points, he incorporated the various advances made since the middle of the eighteenth century. The treatise is a very successful synthesis of the works of Euler, Lagrange, Laplace, Monge, Legendre, Poisson, Gauss, and Cauchy, whose writings are followed up to the year 1819. ...Lacroix's sense of history is evident in all his writings. The preface to the first volume of the second edition of the great 'Traité' (1810) is a model of the genre." (D.S.B.). In this second edition, Lacroix abandoned Lagrange's approach of treating the differential calculus strictly algebraically in favor of a treatment based on the limit. Sotheran/Zeitlinger, vol. 1, no. 2357-8. $3,750.

Among the Earliest to Provide Access to Laplace's 1812 Treatise


Protégé and life-long friend of Monge, Lacroix had been recently appointed to the chair of mathematics at the College de France at the time of this publication. Stigler in his 'History of statistics' (1986, p. 157) notes that Lacroix's "...1816 'Traite'... contained a nice exposition of both the theory and methods..." of the Gauss-Laplace synthesis concerning least squares. 'Landmark Writings in Western Mathematics', p. 339 comments on Lacroix's book as being among the earliest to provide a
Translation and Contributions by Babbage, Herschel, and Peacock

LOBACHEVSKY, NIKOLAI I. (1792-1856) and NON-EUCLIDEAN GEOMETRY.

The Collection

FIRST EDITION, journal appearance. 4 to. Contemp. mottled boards with lea. label on spine. Rubbed and worn around edges; otherwise, a very good copy.

FIRST EDITION, very rare. Small 8 vo. Old (possibly original) boards with the orig. printed front wrapper mounted on the front cover, rebacked with cloth similar to pervious one. Preserved in a cloth-covered clam shell case with lea. label on spine. (2), 61, (1) pp. Two folding lithographed plates by "Weidle, Berlin, Spandauer no. 49". Spotty foxing, old small embossed stamps; a very good copy.

ANASTATIC FACSIMILE, issued in the 1880’s with no direct indication that it is a copy of the original 1840 publication: that it is not letterpress is clear on close examination and the lithographer’s name and address is missing from the plates, see (2). Small 8 vo. Contemp., possibly original, lea.-backed boards. (2), 61, (1) pp. Two folding plates. The COPY of the American mathematician, Henry Taber (1860-1936), signed on the cover and title, on the latter with ‘Berlin, 1887’. Taber completed his Ph.D. at Johns Hopkins in 1888, became assistant and docent at Hopkins when William E. Story arrived from Clark Univ. to head Hopkins’ mathematics department. Both Story and Tabor investigated non-Euclidean geometry in the early 1890s. Later Taber moved to Clark from where he retired in 1921. See: P. Duren, ed., ‘A century of math. in America’, Part III, pp. 43-47, (1989). The spine is worn but holding, uniformly browned due to paper quality, bookplate; a good copy.

SECOND EDITION, in the series "Wissenschaftliche klassiker in facsimile-drucken, Band I."


FIRST (bookform) EDITION IN FRENCH. 8 vo. Orig. printed wrappers, untrimmed. (2), IV, 42 pp. Wood engravings in the text. Soiling and spotty foxing to wrappers, part of backstrip missing; a good to very good copy.


FIRST EDITION IN ITALIAN, journal appearance. Small 4 to. Orig. printed wrappers, uncut. Uniformly lightly browed, wear to edges of wrappers and spine; a good to very good copy.


FIRST EDITION IN ENGLISH, the very rare reprint version which precedes the May 1891 printing in the University of Texas ‘Neomonic Series.’ Translator’s ‘Preface’ printed without place or date. 8 vo. Orig. light green boards with green cloth spine. On the front cover is mounted a printed green label cut from the ‘Reprint’ wrapper of Halsted’s translation as it first appeared in the ‘Scientiae Baccalaureus’. An example of that printed wrapper is preserved with the journal’s editor’s (W. H. Echols) presentation copy at the Univ. of Virginia. (1), (124)-165 pp. Text diagrams. Signs of a one-time bend in the front cover; a very good copy.


FIRST EDITION. Two volumes in one. 8 vo. Recent half cloth with marbled boards. xvi, 235, (1); (5), (2348) - 476 pp. Photogravure of a painted portrait of Lobachevsky as frontispiece + text figs. A very good copy.


THIRD EDITION of vol. 1 and the important SECOND EDITION of vol. 2. Two volumes in one. 8 vo. Contemp. cloth-backed marbled boards. vii, 289, (1); vii, (1), 385, (1) pp. Text woodcuts. Rubbed and spine faded, without front fly-leaf in vol. 1. uniformly lightly browed; a good copy.


FIRST SEPARATE EDITION. 8 vo. Orig. printed wrappers 70 pp. Text figs. Slight imperfection to backstrip of upper spine; a very good, crisp copy.

(18). VASILIEV, ALEKSANDR V. (1853-1929). Nikolai Ivanovich Lobachevsky. Address pronounced at the commemorative meeting of the Imperial University of Kasán, October 22, 1893. Trans. from the Russian, with a Preface, by Dr. George Bruce Halsted. Austin, TX: The Neomon, 1894.

FIRST EDITION IN ENGLISH. 8 vo. Contemp. half cloth with marbled boards, the orig. printed wrappers bound in, viii, 40; 17('Mathematical works by George Bruce Halsted') pp. Deaccessioned from Bowdoin College with their labels. A very good, crisp copy.


FIRST EDITION IN GERMAN. 8 vo. Orig. printed wrappers, uncut. (2), 207-244 pp. PRESENTATION COPY inscribed in German by the author to Dr. L. Fuchs, likely in the hand of Engel. The recipient probably was Lazarus Fuchs (1833-1902), the successor to Weterarrival at Berlin. A nearly fine copy.


Orig. printed wrappers. 8 vo. Embossed stamp on front wrapper, unimportant abrasion marks near spine; a very good copy.


FIRST EDITION, with date in imprint. Small 8 vo. Orig. printed cloth. (vi), 95, (1, blank), (6, pub. ads) pp. COPY of Harriet E. Glazier (1870-1955) with her ownership signature dated March 21, 1901. She was professor of mathematics at Western College for Women (Oxford, OH) from 1905 to 1920. Thereafter until 1940 Glazier was at the new UCLA where she developed a pioneering course in the Teaching of Arithmetic and published her influential textbook, ‘Arithmetic for Teachers’ (1929). Aside from minor edge wear of cloth, a very good copy.


FIRST AUTHORIZED EDITION IN ENGLISH. 8 vo. Orig. cloth. xxxi, (1), 196 pp. Cloth a bit worn, without front flyleaf; a good to very good copy.


FIRST ÉDITION IN RUSSIAN. 8 vo. Orig. printed wrappers. x, (2), 213, (2) pp. Text figs. A bit of wear to the backstrip, uniformly lightly browned; a good to very good copy.


FIRST EDITION. 8 vo. Orig. printed wrapper. xii, 403, (1) pp. Small piece missing from lower corner of rear wrapper; a good to very good copy.


FIRST EDITION IN ENGLISH. Small 8 vo. Orig. cloth, dust-jacket with portrait. 91, (1) pp. Text figs. A very good copy.

This collection of books and papers brings together many of the key publishing events in the development of non-Euclidean geometry, especially from the point of view of Nikolai I. Lobachevsky's contributions. The story is a slow developing one. Though Lobachevsky's publications in Russian in the 'Kazan Messenger' (1829-30) are not here, his very rare 1840 German monograph (2) is as the star of this collection. It is from this book that Bolyai learned in 1848 of Lobachevsky's contribution. Also present is the very rare original reprint version of Halsted's translation of it into English in 1891 (8). As pointed out in chap. 39 of 'Landmark writings in Western mathematics' (2005), the Hoüel translation into French, (6), of Lobachevsky's 1840 text (2) was the version Eugenio Beltrami (1835-1900) read. Beltrami's reliance on this account, assessed as 'clearer and ... more influential', emphasizes its importance in the development of non-Euclidean geometry. The first non-Russian appearance of a Lobachevsky publication was (1) in Crelle's Journal in Berlin. An unfavorable review of his Kazan publications for republication by the Academy in St. Petersburg led to his bypassing their journals and his submission of 'Géométrie imaginaire' (1) to Crelle's. Concerning Lobachevsky's 1840 book, it is not well appreciated that two anastatic reprints of it appeared in the late 1880s. The 1887 version (4) published by Mayer & Müller, is well known, copies of which were Heralds of Science 115 and P.M.M. Exhibition Catalogue, no. 558 ('The above edition is listed because the earlier editions of 1829 and 1840 proved unprocurable.' - their note). However, there is a little-known anastatic printing (3) without any new imprint that replicates the 1840 completely and is easily confused with it [see notes in (3) above for the subtle differences]. This raises the possibility that the recorded copies of the very rare true 1840 first edition are conflated with copies of the 1840 anastatic facsimile. Lobachevsky's last work, 'Pangeometrie', his final exposition on non-Euclidean geometry, was dictated in French while blind. The original French appeared in 1856, and in Russian in 1855 and again in 1856. A German translation (5) was published in a Berlin journal dedicated to Russian science. By 1867 an Italian translation (7) appeared. A second German edition with an added appendix by Liebmann (11) was popularly published. The 1867 French translation of Lobachevsky's 1840 book (6) has already been noted. An English translation came decades later when the American mathematician, George Bruce Halsted, published it in an obscure journal edited by seniors at the University of Missouri, Rolla; (8) and thereafter 9 & (12). At the end of the century, Friedrich Engel published his still indispensible version of Lobachevsky's geometrical works (10) in two volumes at Leipzig. It remains to comment on a few further supporting items in the collection: (13) contains 'Geometrical researches on the theory of parallels' and 'On the principles of geometry' edited by V. F. Kagan (14) The 1867 second edition of volume two of Baltzer's influential 'Elemente' - here he first treated the work of Lobachevsky and Bolyai. Halsted lauds Baltzer in his translation of Bolyai's 'Appendix' as the first to draw attention to Bolyai in his 'excellent' 'Elemente de Mathematik' noting that Hoüel prepared his 1866 French translation of Lobachevsky 'incited' by Baltzer's 'rare erudition'. (15) Hoüel's important early critical edition, which according to B. A. Rosenfeld, 'Hist. non-Euclidean geo.' (1988) contains "...an exposition of the basic ideas of Lobachevsky geometry." (16) by Frischauf: 'Hoüel's labours must have urged J. Frischauf to perform the service for Germany which the former had rendered to France." (Bonola, 1911). Therein the work of Lobachevsky, Bolyai, Riemann, and Helmholtz is presented. (17) A very rare copy of issue two, of four only, of the journal 'Scientiae Baccalaureus' contains a relevant paper by Halsted, the translator into English of Lobachevsky, Bolyai, and Saccheri. (21) is the first textbook in English on non-Euclidean geometry. On (22), the first edition of Poincaré's influential 'Science and hypothesis' was published at Paris in 1902, thereafter two translations into English appeared in 1905, one at London, and the present American version by Halsted with an introduction by the Harvard philosopher, Josiah Royce. Of interest here is 'Part II. Space', chapters III-V concerning geometries, especially non-Euclidean.

$68,500.

The Fountainhead of the Subjective Interpretation of Probability

ANTIQUARIAN SCIENTIST

The first book from edition of Laplace's 'Essai' was published earlier in 1814 in quarto format. Here the text has been augmented and issued as an octavo book. It "...has certainly had a longer life and almost certainly a large number of readers than any of Laplace's writings. ...Inevitably, Laplace's technical writings have come to have the same sort of relation to the later development of the discipline of probability that, for example, Newton's 'Principia mathematica' had to the later science of mechanics." (D.S.B.). See: Landmark Writings in Western Mathematics, pp. 337-338 for detailed contents of the book. F. Cajori, 'Hist. math.', 1919, p. 263. $1,350.

FIRST EDITION. 8 vo. Three-quarter calf with marbled boards, antique style. xxiii, (1), 269, (1, errata), (2, pub. ad) pp. Seven folding engraved plates. A few minor brown stains; but, a very good, large copy.

Israel Lyons, a child prodigy, was patronised by Sir Joseph Banks and Robert Smith. To the latter he dedicated his first book (written at the age 19), 'A treatise of fluxions'. He taught botany at Oxford (1762-63), was a computer to the Board of Longitude (1764-67), and astronomer to Captain Phipps' polar expedition (1773). Lyons was preparing a complete edition of Halley's works when his career was cut short by measles. A 13-page list of subscribers appears in the preliminaries, there he also notes his reliance on Cotes' approach. Charles Hutton in his 'Mathematical Dictionary' comments: "a respectable mathematician and botanist... In, 1758, he obtained much celebrity by publishing 'A Treatise on Fluxions' ... he received frequent presents from the Board of Longitude for his own inventions." F. Cajori, 'History of ...fluxions in Great Britain...', 1919, pp. 201-202. Sotheran/Zeitlinger, vol.1, no. 11147. Taylor II. 628. $900.

"...a model of rigor...

FIRST EDITION. Two volumes. 4 to. Twentieth century three-quarter goatskin with dual label. labels. (6), vi, 412; (2), 413-763, (1, errata) pp. Required half-title to vol. one present. Forty-one folding engraved plates. Ownership signatures on each title of John Bonycastle (1751-1821) and Henry Shimer (1826-95). Bonycastle, professor of mathematics at Royal Military Academy, Woolwich, wrote a number of successful textbooks in mathematics and astronomy; see: Poggendorff I. 234. Shimer was an American naturalist and physician in Mt. Carroll, IL who became well known as an entomologist.

Maclaurin, professor of mathematics at Edinburgh, "...provided a vigorous foundation for the method of fluxions based on a limit concept drawn from Archimedian classical geometry. He went on to demonstrate that the method so founded would support the entire received structure if fluxions and the calculus, and to make advances that were taken up by continental analysts. ...Maclaurin's work was cited with admiration by Lagrange, Euler, Clairaut, d'Alembert, Laplace, Legendre Lacroix, and Gauss." (Landmark Writings in Western Math., chap. 10). The D.S.B. comments: 'Maclaurin's 'Treatise of Fluxions' (1742) has been described as the earliest logical and systematic publication of the Newtonian methods. It stood as a model of rigor until the appearance of Cauchy's 'Cours d'analyse' in 1821." (see item 173). F. Cajori, 'A hist. of the conceptions of limits and fluxions in Great Britain', 1919, chap. VI. Not in Babson/Newton or Wallis/Newton. $4,800.

MACLaurin, COLIN (1698-1746). A treatise of algebra, in three parts. ...To which is added an Appendix, concerning the general properties of geometrical lines. London: A. Millar and J. Nourse, 1748.

The posthumous work on algebra by the important Scottish mathematician, Colin Maclaurin "...is an elementary treatise dealing principally with equations and with the application of algebra to geometry; it is a model of clear and terse exposition, and was in vogue as a Cambridge textbook for more than half a century." (D.N.B.). The 65-page Latin appendix, 'De linearnum geometricarum proprietatibus generalibus', was "reprinted from a manuscript written and corrected in Maclaurin's own hand." (D.S.B.). D.T. Whiteside has shown that part of Maclaurin's algebra treatise "...had been written by 1726, for his Edinburgh course, shaped as commentary on Newton's 'Arithmetica Universalis', and reproducing some sections verbatim." (Wallis, 'Brit. math., p. 59). "Important for the use of algebra in the resolution of geometrical problems." (C. Boyer, 'Hist. anal.
The Euler-Mascheroni Constant - Important to Number Theory

FIRST EDITION. 4 to. Fine linen backed grey-blue boards, paper label on spine. Uncut. (4), 72 pp. Text figs. Expertly washed to remove and arrest mildew (minor residual staining in margins, a bit more so at beginning and end); otherwise, a very good, crisp copy on fine paper.

An important and rare book in which the Italian mathematician, Lorenzo Mascheroni, calculates the Euler constant, also known as the Euler-Mascheroni constant, to 32 decimal places (see p. 23 of text). Euler published a paper in 1735 on the constant, but he was only able to calculate it to 6 decimal places. 'This number links exponentials and logarithms to number theory... it plays roles in such diverse areas as infinite series, products, probability, and definite integral representations.' (C. A. Pickover, 'The Math Book', 2009, p. 172). A 'pars altera' appeared in 1792, though it is not usually found with, nor anticipated by, this 1790 treatise. D.S.B. 9: 156. Poggendorff II. 71-72. Riccardi I. 132.6.

Important Contribution to Mathematical Methods - Barycentric Calculus

FIRST EDITION. 8 vo. Dark blue half morocco with marbled boards. Uncut. xxiv; 454 pp. Four folding engraved plates. A binder's error has bound some pages of the Contents in the last gathering. Small bookplate of Bibliotheca Mechanica (see p. 227). Perforated stamps of the Franklin Institute on title and one text leaf; a very good copy.

'German mathematician August Ferdinand Möbius, famous for his one-sided loop called the Möbius strip, also made a major contribution to mathematics with his barycentric calculus, a geometrical method for defining a point as the center of gravity of certain points to which coefficients or weights are ascribed. ...The new algebraic tools, developed by Möbius in his 1827 book..., have since turned out to have wide application. This classic book also discusses related topics in analytic geometry such as projective transformations.' (C.A. Pickover, 'The Math Book', 2009, p. 222). D.S.B. 9: 429-431.

Includes the Only Extensive Eight-Figure Table of Trigonometrical Logarithms

FIRST EDITION. Folio. Contemp. blind tooled calf, spine gilt within compartments. (8), 96, (308) pp. Large woodcut initials, head and tail pieces, and numerous wood cut diagrams in the text. The KENNEY COPY (his sale, no. 3110, May 1967). Dustsoiling to the title, minor wear and rubbing to the binding; a very good copy.

'This is the only extensive eight-figure table (of trigonometrical logarithms) that has been published, and is remarkable on account of the logarithms of the differences, instead of the differences, being given.' (Sotheran/Zeitlinger, 2nd suppl., no. 2091). John Newton was an educator and textbook writer who set up a mathematical school at Ross in Herefordshire where he was Rector after Restoration. Taylor I. 205. 'Biblio. Books Exhibited Napier Tercentenary' (1915), no. 55. $3,400.

The Father of Pure Mathematics in America

James Mills Peirce's Copy

FIRST EDITION, one of edition of 100 lithographed copies. 4 to. Contemp. three-quarter lea. with marbled boards and edges. 153 pages of lithographed manuscript text and multiplication tables. The COPY of the author's eldest son, James Mills Peirce (1834-1906), Perkins Professor of mathematics and astronomy at Harvard and the first dean of the Graduate School. He had a reputation of being an excellent teacher and contributed greatly to the development of the mathematics curriculum at Harvard. In this he collaborated for decades with his fellow student and the eventual long-term president of Harvard, Charles W. Eliot. James Mills Peirce's Copy.
Benjamin Peirce's 'Linear Associative Algebra' was a pioneer work in American mathematics and in modern abstract algebra. Supported by his belief in the correspondence between human ideas and the physical universe, Peirce adopted in this work the symbolical approach to algebra of Peacock and De Morgan, joined in Hamilton's rejection of Peacock's permanence principle, created over 150 new algebras, worked with linear algebras with complex coefficients, divisors of zero, and indeterminate division operations, and laid the foundations for a study of algebraic structures. Because of 'Linear Associative Algebra', therefore, Benjamin Peirce deserves recognition, not only a founding father of American mathematics, but also as a founding father of modern abstract algebra. (H. M. Pycior, 'Benjamin Peirce's 'Linear Associative Algebra','' ISIS, vol. 70, pp. 537-551, 1979).

This key work first appeared in 100 lithographed copies whose publication was provided for by Julius E. Hilgard (1825-91), Peirce's assistant at the Geodetic Survey and later its superintendent. "The work was performed by persons connected with the Coast Survey Office in otherwise unoccupied hours, or in their own leisure time, being in fact in great part a labor of love. ...The copy was written by a lady who understood not one word of the investigation, but who by great attention succeeded in making a copy far more free from errors than any printers proof ever is..." (I. Grattan-Guinness, 'Benjamin Peirce's 'Linear Associative Algebra' (1870): New light on its preparation and 'publication', Annals of Science, vol. 54, pp. 597-606, 1997). At the end of the book, Peirce thanks Hilgard "...for the opportunity for issuing these nice lithographic copies..." The year after Peirce's death, his son, Charles, added footnotes to the treatise and had it published in the 'American Journal of Mathematics' (1881, vol. 4, pp. 97-215) and as a Van Nostrand book in 1882. [Curiously though it is understood the 1870 and 1881 are identical except for Charles' notes, a casual check has turned up some differences in the equations.] Benjamin Peirce's introduction 'To my friends' was removed. It begins: "his work has been the pleasantest mathematical effort of my life." Peirce's very first line of text is famous: "Mathematics is the science which draws necessary conclusions."

Added: Two books by James M. Peirce: (1) Mathematical tables chiefly to four figures. First series. Boston, 1879. Presentation Copy with J. M. Peirce's holograph inscription to Benjamin Peirce's former student, one of the first Ph.D.'s in mathematics at Harvard who later became professor of mathematics, W. E. Byerly. (2). The elements of logarithms. Boston, 1874. First Editions. Orig. cloth. (1) signs of significant use, and (2) a very good copy. $5,500.

Poincaré's Important Doctoral Thesis in Mathematics


'The development of mathematics in the nineteenth century began under the shadow of a giant, Carl Friedrich Gauss; it ended with the domination by a genius of similar magnitude, Henri Poincaré. ...Poincaré remains the most important figure in the theory of differential equations..." (D.S.B.). It is with this subject Poincaré began his mathematical career. On August 1, 1879 he defended his doctoral dissertation "On the properties of functions defined by partial differential equations (not on methods of solution, but on existence theorems), which led to one of his most celebrated contributions to mathematics - the properties of automorphic functions; in fact, he was the virtual founder of the theory of these functions." (Boyer/Merzbach, 'Hist. math.', 1991, p. 601). $1,200.


Poisson's best known work is his treatise on probability. "Toward the end of his life, Poisson turned his attention to other subjects, producing two works of considerable repute. The first, 'Recherches...' (1837), is significant for the author's participation in an important contemporary debate (concerning) the legitimacy of the application of the calculus to areas relating to the moral order... Poisson was bold enough to take pen in hand to defend the universality of the probabilistic thesis and to demonstrate the conformability to the order of nature of the regularities that the calculus of probability, without recourse to hidden causes, reveals when things are subjected to a great number of observations. It is to Poisson that we owe the term 'law of large numbers'. He improved Laplace's work by relating it explicitly to Jacob Bernoulli's fundamental theorem and by showing that the invariance in the prior probabilities of mutually exclusive events is not a necessary condition for calculating the approximate probabilities. It is also from Poisson that we derive the problem that Laplace had passed over, the case of great asymmetry between opposite events, such that the prior probability of either event is very small. ...It was many years before the importance of Poisson distribution was recognized." (D.S.B.). S. Stigler, 'Hist. of statistics', 1986, pp. 183–194. $2,250.

Riemann's Hypothesis and the Zeta Function


First Edition, journal appearance. 8 vo. Orig. printed wrappers, stitched as issued, uncut and unopened. Pages 671-724 with a folding lithographed plate, the Riemann paper (unillustrated) on pp. 671-680. The slightest dustsoiling to the front wrapper, signs of once folded (probably for posting) now quite flat; a fine copy.

The 'Monthly Report of the Berlin Academy of Science' for November 1859 leads with Riemann's famous paper, 'On the Number of Prime Numbers Less Than a Given Magnitude', his only paper on number theory. "If I were to awaken after having slept for 500 years, my first question would be: Has the Riemann hypothesis been proven" - David Hilbert shortly before his death in 1943. It remains one of the unsolved problems (no. 8) on Hilbert's famous list of 23 problems presented to the International Congress of Mathematicians in 1900. Stephen Hawking in his 'God created the integers' (2007) provides an English translation of Riemann's paper with commentary (excerpt): "Riemann died at far too early an age. We can only ask whether he would have rigorously proved his eponymous hypothesis had he been granted the biblical life span of three score and ten years. Perhaps we will live long enough to see Riemann's hypothesis proved. If we are fortunate for that to happen, we shouldn't be surprised if the roots of that proof lies in Riemann's epochal paper itself." "The proof of Riemann's hypothesis would have profound consequences for the theory of prime numbers and in our understanding of the properties of complex numbers... Today more than 11,000 volunteers around the world are working on the Riemann hypothesis, using a distributed computer software package Zetagrid.net to search for the series of the Riemann zeta function. More than 1 billion zeros for the zeta function are calculated every day." (C. A. Pickover, 'The math book', 2009). PMM 293b - its importance noted. See: K. Sabbagh, 'The Riemann hypothesis - the greatest unsolved problem in mathematics', 2002. $7,000.


Offprint. Abhandlungen der Königlichen Gesellschaft der Wissenschaften zu Göttingen, Dieterischen Buchhandlung, 1861. 4 vo. Orig. paper strip back to spine, title and verso of last leaf dustsoiled. Uncut and unopened, a good to very good copy.

"Continuing work of Dirichlet, in 1861 Riemann studied the motion of a liquid mass under its own gravity, within a varying ellipsoidal surface..., a problem that had been the subject of many
works. One of Riemann's classic results deals with the stability of an ellipsoid rotating around a principal axis under equatorial disturbances." (D.S.B.).

The Science of Gunnery, Fluxions, *Vis Viva* Controversy, and Other Writings of Benjamin Robins

206. ROBINS, BENJAMIN (1707-51). 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... London: J. Nourse, 1761.

FIRST EDITION. Two volumes. 8vo. Contemp. speckled calf. xlvii, (2, contents), 341, (3, pub. ads); (2), 380 pp. Three engraved plates, one folding + text woodcuts. Vol. I joints cracked and one corner bumped, vol. II joint partially cracked; a good to very good set, internally very good.

With his 'New principles of gunnery', 1742, Robins became the real founder of the science of gunnery. Therein Robins introduced the ballistic pendulum which he employed to determine the muzzle velocity of bullets. That advance, and other s, caused Euler to issue his German translation in 1745. Robins' second volume contains an important work on fluxions which first appeared in 1735. Commenting on the original edition, the Newton/Babson Catalogue has: "In this little book, Robins was the first to give an exceedingly clear explanation of Newton's theories of fluxions." The polemics on the *vis viva* controversy and other published and unpublished articles complete the set. Biblio. mechanica, pp. 279-280. F. Cajori, 'Hist. concepts, limits and fluxions in Gr. Brit.', 1919, chap. 4 & pp. 202-206.

Early English Book of Logarithms


FIRST EDITION. Small 8vo. Eighteenth century calf, rebacked. (xvi), (300, tables), (4), 70, (10) pp. Last leaf is headed: 'A Table for the Speedy Reduction of Centesmes or Decimal Minutes to Sexagenary Minutes'. It includes a table intended to fold out as a reference when the rest of the book is closed. Engraved armorial bookplate of John Hancock Hall. A few pages numbers partially trimmed in the second part, old rebacking a bit awkwardly accomplished; otherwise, about a very good copy.

"This volume comprises two tables, one of the logarithms of natural numbers and the other of logarithms of the sine and tangent functions. The latter is an unusual table in that each degree is divided into 100 parts (each being thirty-six seconds of arc). It is only the second such table printed (the first by Henry Briggs and Henry Gellibrand in the same year, but it was to fourteen decimal places where this table is to ten places). ...The Wingate essay is on the use of the tables in problems of plane and spherical triangles, the latter containing information on astronomy, geography and navigation..." (Tomash Lib. R103). Books Exhibited at the Napier Tercentenary (1914), no. 53. Taylor II. 157.

Important Nineteenth Century Treatise on the Calculus of Variations


FIRST BOOKFORM EDITION. 4 to. Orig. blue wrappers. Uncut. (4), 127 pp. Blindstamp on title, light spotted foxing here and there; a very good copy in original state.

Sarrus, who was born and died in South Africa, was professor of analysis at Strasbourg, and later dean. His 1845 prize essay for the French Academy of Sciences solved the problem of extending the method of variations for determining the maxima of multiple integrals. This accomplishment, later simplified by Cauchy, is regarded as the most significant original contribution to the calculus of variations from 1800 to 1860. F. Cajori, 'Hist. math', 1919, pp. 369-370.

Manuscript and Offprints Document the Achievements of an Important Nineteenth Century Mathematician

209. SCHWARZ, HERMANN A. (1843-1921).

*Volume One*

ANTiquarian Scientist

Quarto volume in original half cloth with marbled boards, gilt author and titles on spine. (1). 23 Oct. 1879 - 10 March 1880. 117 leaves. (2). 24 Oct. 1878 - 6 March 1879. 49 leaves. The manuscript lecture notes of Archibald Lamont Daniels (1849-1918), an American graduate student at Göttlingen and Berlin (1977-83). Daniels became Williams Professor of Mathematics at the University of Vermont and chair of the department. His writing, in German on both sides of leaves, is easily readable. Daniels text includes diagrams and dates for the lectures. With the small red lea. bookplate of the late Prof. Sidney Ross of R.P.I. Minor edge wear to binding, in very good condition.

Volume Two

This quarto volume contains a first edition, six offprints, an extract and three 'autographie-drucken' (lithographed autograph printings) of papers by H. A. Schwarz from 1872 to 1887. These were the collection of Schwarz' student, Robert Haussner (1863-1948), and include his manuscript additions, title pages, table of contents, a few marginal notes several laid in carefully written multiple-leaved sheets with extensive notes and equations. Haussner has numbered all the leaves, except the blank interleaved sheets (a few huec manuscript equations and a diagram). 1 through 242 with a folding lithographed plate. His dated signature appears in multiple locations. The binding is lea-backed cloth, the spine rubbed and the front joint is cracked but holding. The papers are in very good condition.

These two important volumes document the work of Hermann A. Schwarz, professor of mathematics at the University of Göttlingen from 1875, and successor to Weierstrass at Berlin from 1892-1917. "Schwarz... was the leading mathematician in Berlin in the period following Kronecker, Kummer, and Weierstrass. He may be said to represent the link between these great mathematicians and the generation active in Germany in the first third of the twentieth century, a group that he greatly influenced." (D.S.B.). The papers (Volume Two) here cover his most productive period and include his work on conformal mapping, minimal surfaces, rigorous proof that the sphere possesses a smaller area than any other body of the same volume. Leading off collection is the first edition of "...his most important work, a festchrift for Weierstrass' seventieth birthday, (in which) Schwarz set himself the task of completely answering the question of whether a given minimal surface really yields a minimal area. Aside from the achievement itself, which contains the first complete treatment of the second variation in a multiple integral, this work introduced methods that immediately became extremely fruitful." (D.S.B.).

Haussner completed his Ph.D. at Göttlingen under Schering and Schwarz in 1888. In 1902 he became professor of mathematics at Jena. Among his students were Rudolf Carnap, Wolfgang Haack, Friedrich Ringleb. Volume One contains from this period the manuscript transcription of Schwarz' lectures, complete with numerous diagrams, on differential equations and on maxima/minima problems in geometry. Schwarz "...did great work in partial differential equations and analysis..." (M. Kline, 'Math. thought from ancient to modern times', 1972). F. Cajori, 'Hist. math.' (1919), pp. 431-432.

"Robert Hooke bought a copy in 1675..."

210. SHAKERLEY, JEREMY (1626-537). Tabulae Britannicae: the British tables wherein is contained logistical arithmetick, the doctrine of the sphere, the ecclesiasticallyl accomp, the equation and reduction of time... London R. & W. Leybourn, for Robert Boydell, 1653. FIRST EDITION. Small 8 vo. Contemp., possibly American, ruled calf; (6), 92, (4) pp.; (64) leaves. Text woodcut diagrams. The binding is edge worn but sound, title page a bit wrinkled in foremargin; a good to very good copy.

This very uncommon work by a native of Carre, Lancashire includes logarithmic tables and astronomical tables based on the precepts and observations of Jeremiah Horrox (1617-41). Shakerley "...was one of the brilliant young north-country mathematicians encouraged by his neighbour Christopher Towneley, with whom he resided during 1648-50 and there also met Jonas Moore. ...His own observations included that of the transit of Mercury, of the comet of 1652, and of a solar eclipse, the last two in Surat..." (Taylor I. 233). According to Taylor I. 214: "One of the books recommended to seamen by Timothy Gadbury. Robert Hooke bought a copy in 1675 for 12s. from Moses Pitt." Macclesfield Sale, no. 1874.

The First Application of the Newton-Raphson Process
to the Solution of Transcendental Equations

D.E. Smith in his history of mathematics describes Simpson as "that strange mathematical genius". F. Cajori in his history notes: "The first application of the Newton-Raphson process to the solution of transcendental equations was made by Thomas Simpson in his 'Essays...', London, 1740."


A Distinguished Copy of the Foundation of Synthetic Geometry


The Scottish mathematician, Matthew Stewart (1717-85), a student of Robert Simson and Colin Maclaurin, established his reputation "...overnight by the publication of the 'General Theorems'. John Playfair, himself a scientist of distinction, claimed that Stewart's results were 'among the most beautiful, as well as the most general propositions known in the whole compass of geometry... The unity which prevails among them is a proof that a single though extensive view guided Mr. Stewart in the discovery of them all...Simson's influence is obvious throughout the work. Several of Stewart's theorems are in fact porisms, although he refrains from calling them by that name...' (D.S.B.). Charles Hutton, the 18th century English mathematician (see item 108), also thought highly of Stewart's treatise. "Including his discussion of the properties of the circle and straight line, treated by transversals and involution." (Sotheran/Zeitlinger, vol. 1, no. 4601). Stewart succeeded to Maclaurin's chair of mathematics at Edinburgh. F. Cajori, 'Hist. math.', 1919, p. 277. W.W.R. Ball, 'Short hist. math.', 1908, p. 388. $1,600.
ANTIQUARIAN SCIENTIST

 Important in the Early Pedagogy of the Calculus


FIRST EDITION. Small 4to. Contemp. vellum over boards. (8), 118, (2) pp. Six folding engraved plates. Old rubberstamp on title 'Bibliotheque du Depot de la Guerre de Belgique' and their bookplate on the front pastedown. Light browning to the title page and occasional light spotty foxing; a very good, crisp copy.

‘Varignon’s intense pedagogical activity, extending over more than thirty years, constituted his chief contribution to the progress of science and was the source of his fame. By inaugurating a chair devoted specifically to mathematics at the College Mazarin, he joined the handful of men who were then teaching advanced mathematics; and it is in this context that his work was of great importance. ...In working with the model of falling bodies, Varignon encountered difficulties in obtaining acceleration as a second derivative. This problem had the advantage, however, of obliging him to reassess the importance of the new differential and integral calculus. His acceptance of the new procedures occurred between 1692 and 1695, and he was among those who gave the most favorable reception to the publication of L'Hospital’s ‘Analyse des infiniment petits’ in 1696. The ‘Eclaircissemens’ is composed of critical notes that Varignon, as a professor, considered necessary in presenting L'Hospital’s pioneering work to young mathematicians further evidence of his constructive role in the movement to transform the operations used in mathematics.” (D.S.B.).


Second Appearances of Wallis’ Magnum Opus on Mechanics and His Book Containing the Germ of the Differential Calculus

Includes the Introduction of the Symbol for Infinity and an Interpolated Value for π


FIRST EDITION - volume one only, of three (usually bound as four). Folio. Antique style full calf over thick boards, blind-tooled within compartmented spine, and with lea. spine label, early fly-leaves preserved. (4, general title dated 1699 & dedication to William III), (14, vol. one title, preface, errata, & contents), (4, vol.4 title dated 1699, ‘Monitum’, contents, & errata), 1063, (1, list of figs.) pp. Engraved frontispotrait of Wallis by M. Burghers after D. Loggan (1678) + plate of a solar eclipse within the pagination + very numerous woodcut figs. Last few leaves with spotty foxing, light uniform toning to text; a very good copy.

This grand volume published at Oxford University is the first of three volumes containing the mathematical works (theological writings and miscellany are found in the last volume) of the most influential English mathematician before Newton, John Wallis, Savilian professor of geometry at Oxford (1649-1703). His most important mathematical work, ‘Arithmetica infinitorum’ (1656), and the one that made him famous, has its second appearance here. Similarly his masterly, ‘Mechanica, sive du motu tractatus geometricus’ (three parts, 1669-71) has its second appearance in print in this massive volume. Also of considerable importance is Wallis’ ‘De sectionibus conicis’ (1655): ‘...the earliest systematic algebraic treatment of the conic sections to appear in print." (C. Boyer, ‘Hist. anal. geo.’, 1956). The ‘Arithmetica infinitorum’, which is extremely rare in the original edition, ‘...was the most substantial single work on mathematics yet to appear in England. It introduced the symbol ∞ to represent infinity, the germ of the differential calculus, and by an impressive use of interpolation (the word was Wallis’ invention), the value for π.” (Random House Webster’s Dict. of Scientists, 1997).


$2,750.
ANTIQUARIAN

PHOTOGRAPHY

"By the chemical snare of Daguerre" - Lemercier
Presentation Copy from Chevreul to d'Omalius d'Halloy


FIRST EDITION. 4 to. Orig. self-wrappers, uncut. (2), 81, (1) pp. Similar to other copies, this copy does not have the 6th part, a note on an old château in Madrid, printed on a single leaf and intended for attachment to the stub following the last leaf. See: U.C. Berkeley digital copy on Google, a copy which also lacks its title page. PRESENTATION COPY with an initialed holograph inscription from Michel Eugène Chevreul (1786-1889), the famous French chemist, president of the Institut Royal de France and l'Académie de Sciences, to J. B. J. d'Omalius d'Halloy (1783-1875), the Belgian geologist (see D.S.B. 10: 208-210), who was a foreign member of the French l'Académie des Sciences. Partial fraying of the backstrip paper, lacking original spine, which held the signatures together; a good to very good large copy.

Little known and among the earliest notices of Daguerre's new sensational advance in photography is Lemercier's (the French dramatist and poet) long poem, 'Lampélie et Daguerre', on the subject presented as a lecture before the Institut at the beginning of May, 1839. Here it is published with a short introductory essay on pages 21 through 37. For 'The Arcades Project' of Walter Benjamin a small section of the poem is available in English:

As, menaced by the birdcatcher's pitiless nets,
The meadowlark, rousing the muses of morning,
Flutters and foolishly comes to alight on a
Lark-mirror, reef of its dalliances,
So Lampélie (= sunlight's) flight is cut short
By the chemical snare of Daguerre.
The face of a crystal, convex or concave,
Will reduce or enlarge every object it marks.
Its fine, lucid rays, through the depths of the trap,
Catch the aspect of places in rapid inscription:
The image imprisoned within the glass plate,
Preserved from all threatening contact,
On Chevreul and photography, see plate 269 of Gernsheim. It reproduces Chevreul's participation in the first photo-interview in August 1886.

216a. HUNT, ROBERT (1807-87). Researches on light: an examination of all the phenomena connected with the chemical and molecular changes produced by the influence of the solar rays; embracing all the known photographic processes, and new discoveries in the art. London: Longman..., 1844.

FIRST EDITION. 8 vo. Orig. cloth, rebacked with about two-thirds of the orig. spine (includes gilt title) laid down and with new endpapers, orig. free endpapers preserved. vii, (1), 303, (1), 32(pp. cat. dated April, 1844) pp. Folding engraved frontispiece with the spectrum hand-colored + a few text woodcuts. The COPY of Alexander Winchell (1824-91), the American geologist and educator, with this ownership signature on the front free endpaper dated 1850. "Winchell's main impact was his role in organizing geology as a science in America." (D.S.B.). A very good copy.

An early issue, possibly the earliest, having the April 1844 publisher's catalog (Hunt's preface is dated March 11, 1844) and no errata slip. The slip does appear in copies with a September 1844 publisher's catalog. 'Robert Hunt was librarian and keeper of mining records at the Museum of Practical Geology and professor of mechanical engineering at the Royal School of Mines, London. He carried on numerous photographic and photochemical experiments and he was one of the founders of the London Photographic Society. ...The discovery by Robert Hunt (1844) that iron sulphate (vitriol) was suitable for the development of light pictures on iodide, bromide, and chloride of silver was of great importance for the future. It is well known that it was just this iron sulphate developer which brought 'wet collodion' photography, invented several years later, to such efficiency.' (J.M.

FIRST EDITION. 8 vo. Contemp. green pebbled presentation morocco, covers ruled in gilt at edges, spine ruled in gilt within compartments, all edges gilt. (2), xv, (1), 220 pp. Figs. in the text. The DEDICATION COPY, signed in ink by Airy at foot of the printed dedication to John Herschel (1792-1871). Herschel’s Collingwood rubberstamp is on the title, dedication, and the first page. A fine, crisp copy.

Airy was appointed Pluimian professor and director of the observatory at Cambridge University in 1828, and he accepted the post of Astronomer Royal in 1835 which he held until his retirement in 1881. Though he was responsible for the efficient running of the Royal Greenwich Observatory, no great science issued from that institution under his long tenure, "...but he made great science possible." (D.S.B.). On the dedication leaf signed by Airy, he wrote in part: "...I venture to inscribe this work to my honoured friend Sir John Frederick Herschel, Baronet, K. H., one of a small band who by their private efforts established in the University the form of mathematics then and now accepted in the scientific world." This copy is No. 45 with facsimile plate between pp. 8/9 of Sidney Ross’ ‘The catalog of the Herschel Library’, 2001. Ross’ small gilt leather bookplate is on the front pastedown.

$2,000.

Early Key Work on Galvanism in Its Original State


FIRST EDITION. Two volumes. 8 vo. Original marbled wrappers with the original printed paper labels on spines. Uncut. (6), xvi, 350; (4), xii, 330 pp. Ten folding engraved plates printed in sepia. With half titles. Name cut from fly-leaf of vol. 1. Usual light wear and small losses to wrappers, but a very good set in its original state.

$2,000.
The nephew of Luigi Galvani, Jean Aldini, was his uncle's champion in the controversy over Galvani's 'animal electricity' and Volta's 'galvanic current'. Aldini's best known work was his 'Essai', which appeared in two volumes, as well as in a single quarto volume, both in 1804. Dedicated to Napoleon, Aldini reported on his experiments which established the existence of electrical forces within living tissue, on his attempt to determine the velocity of an electric current across the harbor of Calais, and on his '...dramatic experiments (which) involved motion in the anatomical members of a just-executed murderer and induced muscular contraction in dissected parts of sheep, oxen, and chickens.' (D.S.B.). Wheeler Gift Cat. 660. Ronalds, p.7. Mottelay, pp. 304-306. Gartrell 587. Bakken, p. 124. Fulton & Cushing 27. 

$2,250.

Rare, Original Edition of a Dutch Treatise on Electrotherapy


A rare (3 copies only in U.S.) and handsome treatise on medical electricity by the Dutch apothecary, Willem van Barneveld. The engraved title (reproduced, p. 2 of Gartrell) and the folding plates are particularly fine and interesting. Plate one illustrates a seated woman in period dress as part of an experiment involving a plate electrical machine. There are accessories on the table in the foreground (reproduced, fig. 17 of M. B. Schiffer, 'Draw the lightning down', 2003); high in the paneled room are two busts: Nollet and Franklin. In plate 3 hangs a portrait of Priestley between the windows. Barneveld gives accounts of 50 case histories in which electricity was applied, and he describes the electrical machines used. The more commonly encountered German translation appeared in 1787. Gartrell 23. Bakken, p. 38. Ronalds, p. 37 (not in lib.). Mottelay, p. 326. & Licht 57 - German translation. Not in Wheeler, Ekelöf, or Rowbottom & Susskind. 

$1,500.

An Early Text of Analytical Mechanics


Riccardi notes this book by Domenico Bartaloni (whose dates as given by Riccardi imply the book was published when the author was only 15!) as among the first treatises on analytical mechanics. Bartaloni refers glowingly in his introduction to Euler. It is to Euler that we owe the foundation of this approach as presented in his 'Mechanica; sive, motus scientia analytice exposita' (St. Peters burg, 1736). Bartaloni's text is divided into two books: 1. rectilinear motion and 2. curvilinear motion; each of these considers motion first in vacuum and then with moderate resistance. An analytical approach is followed throughout. Poggendorff II.111 (under Bartoloni): born in Sienna in 1750 where he received his doctorate. Riccardi I. 89.1. Roller & Goodman I.82. Not in Biblio. mechanic.

$1,250.

Three Electrical Works by Beccaria


FIRST EDITIONS. Three volumes in one. 4 to. Contemp. Italian boards, old paper rebinding and with old manuscript spine label. viii, 439, (1); (6), 54, (1); 19 pp. The first volume with eleven fine folding engraved plates. A very good copy.

These important final works by the major Italian contributor to 18th century electrical experimentation and theory include Beccaria's exposition of Franklin's one-fluid theory and his treatment of atmospheric electricity. The second volume, not always found with the first, was clearly intended as a continuation since the paragraph numbers are continuous. D.S.B. 1: 546-548. Wheeler

**FIRST EDITION.** Six octavo volumes in seven + a landscape folio atlas. Texts in contemp. half lea. and marbled boards; atlas in orig. boards, rebacked, with orig. large printed label on cover. (4) 563; (1); (4); 510; (4), xvi, 450; (4), xvc, (1), 333, (3); (4), 316; (4), iv. 288; (4) 440; (4), 547 pp. Seventeen folding engraved plates. Atlas: t.p. + 28 engraved plates, 2 mezzotints of water spouts and aurora. Waterstain in vol.1 at beginning and end, some minor staining and spotting, edges of boards with wear, 19th C. private rubberstamp on text titles; in all a good to very good set.

At 3,400 pages of text and 45 plates, Antoine C. Becquerel's work on a great variety of topics in electricity and magnetism was the largest of its kind to that date. The impressive atlas is often missing, and when found, it is more likely to be in large octavo format rather than landscape folio with the plates and maps unfolded as here. On the author see: D.S.B. 1: 557-558 and Ekelöf 938. Mottelay, p. 271. Wheeler 882. Ronalds, p. 44. Bakken, p. 138. Gartrell 616. $1,850.

**Henri Becquerel's Doctoral Thesis**


**OFFPRINT of the First Appearance of Becquerel's Thesis in a Journal.** From Annales de Chimie et de Physique, June 1888. May have been issued with wrappers, though none are present here. 8 vo. Twentieth century cloth-backed marbled boards with lea. label on spine. (1)-111, (1) pp. Four heliogravure plates of spectra by Dujardin after Becquerel. A very good copy.

This is the offprint form of the published doctoral dissertation as it appeared in its journal version (also printed as a separate quarto thesis as defended before the Faculty of Sciences of Paris) by the 1903 Nobel laureate in physics (jointly with the Curies). "Becquerel's early research was almost exclusively optical. His first extensive investigations (1875-1882) dealt with the rotation of plane-polarized light by magnetic fields. He turned next to infrared spectra (1883)... He then studied the absorption of light in crystals (1886-1888), particularly its dependence on the plane of polarization of the incident light and the direction of its propagation through the crystal." (D.S.B.). Of interest are Becquerel's observations on the optical behavior of uranium salts (pp. 62-66) especially concerning phosphorescence, in the light of his discovery of radioactivity in the next decade. H. F. Norman Lib. Cat. 156 - presentation copy of the original thesis. $750.

**Fundamental Treatise on Hydrodynamics and Kinetic Theory**


**FIRST EDITION.** 4 to. Contemp. speckled calf, neatly rebacked, the spine gilt within compartments, two lea. labels. (8), 304 pp. Title in red and black. Large engraved vignette on title and head of first page by I. M. Weis, both illustrating hydrodynamic apparatus in allegorical settings + 12 folding engraved plates. Engraved armorial bookplate. Title and early leaves a bit browned; a very good, large and crisp copy.

"The greatest work of Daniel Bernoulli, son of Johann, and one of the truly great books of the 18th century was 'Hydrodynamica' printed in 1738. In this work, Bernoulli bases the motion of fluid on the conservation of actual and potential *vis viva* (i.e. kinetic and potential energy) and Section XII introduces the simultaneous consideration of pressure and velocity, thus leading to the famous Bernoulli's Equation now used in hydraulics and fluid dynamics. The book also makes preliminary observations about the convertibility of heat to work, treats the flow of compressible fluids, applies the momentum principle to fluid motion, and in Section X develops the important kinetic theory of gases in which gas pressure is related to the mean kinetic energy of the random motion of the gas particles." (J. D. Stanitz, 'Sources of science and technology', no. 54). PMM 179n. Rouse & Ince, 'Hist. hydraulics', pp. 95ff. Biblio. mechanica, pp. 34-35. C. A. Pickover, 'Archimedes to Hawking' (2008), pp. 125-134. D.S.B. 2: 39-40. Neville I.130. $10,000.
Gravitation and the Ether


FIRST EDITION. Small 8 vo. Contemp. vellum over boards, clasps lacking, with the deeply impressed arms of Ignaz Karl, Count of Sternberg (Graf v. Sternberg), d. 1700. His considerable library was left to the Carolinischen Collegium Library in Prague. Fine engraved title + folding engraved plates. (16), 269, (3) pp. Early ownership entry on printed title and rubberstamp largely erased, the former leaving a tiny hole in a blank area, joint at head of spine worn with minor repairs; about a very good copy.

The author of the celebrated posthumous treatise on probability, ‘Ars conjectandi’, Jakob Bernoulli, developed in the present work “the theory that seeks to explain natural phenomena by assuming collisions between particles of the ether. …There are extensive discussions about the center point of oscillation, which had been determined correctly for the first time by Huygens in his ‘Horologium oscillatorium’ (1673), but this was strongly debated by some of the members of the Cartesian school.” (D.S.B.). “It contains an explanation and an enlargement of Descartes’ theory of vortices and attempts to explain the cause of gravitation and capillarity. …some of Newton’s great conceptions on aether are anticipated.” (Babson/Newton, 1st suppl., p.6). $3,200.

The Compendious Leiden Edition of Borelli’s Three Companion Treatises:
Muscle Mechanics, Percussion of Solids, & Capillarity


Bound with:
De vi percussionis. Leyden: Vander Aa, 1686.


The three masterworks of Giovanni Borelli jointly issued in a handsome and massive Leyden edition consists of the second edition enlarged and corrected of his classic ‘De motu animalium’ (first ed., Rome, 1680-81: G-M 762; Grolier/Science 100, no. 13; Heralds of Science 190; Lilly Notable Medical Books, p.91), and the second editions of his physics treatises, ‘De vi percussionis’ (first ed., Bologna, 1667) and ‘De motibus naturalibus’ (first ed., Bologna 1670). The joint engraved and printed titles to the physics books make clear that these works were considered as essential introductions to ‘De motu animalium’ (‘Introductiones & Illustrationes Physico-Mathematicae apprime necessariae ad opus ejus intelligendum...’). Often found separately, it is evident from the present volume, in contemporary Dutch vellum, that these three treatises in their second editions were intended as companion works.

Borelli, a student of Galileo, was professor at Pisa and Rome, and a member of the Academia del Cimento. ‘De motu animalium’, his major treatise on muscle mechanics, was largely based on Galileo’s mechanics. ‘He began with the center of motion, the muscle, and then applied its forces to the linkage of bones with the same exactness as forces applied to levers. This analysis evolved into a system describing an animal’s entire mobility... He held that nerve stimulation was related to contraction and swelling of muscle and that some chemical process was associated with it. He also believed that heartbeat was a simple muscular contraction and that the circulatory system was hydraulic in principle.’ (Heralds of Science). Borelli’s ‘De vi percussionis’ contains the discovery of the law of percussion of solids. In ‘De motibus naturalibus’ the account of Borelli’s experiments on capillarity performed while a member of the Academia del Cimento is the first on the subject. Wellcome II.204 - 1685 ‘De motu animalium’ independently bound of the two 1686 physics books. Similarly for N.L.M. (17th C.) - nos. 1576 &1579. $2,750.

Foundation Work of Photometry

A classic of optics, the founding work of photometry containing Bouguer's Law: "In a medium of uniform transparency of light remaining in a collimated beam is an exponential function of the length of its path in the medium." (D.S.B.). In 1760, J.H. Lambert in his 'Photometria' restated the law and consequently it is more commonly known as Lambert's Law. This law is found in the second part of Bouguer's 'Essai', while in the first part "...his method of comparing the relative brightness of two lights by using the eye as a null indicator (i.e. to establish the equality of brightness of two adjacent surfaces) and applying the law of inverse squares." (H.F. Norman Lib. Cat. 283). 'Dict. of Named Effects & Laws' (1961), pp. 25 & 130. Brit. Opt. Assoc. Cat., p. 26. $3,750.

Bouguer's Peru Expedition and the Figure of the Earth

230. BOUGUER, PIERRE (1698-1758). La figure de la terre determinée par les observations de Messieurs Bouguer, & de la Condamine… Paris: Jombert, 1749.

FIRST EDITION. 4 to. Contemp. mottled calf, spine gilt. (24), cx, (2), 394, (2, errata) pp. Nine folding engraved plates + two engraved vignettes and a woodcut vignette on the title. The COPY of Arthur D. Butterfield (b. 1870), professor of mathematics and mechanics at the Univ. of Vermont, author of 'The history of the determination of the figure of the earth' (1906). Therein he discusses this book (pp. 28-33); with his bookplate. Minor edge wear; a very good crisp copy.

The handsomely printed account of the French Académie Royale's "…celebrated expedition to Peru …to measure an arc of the meridian near the equator" (D.S.B.) was prepared by Bouguer after his return in 1744. Both a travelogue and a scientific account of experiments, investigations, and researches, "Bouguer's work on (the Peru) expedition …was of high quality." (D.S.B.). A detailed chapter (pp. 95-167), with facsimiles of plates on this expedition, is in J.R. Smith's 'From plane to spheroid' (1986). Todhunter, 'Hist. fig. earth', 1873, p. 363. Gore, 'Biblio. geodesy', p. 343. $2,750.

The Wave Nature of Electrons


PMM 417: "The simple atoms of Dalton had already been modified before 1926 by the discoveries of radio-activity and the splitting of the atom; but now the Duc de Broglie - in 'Waves and Movements' - proposed an even more radical amendment. Light had been shown to behave as though it were waves and also as though it were particles; matter had been always supposed to be made up of particles, but perhaps it shared the duality of light. Perhaps indeed there might be circumstances in which matter might behave as though it were a wave." Confirmation followed quickly with Davisson and Germer's demonstration (see item 233) of electron diffraction, a wave phenomenon, in 1927. De Broglie was awarded the Nobel Prize in physics in 1929 "for his discovery of the wave nature of electrons." Ekelöf Cat. 1979. H.F. Norman Lib. Cat. 348. See: 'En Francais dans text', no. 353. $1,500.

Ownership Links Two Nobel Laureates


FIRST EDITION IN ENGLISH and FIRST COLLECTED EDITION. 8 vo. Orig. cloth, (8), 151 pp. The COPY of C.T.R. Wilson (1869-1959), the inventor of the Wilson cloud chamber and the 1927 Nobel laureate in physics, with his characteristic ownership initials on the front flyleaf. A very fine copy.

The eight papers here were originally published from 1922 to 1927. For these English translations, the authors have revised them and added notes. Louis De Broglie was awarded the 1929 Nobel Prize in physics. Wilson is noted in PMM 386. $750.
Louis De Broglie Acknowledges Clinton Davisson’s
Experimental Confirmation of the Wave Nature of Electrons

A SPECIAL COPY PRESENTATION COPY


FIRST EDITION. 8 vo. Orig. printed wrappers, untrimmed. (6), 201 pp. + 2 leaves of pub. ads. Eleven half-tone plates + text figs. PRESENTATION COPY to Clinton J. Davisson (1881-1958) with a fine hologram inscription signed by both Louis and Maurice De Broglie, and with Davisson’s ownership signature. Spine and top edge of wrappers faded, some browning due to paper quality, minor repair to backstrip; a good to very good copy.

Davisson confirmed in 1927 Louis De Broglie’s hypothesis of 1924/26 that particles can behave like waves (see item 231) - an important development in quantum theory. The signed presentation on the Broglies’ summary treatise of 1928 not only links Louis De Broglie, the 1929 Nobel laureate in physics, to Davisson, who shared the 1937 Nobel Prize in physics, but in Appendix I, written when the book was in the proof stage, the Broglies acknowledge Davisson’s 1927 experimental confirmation of the wave nature of electrons. One could not ask for a better association copy. Davisson and Germer’s work is discussed in PMM 417 (Louis De Broglie). H. Kragh, ‘Quantum generations’, 1999, p. 130. B. Pullman, ‘The atom in the history of human thought’, 1998, p. 275. Parkinson, ‘Breakthroughs’, p. 505.


"Preliminary announcement of the main results contained in this paper was made in 'Nature' for April 16, 1927. In the present article we give a more complete account of the experiments and additional data." $7,500.

"Physics for Young Ladies"

234. BRYAN, MARGARET (fl. 1797-1816). Lectures on natural philosophy... With an appendix: containing, a great number and variety of astronomical and geographical problems: also some useful tables, and a comprehensive vocabulary. London: Printed by T. Danson; and sold for the Authoress by G. Kearsley & J. Carpenter, 1806.

FIRST EDITION. 4 to. Near contemp. straight-grain black morocco with center medallion in blind, paneled in broad gilt floral tooled and numerous blind rolls, the back gilt in compartments with two lea. labels, marbled pastedowns, and all edges gilt. (36), 388, (1) pp. Fine mezzotint frontisportrait of Bryan + 36 engraved plates. The handsome binding has some wear: joints cracked, corners bumped and worn, still intact. Spotty foxing to the portrait’s blank margins and dampstain to upper blank margins of plates; in all, a good to very good copy.

"This praise encouraged Bryan to publish (the present work)..." (Ogilvie, 'Women in science', 1986). Phillips, 'The scientific lady', 1990, pp. 176-178. Wheeler Gift Cat. 674 - cited for the two lectures on electricity and one on magnetism. $1,750.

Pioneer of Plastic Surgery Publishes an Important Treatise on Electricity and Galvanism

235. CARPUE, JOSEPH C. (1764-1846). An introduction to electricity and galvanism; with cases, shewing their effects in the cure of diseases: to which is added, a description of Mr. Cuthbertson’s plate electrical machine. London: A. Phillips..., 1803.


"One of the first works in the English language entirely devoted to medical electricity." In addition to the medical interest, Carpue’s book describes and illustrates (plates 1 & 2) John Cuthbertson’s third pattern glass plate electrical machine. This presentation (Carpue was the first to name this generator after Cuthbertson) is nearly identical to that later published by Cuthbertson in his book ‘Practical electricity’ (1807). This type of electrical machine, probably

Cauchy Considers Optics


FIRST EDITION. 8 vo. Stitched as issued, uncut and unopened. (2), 24 pp. A bit dustsoiled, a very good copy.

In his work on differential equations, Cauchy "...was concerned with linear partial (differential) equations with constant coefficients, which he encountered in hydrodynamics, elasticity, and optics. The outstanding device of this research was the Fourier transform. ...In 1826 the residue calculus is introduced as a new device... In 1830, when Cauchy went into optics, this formula (from applying residue calculus to a general solution of linear differential equations) was applied to partial differential equations... The formula, obtained in polar coordinates, is involved and not quite clear; its proof is not available because the mémoire, of which the 1830 paper is a brief extract, seems never to have been published and possibly is lost." (D.S.B. 3: 143b & 144a). $1,400.

The First Systematic Treatise on Thermodynamics


FIRST EDITION. Two volumes in one. 8 vo. Contemp. cloth-backed pebbled boards. xviii, 361, (1, errata); xii, 351, (1, errata) pp. Wood engravings in the text. A very good copy.

"A German theoretical physicist, Clausius studied mathematics and physics at the universities of Berlin and Halle, receiving his Ph.D. in 1847. ...In 1879 he was awarded the Copley Medal of the Royal Society. Considered the founder of modern thermodynamics, Clausius' papers on thermodynamics, kinetic theory, and electricity provide an excellent source for the study of the development of his ideas. Clausius introduced the concept of entropy, which was equivalent to William Thomson's concept of energy degradation... This law, the inevitable increase in entropy, is second in importance only to the first law of thermodynamics." (Biblio. Mechanica, pp. 75-76). Evans Epochal Achievements in the History of Science, no. 42 - 1857 paper reprinted here. Stanitz, Sources of Science and Technology, no. 77. D.S.B. 3: 303-311. See: PMM 285 & 323. $975.


FIRST EDITION. 8 vo. Contemp. calf, rebacked with raised bands and lea. label. (16), 243, (1, errata), (10, index, editor's ad, pub. ads) pp. Five folding engraved plates. Corners worn, a very good copy.

"These lectures were among the earliest of their kind given in England. The appendix contains the only English translation of Newton's 'Scale of Degrees of Heat', his law of cooling. Also a paper by Halley and two by Dr. Jurin." (Biblio. Mechanica, pp. 79-80). The editor of Cotes posthumous lectures was Robert Smith (1689-1768) who published his large and authoritative, 'A compleat system of opticks' in the same year. Babson/Newton, no. 343. $1,250.

Including a Very Early Description of Rowley's Orrery

239. **DESAGULIERS, JOHN THEOPHILUS (1683-1744).** A system of experimental philosophy, prov'd by mechanicks. ...To which is added, Sir Isaac Newton's colours: The description of the condensing engine, with its apparatus: and Rowley's horary... London: B. Creake, J. Sackfield, and W. Mears, 1719.

FIRST AUTHORIZED EDITION (with both first and second issue title pages). 4 to. Contemp. calf, corners blind-ruled and with blind-stamped floral corners and chasing pattern. [24: ad before title, two title pages, dedication, Desaguliets' preface (first pub. here), errata, contents], 201, (1, blank), (3, pub. catalog) pp. Titles within ruled borders. Ten folding engraved plates + text woodcuts + repeated large elaborate woodcut headpiece. A very good copy.
Early, Well-Illustrated Treatise on Snow Crystals

241. **ENGELMAN, JAN (1708-52).** Het regt gebruik der natuur-beschouwingen, geschetst in eene verhandeling over de sneeuw figuiren. Haarlem: I. van der Vinne, 1747.

FIRST EDITION. 8vo. Twentieth century vellum-backed marbled boards, uncut. (2), 178, (2, errata & pub. cat.), (2, title for plates) pp. Title in red and black. The 28 required engraved plates, each with 15 snow crystals + 3 additional unnumbered engraved plates, 2 with 30 further snow crystals + one depicting in 7 figs. ice and snow crystal growth + 5 folding letterpress tables. A very good copy.

Among the early treatises on snow and snow crystals is that by Jan Engelman, M. D. published at Haarlem in 1747 (2nd ed., 1771) with 450 magnified depictions of snow flakes. The tables present weather data from 1742 and extensive comparisons of thermometers by Peter van Musschenbroek. In addition, the findings of Leeuwenhoek, Boerhaave, Hales, Bartholin, Maupertuis, Nieuwentyd, Scheuscher and others are noted. Bieren de Haan 83.2. $2,250.

Important Optics, Magnetism, and More


FIRST EDITION. Three volumes in one. 4 to. Contemp. sheep-backed marbled boards, spine richly gilt and with red let. label. (2), 300; (2), 166; (2), 165 pp. First title with engraved emblem. Twelve folding engraved plates. The COPY of the German astronomer, Heinrich C. Schumacher (1780-1850) with his ownership entry on the verso of the first title dated 23 Oct. 1813 at Mannheim. Schumacher was director of the Mannheim Observatory from 1813-1815. "...perhaps his greatest contribution to astronomy" (D.S.B.) was the founding of the journal 'Astronomische Nachrichten' (1823). He conducted work in geodesy in Denmark and...
At mid-eighteenth century the arguments for the wave-particle duality theories of light truly got underway. Euler's important treatise on the subject, 'Nova theoria lucis et colorum' (in vol. one, pp. 169-244), was "probably the most important single publication of the period... (In it) ...he attacked the projectile theory and propounded a vibration theory of light." (G. N. Cantor, 'Optics after Newton' 1983, p. 50, and see pp. 117-122 for details). "The significance of Euler's theory can be gauged partly from the fact that it was so widely discussed. ...It is remarkable that a relatively short treatise published as part of a collection of articles on a range of subjects created such resonance..." (C. Hakfoort, 'Optics in the age of Euler', 1995). Altogether there are 13 tracts in three volumes covering astronomy, mathematics, physics, and electricity and magnetism. Wheeler Gift Ca. 366 and Ekelöf 268 cite the third volume for Euler's 1744 prize essay (Royal Academy of Sciences, Paris). Ekelöf comments: "...contains a paper on magnetism. Euler adheres to the Cartesian doctrine of small magnetic particles, which flow in pores in iron and continue outside. He gives a theory of the magnetic properties of iron and of the compass needle." D.S.B. 4: 467-484. Houzeau & Lancaster 3482. Sotheran/Zeitlinger, 1st suppl., no. 2242. $5,400.

First Issue of Faraday's Electrical Researches


FIRST EDITION, first issue. 8 vo. Orig. blindstamped green cloth. viii, 574, (2, pub. ad), (8, pub. at., dated 13 May 1839) pp. Eight folding engraved plates. Minor chipping to ends of spine, scattered minor faxing to plates; a very good copy.

Not always appreciated the 1839 volume of Faraday's electrical papers published in the 'Philosophical Transactions' from 1831 to 1838 appeared as an independent book of what would over the next sixteen years become a set of three volumes. This 1839 volume in its original first issue does not have 'Vol. 1' on its spine and has the 13 May 1839 ads. The later issue of 'Vol. 1' has different blindstamping on its spine matching that used for volume 2 (1844) and volume 3 (1855). This same pattern is true for the much later Quaritch facsimile edition.

Included here is Faraday's epochal paper on electric generation based on electro-magnetic induction. Faraday "...thus discovered and remains the means of generating nearly all the electricity in use today". (Heralds of Science 64). $900.

Five Early Offprints by the 1938 Nobel Laureate in Physics


OFFPRINTS from 'Memoire della Reale Accademia d'Italia': Fisica N. 1, 2, 3; Estratto 7 & 3. Large 8 vo. Orig. printed gray wrappers. Slight browning; otherwise, a fine set.

The first to occupy the chair of theoretical physics newly created at the University of Rome in 1927 was the young Enrico Fermi. Eleven years later, Fermi left Europe for the United States having just accepted the 1938 Nobel Prize in physics 'for his disclosure of new radioactive elements produced by neutron irradiation, and for his related discovery of nuclear reactions brought about by slow neutrons.' Fermi presented his classic paper on nuclear magnetism (1) to the Academy on January, 1930. He showed the measurements of the nuclear magnetic moment necessary for the analysis of superfine structures [continued in (4)]. The application of Fermi statistics to ion spectra and the Raman Effect on molecules and crystals are the subjects of (2) and (3). In (5) Fermi statistics are applied to the study of elements. D.S.B. 4: 576-583. $1,250.

Foremost American Scientist of the Eighteenth Century

244. FRANKLIN, BENJAMIN (1706-90). The complete works, in philosophy, politics, and morals of the late Benjamin Franklin, now first collected and arranged: with memoirs of his early life, written by himself. London: J. Johnson..., 1806.
A N T I Q U A R I A N  S C I E N T I S T

FIRST EDITION. Three volumes. 8 vo. Contemp. half marbled boards, xiv, (2, div. title), (2, pub. ad), 440. (32, index); vi, (2, div. title), 468; vi, (2, pub. ad), 552 pp. Engraved frontispiece in vol. 1 and engraved titles to each volume + twelve mostly folding engraved plates + a folding table + a few text woodcuts. Minor wear to leather and boards rubbed, small bookplate, some browning to a few plates; a very good set.

This valuable publication, published in 1806 as a set, is the first to collect Franklin's autobiography, his landmark treatise on electricity, memoirs on natural philosophy, writings on politics and moral subjects, his papers on American subjects, and numerous letters. Wheeler Gift Cat. 675. Ronalds, p. 182. Bakken, p. 200.

$2,000.

Gauss's Classic Monograph on Terrestrial Magnetism
Bound with Seven Related Publications

   e. LLOYD, H. Supplement to a paper on the mutual action of permanent magnets, considered chiefly in reference to their best relative position in an observatory. Dublin: Royal Irish Acad., 1841.
   g. LLOYD, H. Results of observations made at the magntetical observatory of Dublin, during the years 1840-43. First series. - Magnetic declination. Dublin: Royal Irish Acad., 1849.
   h. LLOYD, H. On the mean results of observations. Dublin: Royal Irish Acad., 1849.

Eight related publications on terrestrial magnetism bound in one quarto volume. FIRST EDITIONS of a. and d., the others are first separate editions (offprints). Contemp. three-quarter calf with marbled boards, gilt spine titled in Swedish. 44; 58 + an engraved plate; 46 + a folding lithographed chart; (2), 54 + 5 engraved plates; 10 + an engraved plate; 16; 25 + 3 engraved charts; (2), 13 pp. Lloyd offprint f. is a PRESENTATION COPY, later lightly canceled, to Captain Portlock. J.E. Portlock was in charge of the Ordnance Survey in Ireland. In 1843 he published at London, 'Report on the geology of Londonderry'. Small binder's ticket of an Upsala bookseller where this volume recently came from. It may well have been the copy of Per Adam Siljestrom or Anders Jonas Angstrom, both involved in observations of terrestrial magnetism at Upsala in the period of the gathered publications. Front fly-leaf removed, a light wrinkle in title of Gauss, minor wear to the binding; very good copies.

"Gauss's most important geomagnetic work was done in collaboration with the physicist Wilhelm Weber... Their first collaborative work, 'Intensitas vis magneticae terrestris', is an account of the measurement of magnetic force, containing the first systematic use of absolute units (distance, mass, time) to measure a non-mechanical quantity." (H. F. Norman Lib. Cat. 881). Lloyd, "...an expert in optics and a leader in the British program to map the earth's magnetic field" (D.S.B.), was assigned by the British Association to "...the important job of drawing up instructions for the observers and teaching the officers in charge the use of the instruments. Lloyd's own observatory at Trinity College, which had been constructed under his supervision in 1837, served as a model for the other stations and received the results of their observations." (D.S.B.). A rich volume of mid-19th century works on terrestrial magnetism. Gauss - Wheeler Gift Cat. 867; Ronalds, p. 194; Gartrell 735; Bakken, p. 205.

$3,500.

Rare Set of Plates of Snow Crystals

246. GLAISHER, JAMES (1809-1903). Snow crystals, observed by James Glaisher, Esq., F.R.S., from February 8th to March 10th, 1855. n.p., 1855.

FIRST EDITION. 8 vo. Letterpress title leaf + 63 wood engraved monochrome plates, all on card stock, each plate illustrates a magnified snowflake. Preserved in a tour-de-force round-back black smooth and textured leathers clam shell box. A large detailed silver gilt snowflake is on the front center panel, the spine
The British mineralogist, James Glaisher, was the first president of the Royal Microscopical Society from 1865–1869. Earlier at the Microscopical Society of London’s ‘The Wonders of the Microscope’ Soirée on 11 April 1855, Glaisher contributed a special exhibition of his photographs of snow crystals. In the two months prior to the show, Glaisher, with the aid of his wife Cecilia, prepared wood engravings of his microscopic observations of snowflakes. A published collection of them is offered here. When the R.M.S.’s Charter was granted in 1866, one of Glaisher’s magnified snow crystals was chosen as the Society’s official emblem. For an illustration of that example see: G. L’e Turner, ‘God bless the microscope!’ (1989), fig. 19, and the reproduction of the emblem on the cover and title page of the book.

The history of the subject snow crystals in print began with Olaus Magnus’ 1555 ‘Historia de gentibus septentrionalibus’ which contained the earliest diagrams of snowflakes. Kepler’s 1611 ‘De nive sexangula’ initiated the scientific study of snow crystals with an attempt to account for their formation and hexagonal shape. Further contributions were made by Descartes, Hooke and others which included a number of efforts to categorize snow crystal types. Glaisher himself read before the Greenwich Natural History Society in 1855 a paper published afterward in the Journal of the Microscopical Society (vol. 3, pp. 179–185, 1855) entitled ‘Snow Crystals in 1855’. He wrote: “The snow crystals which fell during the late severe weather, attracted such general attention, that I ventured to announce a paper on the subject for the present evening. …Never do I recollect such an infinity of crystals as have lately fallen beneath my observation. …The forms were so varied, that it seemed scarcely possible for continuous observations to exhaust them all. …On February 8 (the beginning date of the present collection), the day of the first heavy and continued snow, I secured drawings of some of the most remarkable figures which fell in numbers throughout the day… …I sketched at this time, and were viewed through a lens of somewhat less power than a Coddington.” Glaisher continues, recounting specific observations on Feb. 13, 16, 17, & 21 with a discussion of his optical methods. Though Glaisher made the observational rough sketches, his wife, Cecilia Louisa Glaisher (1828–92), a photographer, redrew them for publication. The twentieth century brought detailed scientific studies of crystal formation, i.e. the work of Arrhenius, Koch, and especially Ukichiro Nakaya. On Glaisher, see D.S.B. 5: 413 as well as further discussion in Turner. ‘Beauty of another order’, p. 103 cites Glaisher’s 1855 photomicrographic work on snow crystals. Also see the third edition (1865) of Beale’s ‘How to work with the microscope’, page vi. See cover illustration. $3,500.

Grove's Law of Energy


FIRST EDITION, likely the first issue - with the London Institution imprint and their woodcut arms on the title (the other issue has a plain title with imprint of the publisher Samuel Highley). 8 vo. Contemp. red morocco with gilt title on front cover, sympathetically rebacked. iv, 52 pp. Contemp. ownership signature on the front free endpaper - “Thos Hodgkin” (the famous Guy’s Hospital pathologist?). A bit edge worn; a very good copy.

‘Of the utmost rarity. Sir William Robert Grove, professor of experimental philosophy at the London Institution, invented the Grove battery and anticipated electric lighting. In his lectures delivered in 1843 he was the first to set out clearly the nature of heat, light, electricity, motion - forces convertible into any other, and he formulated the Law of Energy, preceding Robert Mayer and Helmholtz (1847). It was he who fully realized the importance of Joule’s paper: ‘On the calorific effects of magneto-electricity, and on the mechanical value of heat’, which was published in 1843. The full formulation of the Law of Energy is to be found in the 1846 first edition of the ‘Correlation of Physical Forces.’” (Dr. E. Weil, Catalogue 19, c.1951). Six editions appeared in the nineteenth century. Unusual to be found in a contemporary binding. D.S.B. 5: 559-561. J. D. Stanitz, Sources of science and technology, no. 73. Bibliotheca Mechanica, p.150. Wheeler Gift Cat. 1096. Ronalds, p.214. $1,300.

An important book in which the pioneering mathematically based theory of electricity and magnetism by Aepinus (1724-1802), published at St. Petersburg in 1759, is elucidated by the distinguished French mineralogist and physicist, Rene J. Haüy. "In contrast with Aepinus, he refrained from mathematical calculations and added Coulomb's recent results. Like Franklin and Aepinus, Haüy assumed one hypothetical electric fluid and one magnetic fluid, although in his later works he adhered to the two-fluid theory." (D.S.B.) As pointed out by J. L. Heilbron in 'Elec. in 17th & 18th centuries' (1979, pp. 401 & 426), Haüy's epitome was applauded in France and Italy, and it is by Haüy's book that French physicists generally came to know Aepinus' work. Wheeler Gift Cat. 541. Mottelay, p.286. Ronalds, p.235. Gartrell 239. Bakken, p.69. $1,250.


The two volumes of Heaviside's 'Electrical papers' contain papers that he wrote between 1872 and 1892. They encompass the results of his most creative scientific years, and also reflect his remarkable process of self-education. What the title does not reflect is that the two volumes possess a far greater degree of formal cohesion and continuity of subject matter than one might expect from a collection of scientific papers. ...The 'Electrical papers' offer an advanced exposition, as well as many novel contributions to two basic theories: the theory of electromagnetic field dynamics due to Maxwell, and an extension of linear circuit theory to the case of continuous transmission lines. ...Heaviside's mathematical innovations... (are) his contributions to the formulation of vector algebra, and his controversial version of the operational calculus." ('Landmark Writings in Western Math. 1640-1940', chap. 49 with a complete analysis of these volumes). D.S.B. 6: 211-212. $1,300.


In a 1967 paper, the historian of science, Prof. T. L. Hankins characterized this significant but little studied treatise as the most important work on dynamics of the period following Newton's 'Principia'. In advance of Bernoulli's 'Hydrodynamica' (see item 225), Hermann's 'Phoronomia' contains the birth of the kinetic theory of gases (chap. 24), and it has Newton's second law of motion expressed in its modern form with acceleration given in the Leibnizian form of the differential calculus. Indeed, Hermann was championed by Leibniz, to whom he dedicated this book, and whose recommendation insured his appointment to the professorship at Padua (1707-13). Later in his career, Hermann was the colleague of the young Euler at St. Petersburg. The treatment of hydraulics theory in Hermann's work is based on geometrical methods, while applications are approached through the calculus. D.S.B. 6: 304-305. 'Historic Writings in Hydraulics', no. 102. Babson/Newton, First Suppl., p. 88. $3,200.


Electric Waves - The Birth of Radio Communication

A Kinetic Theory of Gases in Advance of Bernoulli

A Reclusive Pioneer's Summary Work in Electricity and Mathematics

Henri Becquerel's Collection of Kelvin Papers

   (8). On the application of force within a limited space, required to produce spherical solitary waves... (London, May 1899). pp. 480-493.
   (9). On the application of force within a limited space... (London, Aug. 1899). pp. 227-239.
   (10). On the application of force within a limited space... (London, Oct. 1899) pp. 388-393.
   (11). Address on his installation as Chancellor of the University of Glasgow... Glasgow, 1904. 14 pp.

   Each of the pamphlets has Becquerel's characteristic small label with his manuscript number for the item. No. 6 has a holograph inscription to Prof. Henri Becquerel initiated by Kelvin and dated 26 March 1898. No. 7 is simply inscribed by Kelvin. No. 11 has Kelvin's printed presentation slip bound in. No. 13 (posthumous) has a printed presentation from Dr. J. T. Bottomley with "Becquerel" noted on it laid in. All the pamphlets have either original printed or plain wrappers. The collection, in very good condition, is preserved in a cloth-covered slip case with a leather label on the spine.

   The greatness the presenter and the recipient require little commentary. William Thomson, Lord Kelvin, was a pioneer of thermodynamics and electromagnetic theory; the Kelvin scale of temperature is named after him. Henri Becquerel shared (with the Curies) the 1903 Nobel Prize in physics "...in recognition of the extraordinary services he has rendered by the discovery of spontaneous radioactivity."

   $2,000.

"enriched with a wealth of beautiful engravings" - Torricelli Wrote to Galileo
Contains the First Use of the Term 'Electro-magnetism'


   FIRST EDITION. 4 to. Contemp. calf, gilt arms of Bernard Martin, seigneur de la Oultre, and his wife, Anne Boulter, on sides (see: E. Olivier, 'Manuel de reliures armoriées françaises', Paris, 1924-38, nos. 469 & 2324), rebacked preserving endpapers and fly-leaves, corners repaired, new lea. spine label. (48), 916, (18, last leaf a blank) pp. Engraved title before printed title + engraved title to third part + 33 mostly engraved
Father Kircher's first published work, a brief treatise on the magnet, appeared in 1631 at Würzburg. A decade later he elaborated his interest in magnetism and related subjects into his largest and grandest work on the subject. "Kircher's 'Magnes' is filled with curiosities, both profound and frivolous. The work does not deal solely with what modern physicists call magnetism. Kircher discusses, for example, the magnetism of the earth and heavenly bodies; the tides; the attraction and repulsion in animals and plants; and the magnetic attraction of music and love. He also explains the practical applications of magnetism in medicine, hydraulics, and even in the construction of scientific instruments and toys. ...This work contains the first use of the term... 'electro-magnetism' (p. 640). Kircher's 'Magnes' contains all that was known in his day on electricity and magnetism..." (Brigham Young Univ. Exhibition, 1989, no. 4).

Known for being one of the leading advocates of the idea of universal magnetism, Kircher received from Mersenne his observations for the table of magnetic declination that Kircher published in the 'Magnes'. Data also came to him from Gassendi, Scheiner, Cabeo, and Jesuit missionaries. "The 'Magnes' was the first work in which Kircher demonstrated his ability to create a global network of informants... In this respect, Kircher earned the admiration of contemporaries who did not have access to his range of information. They eagerly read his book to see what he had done with their data. They turned the pages in order to see what new instruments he had dreamt up in order to demonstrate the power of the magnet. Galileo's disciple Evangelista Torricelli was the first to report the appearance of the long-awaited 'Magnes'. From Rome in June 1641, he informed Galileo that the book was pleasing to behold, 'enriched with a wealth of beautiful engravings'." (P. Findlen, ed. 'Athanasius Kircher', 2004). See: J. Glassie, 'A man of misconceptions', 2012, chapter 9. Wheeler Gift Cat. 116 (with repro., p. 118). Mottelay, pp. 63, 120. Gartrell 285. Ronalds, p. 266. Bakken, p. 15. Ekelöf Cat. 116. $7,200.

"Perhaps the most beautiful mathematical treatise in existence" - Evans


First Edition. 4to. Antique style mottled calf, spine gilt, the orig. lea. label and marbled endpapers preserved. xii, 512 pp. Old, small inked number on verso of title slightly visible on recto, first few leaves with light browning to margins; a very good, crisp copy.

"Lagrange's 'Mécanique analytique' extended and formalized Newton's work on mechanics. With the appearance of the 'Mécanique analytique' in 1788, Lagrange proposed to reduce the theory of mechanics and the art of solving problems in that field to general formulas, the mere development of which would yield all the equations necessary for the solution of every problem. The [work] united and presented from a single point of view the various principles of mechanics, demonstrated their connection and mutual dependence, and made it possible to judge their validity and scope." (D.S.B.). "In the preface to 'Mécanique analytique', Lagrange drew attention to the complete absence of diagrams in the book. He believed that these had been rendered unnecessary by the lucidity of his presentation." (H. F. Norman Lib. 1257 and Sale no. 580). Grolier/Science 100, no. 61. Heralds of Science 112. Milestones of Science 120. 'En Francais dans le texte', no. 179. Biblio. mechanica, p.189. Stanitz 60. Evans Epochal Achievements 10. $9,500.

255. **LANGENBUCHER, JAKOB (d. 1791). Beschreibung einer beträchtlich verbesserten elektrisiermaschine, samt vielen versuchen und einer ganz neuen lehre. Augsburg: M. Riegers, 1780.**

First Edition. Small 8vo. Contemp. mottled lea., back richly gilt. (32), 268 pp. Title with large engraved vignette illustrating a lightning experiment + 8 folding engraved plates. Lower portion of front joint torn, plate IV with small piece torn away just touching image; a good to very good copy.

The Augsburg silver turner is known to have spent a good deal of his wealth on improvements of electrical devices. In this work Langenbucher describes and illustrates his rotating globe machine on the Nairne pattern. W. D. Hackmann, 'Elec. from glass', 1978, p. 199 relates this machine to a type designed and made by Kulibin, St. Petersburg. Sotheran/Zeitlinger, 1st suppl., no. 3419 - "A rare work... Of interest is the author's 'wholly new' theory of electric influence." Ronalds, p. 285. Gartrell 302. Bakken, p. 78. Not in Wheeler or Mottelay. $1,100.

FIRST EDITION. Small 8 vo. Contemp. milled polished calf. (22), 470, (1, errata) pp. Engraved title by W. Faithorne, as well as printed title, the latter within ruled borders. Full-page engraving within the text of Cartesian vortices. Slight wear to the binding, without front fly-leaf, a very good copy.

The philosopher, Anthony Le Grand, played a significant role in disseminating Cartesian philosophy in England, especially at Cambridge where this text was much read. The author of a number of treatises, this is his first to demonstrate his adherence to the new philosophy. Le Grand attempted to clarify Descartes’ account of motion with an effect on the Cartesian understanding of matter, causation, and mind-body interaction. He also extended the scope of Cartesian physics. The present book received a number of editions in England and on the Continent. Interestingly, William Brattle (1662-1717) adapted Le Grand’s text for use at Harvard College. $950.

The Relationship of Density of a Body and its Index of Refraction:
The Lorentz-Lorenz Formula


FIRST BOOKFORM EDITION. 4 to. Contemp. cloth-backed boards, the orig. front printed wrapper mounted to the front board. (2), 112 pp. Errata slip. The COPY of Paul Ehrenfest (1880-1933), the Leiden physicist who was Lorentz’ life-long very close friend. His signature is on the title and there are multiple-line notes on pages 67 and 68 and a number of passages marginally emphasized by Ehrenfest including on the last page. Ehrenfest and his wife produced an influential monograph on the foundations of statistical mechanics (1911). His most important contribution to physics was the adiabatic principle and its application to the ‘old quantum theory’ (see D.S.B. 4:293-294). A bit of wear to the cloth back; a very good copy.

“In 1878, (Lorentz) published an essay on the relation between the velocity of light in a medium and the density and composition thereof. The resulting formula, proposed almost simultaneously by the Danish physicist Lorenz, has become known as the Lorentz-Lorenz formula.‘(Nobel Lectures, Physics 1901-1921’, Amsterdam, 1967). This important and scarce publication, a sequel to Lorentz’ 1875 Leiden doctoral dissertation on electromagnetic optics, provides a further strengthening of “…his distinction between the roles of matter and the ether.” (D.S.B. 8: 487-500, esp. p. 493). $1,500.


FIRST EDITION. 8 vo. Orig. blue boards, rebacked and repaired. Uncut. vii, (1, errata), 132 pp. Engraved folding frontispiece containing 42 figs. PRESENTATION COPY to the first professor of chemistry at King’s College, London and friend of Faraday, John Frederic Daniell (1790-1845), inventor of a new hygrometer and pyrometer and the Daniell cell. The cell maintained a continuous and even current without liberating hydrogen at the copper electrode. Macvicar’s two-line holograph inscription is on the front flyleaf. A very good copy.

Macvicar was educated at St. Andrews and Edinburgh. This is an early work among his many books in science, philosophy, and religion. Sotheran/Zeitlinger, vol. 2, no. 11261 notes: “In order to explain the optical phenomena which were difficult or impossible to account for on the corpuscular theory, the author assumes light to consist of molecules with a crystalline structure emitted from the luminous body and travel in groups.” Not in Brit. Opt. Assoc. Cat. or Lomb Lib. Cat. $750.

The Famous Revolutionary’s Best Known Scientific Work


The famous French revolutionary wrote a number of scientific works of which this is his best known. Marat presents a mechanical theory of heat (fluide igné) ”...based on 166 experiments two of which he demonstrates the increase in weight of metals on calcination (pp. 29-31). Marat’s theory ‘was first vigorously attacked by an American, Count Rumford, but as late as 1856 it received..."


An exceptional copy of the famous French revolutionary's treatise on electricity. "This, like the rest of the author's works, is full of original ideas and experiments; (as many as 214 experiments are recounted in this book). Pp. 345-53 contain an interesting chapter: 'Des Phénomènes électriques relatifs a l'Ebranlement de la Lumière', in which an explanation of the phenomena is attempted." (Dr. E. Weil, Cat. 33, no. 177). Wheeler Gift Cat. 509, with facsimile of title. Ronalds, p. 322. Mottelay, p. 269. Gartrell 346. Bakken, p. 83. $1,400.

Seventeenth Century Classic of Hydrodynamics


FIRST EDITION. 12 mo. Contemp. vellum. (10), (2, blank), 390 (erratically misnumbered at end). (20) pp. Numerous text woodcuts. Half title present. Vellum edges worn, light marginal dampstains in first few signatures, occasional light bronzing; still, a good to very good copy preserved in a lea.-backed clamshell case.

"Honored as the man who introduced experimental physics into France, Mariotte played a central role in the work of the Paris Academy of Sciences shortly after its formation in 1666 until his death in 1684." (D.S.B.). Mariotte's most important work, offered here, was published posthumously under the editorship of La Hire, and it reflects his continued interest in the study of the movement of bodies in a resisting medium. Within the book's five parts, Mariotte effectively deals with the circulation of the earth's water supply, analyzes the balancing forces of fluids due to weight, elasticity, and impact, considers the practical hydromechanics of fountains, and studies the strength of materials (disputing Galileo's analysis). 'Mariotte's bottle' is also described here (see: Wolf I. 234). 'Historic Writings on Hydraulics', no. 80. Rouse & Ince, 'History of hydraulics', pp. 63-68. Biblio. mechanica, p. 217. Waller 11398. H. F.Norman Lib. Cat. 1440. Stanitz Sale, no. 288. $1,600.

261. MAUPERTUIS, PIERRE LOUIS (1698-1759). The figure of the earth, determined from observations made by order of the French King, at the polar circle. London: T. Cox... 1738.

FIRST EDITION IN ENGLISH. 8 vo. Half goatskin with marbled boards and lea. spine label, antique style. vii, (1), 232 pp. Ten folding engraved plates including a map + an engraved vignette heading p. 29. Occasional spotty foxing, a bit more so to the title and first few leaves; a very good copy.

Scarcer than the French original of the same year, this English translation is noted in Todhunter's exhaustive two volume treatise on the figure of the earth (1873) along with the German (1741) and the Latin (1742) translations, but unlike the others, he had not seen the English translation. Todhunter comments: 'Maupertuis adopted and explained Newton's propositions on attraction and on the figure of the earth; and he conducted an expedition to Lapland, for the measurement of an arc of the meridian, the result of which was fatal to the Cassinian hypothesis." D.S.B. 9: 186-189. 'A Heavenly Library', no. 8.7. Sotheran/Zeitlinger I. 2912. $1,200.

"...the most significant event of the 19th century
will be judged as Maxwell's discovery of the laws of electromagnetics" - Feynman


Maxwell's "...'Treatise on Electricity and Magnetism' is probably, after Newton's 'Principia' the most renowned book in the history of physics. It was published in 1873 and has been in
continuous use ever since.” (B. Mahon, ‘The man who changed everything’, 2003). The first issue is said to have an errata slip (as here) and in some copies, a publisher's catalogue (never here) with a listing for Maxwell's 'Treatise' as "just published" on p. 10. Not knowing the exact issue dates for the catalogue and the 'Treatise', it seems possible that the earliest issue could have only the errata slip and no catalogue. In any case, though it is it possible a catalogue was not picked up by the binder for inclusion, the present copy having only an errata slip and not errata leaves as the later issue does, must be at the least an early issue if not the first.

Richard Feynman wrote about this epochal work: "Today we understand better that what counts are the equations themselves and not the model used to get them. We may only question whether the equations are true or false. This is answered by doing experiments, and untold numbers of experiments have confirmed Maxwell's equations. If we take away the scaffolding he used to build it, we find that Maxwell's beautiful edifice stands on its own. He brought together all of the laws of electricity and magnetism and made one compete and beautiful theory.” Feynman also wrote: "From a long view of the history of mankind seen from say, ten thousand years from now there can be no doubt that the most significant event of the 19th century will be judged as Maxwell's discovery of the laws of electrodynamics.” Landmarks Writings in Western Mathematics, chap. 44. Horblit/Scientific 100, no. 72 - errata slip and "some copies contain 8 leaves...of advertisements..." H. F. Norman Lib. Cat. 1466. See: PMM 355. $9,500.

Samuel Morey’s Manuscript Account to Nathaniel Bowditch of His Internal Combustion Engine Comments on Its Application to His Boat and to the ‘New’ Railroad

262a. MOREY, SAMUEL (1762-1843). A.L.S. to the President of the American Academy of Arts & Sciences, Nathaniel Bowditch (1773-1838), May 24, 1830.

BIFOLIUM (15 3/4″ x 10 inches). Written on three sides, the fourth with centered address, approx. 2200 words. Small transparent repairs on blank verso to close tears at edges of folds, light waterstain in top portions at a fold which blurs a few words; otherwise, in very good condition. This important massive (in length and size) letter is more a scientific manuscript which launches at its very start into an extensive and detailed account by Morey of his achievements. Writing to the distinguished astronomer and mathematician, Nathaniel Bowditch, the president of the Boston-based American Academy of Arts & Sciences (founded in 1780), Morey first describes his pioneering vapor combustion experiments with water, turpentine and air mixtures which led to his patent internal combustion engine. He provides details of the challenges of harnessing the energy generated and maintaining the vacuum, and his solutions to the difficulties. This is all written in a personal, riveting style. Having described the workings of his engine in full, Morey relates his experiences with it, first as attached to a small boat on Medford Pond and on the Middlesex between Charlestown and Medford, then locomoting on a railroad.

The Baltimore & Ohio Railroad was incorporated in 1827 and opened for operations in May 1830. Morey travelled with his engine to Baltimore and the results were satisfactory though it was so cold at the time that the vapor would not form fast enough. Returning eventually to Boston after a couple of missed trials, Morey built his own temporary rail and tested his engine with good results at his shop in East Cambridge. He estimates that with a suitable rail 15 to 20 mph was possible. Having devoted some years to his engine project, Morey wonders whether the Society will consider his claim “to the premium”. At this point, Morey mentions his other endeavors: a power for raising water and turning a large grind stone and other machinery. Further Morey notes improvements to his engine including weight reduction (200 lbs. to run a locomotive), he mentions the safety of the design over steam engines, and calls his latest “a self-acting Chemical Engine.” Here he gives a detailed chemical explanation of how it works followed by a mechanical explanation of its operation. In the last line of the letter, Morey states his up-coming availability in the Boston area when he can provide information on his experiments in a fuller form. ‘Bio. Dict. Amer. Sci.’, 1979, p. 184. D. J. Struik, ‘The origins of Amer. Sci.’, 1957, p. 121, $4,500.

Calligraphic Natural Philosophy Manuscript with Illustrations of Instruments


Quarto. Dark green half morocco with broad spine bands and marbled boards, antique style. 63 leaves, 94 pp. with text and drawings. Engraved English armorial bookplate of Thomas Otho Travers (1785-
The text leaves are watermarked: "J. Whatman 1794" and "J. Whatman 1801"; the fly-leaves are watermarked: "J. Ruse 1802". The manuscript, executed in a fine calligraphic hand, consists of propositions, corollaries, examples, and classes - each of these with elegant headlines. However, the real visual feature is the very well done illustrations, many of 18th century instruments (e.g. a Hauksbee air pump, a specific gravity balance, camera obscura, solar microscope, magic lantern), others demonstrating physical principles (e.g. the eye and nature of vision, a dioptrical telescope, a single lens microscope, refraction of light at spherical surfaces, of the pressure and weight of fluids, etc.). The Air Pump is identical to that illustrated by B. Martin in his 'Philosophical Grammar' (1735) and Hauksbee/Whiston (1712), Pneumatics plate II. These illustrations are done in ink with the use of pen and brush. It is possible the manuscript is Scottish since one worked example refers to "Scots pints", and in another example a Doctor Brydon is noted as measuring the height of mercury in a barometer at the top of Mr. Etna. This may be Patrick Brydone (1736-1818), a member of the Edinburgh Philosophical Society from 1758. Offers a handsome adjunct to a collection of early natural philosophy books and/or instruments.

The First Jesuit 'Principia' - Significant American Colonial Ownership and Manuscript Addition


The set was purchased from the estate of Frank Williams Oliver, Esq., the great-great-grandson of the Third Hollis Professor of Mathematics and Natural Philosophy at Harvard, Samuel Williams (1743-1817). Oliver inherited family books and manuscripts going back to Warham and John Williams (on this notable American family, see R. F. Rothchild, 'Two Brides for Apollo - the life of Samuel Williams', 2009). Of special interest here is volume 3 which has a very early light stamp at the foot of the title, "Matheseus Professorus" and laid in is a stumpless letter with wax seal to John Winthrop of Cambridge. The address is written in Samuel Williams' hand. There is no text, only an annotated diagram which is the same as that in the woodcut on pages 117 and 118 except that the symbols hold different positions evidently to correct the printed diagram. This occurs in Prepositio XXI, Theorema XVII of 'De Mundis Systemate' which concerns rotation of the earth on its axis. The diagrams have been corrected in the text in the same hand as that of a number of errata corrections in the several volumes (some of these not in the printed errata). That hand is not Williams'. Given that this set derives from the Williams estate and yet has a Williams letter to Winthrop laid in, it is possible that these books originally belonged to the ardent Newmanian, John Winthrop (1714-79), the second Hollis Professor of Mathematics and Natural Philosophy at Harvard and Williams' predecessor in the chair. Further, in volume 1 the top of the first fly leaf has been clipped away long ago (based on the browning marks) no doubt to remove an ownership entry. Could this have been Winthrop’s, removed when the books became Williams’? A study of Winthrop's library was conducted by Edwin Wolf in the 1962 survey of the Allegheny College Library based on Timothy Alden's published 1825 catalog. Wolf notes "...except for the amazing collection of James Logan it was probably the best in private hands during the colonial period."

The bindings show some wear. There is browning of scattered leaves, more so to those nearest the boards, with an occasional limited dampstain largely marginal; a good to very good set.

Newton's 'Principia', first published in a single volume in 1687, with two further editions in 1713 and 1726. Its importance was assessed in 1747 by the French mathematical physicist, Alexis Clairaut: 'The famous book of Mathematical Principles of Natural Philosophy' marked the epoch of a great revolution in physics. The method followed by its illustrious author Sir Newton ... spread the light of mathematics on a science which up to then had remained in the darkness of conjectures and hypotheses. ' This is the first of the so-called Jesuits' editions, although the editors were Minims, and is valued for its copious commentary. It also contains in Vol. III the following important pieces which were awarded the prize of the French Academy in 1724 for solving the problem of the motion of the tides from the theory of gravity: 'Traité sur le Flux et Reflux de la Mer' by Daniel Bernoulli...; 'De Causa Physica Fluxus et Refluxus Maris' a Colin Maclaurin...; 'Inquisition Physica in Causam Fluxus ac Refluxus Maris' a Leonardo Euler... These represent all that was done on the theory of tides between the publication of Newton's 'Principia' and the investigations of Laplace. The text of the 'Principia' is that of the third edition". (Babson/Newton 30), Gray 13. Wallis 13.

$6,800.

FIRST EDITION. Two parts in one volume. (4), x, (2), 172, (14); (4), x, 148, (18), (1, errata) pp. Engraved frontispiece + 2 engraved plates, one folding. A fine, crisp copy.

This two-part treatise considers the causes and effects of lightning in the first part, and the physiology of plants in the second part. Mottelay, p. 226 writes: "L'Abbé Poncelet, a native of Verdun, France publishes at Paris (1766) 'La nature dans la formation du Tonnerre', etc., wherein he indicates a method of protecting from lightning residences, pavilions, and other structures, by constructing them of resistive woods and lining them with either silk or waxed cloths." The handsome frontispiece shows a person in a lightning protected laboratory room demonstrating to others while lightning strikes. The other plates illustrate electrical apparatus. Wheeler Gift Cat. 418. Gartrell 433. Bakken, p. 97. Ronalds, p.408.

$975.

Redi's Letter on the Inventor of Spectacles

266. **REDI FRANCESCO (1626-97).** Lettera intorno all' invenzione degli occhiali. Florence: F. Onofri, 1678.

FIRST EDITION. 4 to. Contemp. limp pasteboards, old rebacking. Untrimmed. 14, (2, blank) pp. Large engraved vignette on title and heading the first page. Minor scattered staining; a good to very good copy.

An important document in the history of eyeglasses in which Redi relates the discovery of a reference to their invention in a manuscript dated 1299. He regarded this as the earliest reference to the use of spectacles. Redi ascribed the invention of eyeglasses, or at least their perfection, to the Dominican friar Alessandro della Spina (d. 1313). The evidence on this subject is fragmentary, however it would seem that eyeglasses developed from a type of reading glass which probably took the form of a plano-convex lens laid directly on a page to enlarge the letters." (Becker Collection in Ophthalmology, no. 311). Prandi 19. "Prima e rara edizione", records a copy on large paper as quarto in size, likely as the copy here. Brit. Opt. Assoc. Lib. II. 88. Not in N.L.M. (17th C.). $1,700.

Herald of Science Copies


Offered with:


FIRST EDITIONS. 8 vo. Orig. publisher's green cloth in the Cambridge Physical Series. Rutherford: viii, (2), 399, (1) pp. A half-tone plate + text figs. Thomson: vi, (2), 566 pp. Text figs. Each volume has the printed small canceled Burndy Library bookplate with the Herald of Science rubber stamp and numbered by hand '51' and '165' respectively. Bern Dibner (1897-1988) at his Burndy Library, first in Norwalk, CT, later at M.I.T., and at then the Huntington Library, and additionally at the Dibner Libraries, Smithsonian Institution and New York University Tandon School of Engineering, published in 1955 and again in 1980 'Heralds of Science', a much-cited guide to 200 important works in the history of science. Minor edge wear and the usual even light browning of the text pages; very good copies.

Heralds of Science 51 and 165 are headed 'The Nuclear Atom' and 'The Electron' respectively. Rutherford was awarded the 1908 Nobel Prize in chemistry, and Thomson was awarded the 1906 Nobel Prize in physics. Rutherford's classic treatise is also cited as Grolier/Science 100, no. 91, and Thomson's book as PMM 386d.

$1,500.

Contact Electricity Before Galvani

268. **SULZER, JOHANN G. (1720-79).** Nouvelle theorie des plaisiers; avec des reflexions sur l'origine du plaisir par M. Kaestner. n.p., 1767.

FIRST EDITION. 12 mo. Near contemp. three-quarter mottled lea. with marbled boards, the spine richly gilt in compartments. (4), 363, (1) pp. A folding engraved plate. Light brown stains to title; a very good copy.

J. G. Sulzer, born in Winterthur, Switzerland, was first a professor of mathematics at a Berlin school, and from 1765, professor of philosophy at the newly established Ritterakademie. He was also a member of the Berlin Academy of Sciences (from 1750). In 1752 in the Berlin 'Mémoires', Sulzer published an account of his pre-Galvanic experiment which involved two pieces of metal (lead...
ANTIQUARIAN SCIENTIST

and silver) made to join along their edges and applied to the tongue with a resultant sensation which he characterized approaching the taste of vitriol of iron (ferrous sulphate). Neither piece separately gave any trace of taste. This experiment appeared in his book on a new theory of pleasures, but despite these publications, this important observation of contact electricity "...slept in obscurity from the time of Sulzer to the time of Galvani." (Mottelay, p.223). A supplement by A. G. Kästner on the origin of pleasures appears on pages 329-363. Wheeler Gift Cat. 420 with facsimile of t.p. $950.

Manuscript of Count Rumford's First Paper - Original Sketches for the Plates Drawn by Him

269. [Manuscript]. THOMPSON, BENJAMIN, COUNT RUMFORD (1753-1814). New experiments upon gunpowder, with occasional observations and practical inferences, to which are added an Account of a new method of determining the velocities of all kinds of military projectiles... (London, 1781).

Written in a clear and very legible period hand, the manuscript is on strong laid paper, 7 3/8 x 9 1/2 inches, bound in contemporary half calf with marbled boards and preserved in an early 20th century cloth folding case. The four plate sketches are tipped-in folding plates on thinner laid paper. The volume's spine is quite worn and some of the early leaves are loose. Nevertheless, the manuscript is in excellent condition and complete.

The manuscript, executed in a fine secretarial hand, was likely from the original or a working copy and follows closely the publication of this memoir in Volume IV of the 'Collected works of Count Rumford' (1970) edited by Sanborn C. Brown (note the title differs slightly). Rumford published his first paper in the Royal Society's 'Philosophical Transactions', volume 71, 1781. It was read before the Society on 29 March 1781. The memoir also appeared as the first entry in Rumford's 'Philosophical papers' published at London in 1802 (see item 270). A French translation was published in 1857. Also in 1781, Rumford was made F.R.S. "The research work which won him this honor was a series of studies of the force of fired gunpowder which he carried out in the summer of 1778 on the summer estate of Lord George Germain. Thompson perfected a method of testing the force of gunpowder by means of a ballistic pendulum which is still a common physics demonstration in using the conservation of momentum for measuring the velocity of rifle bullets. ...Even at the age of 25, he was searching for a clue as to the nature of heat, and many of his speculations on the nature of the force behind an explosion of gunpowder centered around a search for the explanation of the nature of heat itself." (S. C. Brown, 'Benjamin Thompson - Count Rumford, Count Rumford on the nature of heat', 1967).


FIRST EDITION. 8 vo. Orig. blue boards and orig. printed paper spine label. Uncut. xxiv, 390, (2, pub. list of Rumford's publications & instruction to the binder) pp. Engraved frontispiece and Thirteen engraved plates, 12 folding. Small book-ticket of Carpenter & Co., 14 Old Bond St. Front joint cracked but tight, number label on front boards; a very good copy in its original state.

This collection of Rumford memoirs commences with his 'An account of some experiments on gun-powder', a reprinting with altered title of his 'Philosophical Transactions' paper of 1781 (see the manuscript, item 269). Also included are memoirs on experiments with cannon, on air from water, on moisture absorption, and experiments on light and colors. See: Bibliotheca mechanica, p. 285 for a complete listing. Bolton I. 791 (with 1803 date). Edelstein 2254. Not in Smith Coll., Cole, or Neville. $1,500.

FIRST EDITION. 8 vo. Early, possibly original, marbled wrappers. Uncut. lxvii, 166 pp. Woodcuts in the text. Wrappers rubbed; a very good copy.

"In this uncommon work Rumford gives an extended historical account of his researches on heat, together with three memoirs containing new information on the subject." (Neville I. 546). There are four essays altogether, the second is a translation into French of his classic 'Enquiry concerning the nature of heat', the third is a summary of his research on heat, and the last 'Observations sur les Puits', a translation of a 'Phil. Trans.' paper. Biblio. Mechanica, pp. 285-286. Stanitz Exhibition Cat., no. 62. Partington IV. 31. $950.

First Treatise to Present Analytical and Experimental Results of Fraunhofer's Diffraction Theory


FIRST EDITION. 4 to. Contemp. half lea. with marbled boards, back gilt. xii, 143, (1). (16, tables & errata) pp. Eighteen folding lithographed plates, two hand-colored (said to be colored by the author). Engraved armorial bookplate. The boards are rubbed and the corners worn, occasional light spotty foxing; otherwise, a very good copy.

The classic comprehensive treatise on Fraunhofer diffraction in which Schwerd developed the Fraunhofer theory - a great triumph for wave over emission theory of light. Ernst Mach wrote in his 'Principles of physical optics' (1921; Eng. trans., 1928) that "Fraunhofer only gives us the results of his experiments, the theory, based on Fresnel's principles, was developed by Schwerd." The 1914 Nobel laureate, Max von Laue utilized Schwerd's theory of diffraction by an optical grating in a formulation that made it valid if iterated for a cross-grating. This was a key step in the analysis of x-ray diffraction of a crystal - a discovery Einstein called one of the most beautiful in physics. Schwerd was professor of mathematics at the Lyceum in Speyer. Poggendorff II. 878. D.S.B. 8: 51. R. K. Smeltzer, 'Four centuries of graphic design for science', Grolier Club, 2004, p.24. Weil Cat. 21, no. 352 - "very rare".

Presentation Copies to Claude Shannon, Pioneer of Information Theory


FIRST EDITION IN ENGLISH & FIRST EDITION. 8 vo. and large 8 vo. Orig. cloth, each with orig. dustjacket. De Latil: xxi, (1), 353 pp. + 8 photographic plates + a folding table. Fuller: 235 pp. + text photos and figs. PRESENTATION COPIES to the father of information theory and major figure in the advance of 20th century science and technology, Claude Shannon. The De Latil: pasted to the dustjacket and tipped to the title page is Houghton Mifflin's label with "In June" handwritten referring to the forthcoming American edition (June 1957). Laid in is a typed letter from Houghton Mifflin dated January 25, 1957 to Claude Shannon. It notes his recent Research Corporation Award and suggests he might be interested in reading De Latil's book which they have found "provocative". The letter informs Shannon that the original British edition was sent under separate cover (the present copy) and descriptive material (laid in) was being sent along with the letter. Fuller and Dil: Laid in is a typed letter to Shannon dated December 10, 1983 signed by Dil (Fuller had died July 1, 1983). The letter notes that their joint book, Fuller's last, had just come off the press and a copy is enclosed. In a paragraph in which Dil comments on Fuller he mentions that "Dr. Fuller regarded this as his important summing up statement." Dil writes of his planned Fuller biography, and solicits Shannon's thoughts on Fuller and on the enclosed book. Attached to the letter is a printed publisher's ad. Slight wear to the dustjackets; very good copies.

When De Latil's book appeared in 1953, it was one of the first introductory books on cybernetics. Norbert Wiener described De Latil's book as 'one of the really good popularizations of cybernetics'. Buckminster Fuller, the famous American architect, systems theorist, designer, inventor, and visionary is especially well known for his designs of geodesic domes. $750.

Adumbration of the Synthesis of Water

In the 1770s Siguad collaborated with Macquer in investigating the aeriform fluids or 'airs', newly discovered by Priestley. In 1776 they burned a quantity of the so-called 'inflammable air' (hydrogen), and by holding a porcelain saucer over the flame they managed to collect a few drops of a colorless liquid both researchers agreed was water. The experiment is often cited as an anticipation of some of the work of Cavendish, Lavoisier, and Monge on the synthesis of water, but neither Macquer nor Siguad de la Fond fully recognized the significance of their observation. (D.S.B.).


'The second edition has been revised and augmented by N. Rouland, Sigaud de la Fond's nephew. Late discoveries have been added, e.g. the experiments of Priestley, Ingenhousz and Senebier on plants; Cavendish and Lavoisier on the combustion of inflammable and dephlogisticated airs giving water; Lavoisier on the decomposition of water; and the Montgolfier brothers, Charles and Robert on balloon ascents.' (Cole 1214). Bolton I. 833. Duveen, p. 551. Neville II. 475. $950.

The Great English Engineer Conducts the First Experiments Using Laboratory Models

The Rare Separate Monograph Issue (1760)


The first of the great English engineers, John Smeaton, read over five sessions of the Royal Society in May and June of 1759, his three-part treatise on the measurement of the efficiency of windmills and waterwheels. "In 1759 Smeaton's engineering and scientific careers were crowned with outstanding success. In that year he completed the Eddystone lighthouse, which confirmed his reputation as an engineer, and published a paper on waterwheels and windmills, for which he received the Copley Medal of the Royal Society. …Through experiments on a model wheel he showed that, contrary to common opinion, overshot wheels are twice as efficient as undershot. …There is reason to believe that Smeaton's work led other designers to forsake the long preferred undershot wheel. Moreover, the continued economic importance of waterwheels contributed a sense of urgency to the recurrent controversy over the measure of 'force'; and in these discussions Smeaton's research and his support of the vis vivi school of thought played a predominant role." (D.S.B.).

Antiquestian Scientist

Principal Treatise on the Subject in Its Day


The English physicist and Plumian Professor at Cambridge, Robert Smith, wrote two important treatises, a large and influential work on optics (1738) and the present work on harmonics, the principal work on its subject in its day. It had a second edition in 1759. "Although it was partly a textbook, Smith’s principal objective was to describe his system of tempering a musical scale by making ‘all the consonances... as equally harmonious as possible...’ He derived the ‘equally harmonic’ intervals by a mathematical theory and confirmed his results on an organ and a harpsichord. Smith’s temperament was an improvement on existing systems, but its use required impractical mechanical changes in the instruments." (D.S.B.). Smith’s books were of considerable influence on directing the career of the young William Herschel (1738-1822), who had started out in music. In the second half of the 1760s, "...Herschel’s inquiring mind had moved from the practice of music to its theoretical study in Robert Smith’s ‘Harmonics’, and from there to Smith’s ‘Opticks’..." (D.S.B. 6: 328).

Stokes’ Law - The Beginning of the Modern Science of Hydrodynamics

OFFPRINTS by Stokes, bound with 12 further offprints and pamphlets (see below). 4 to. Old cloth. The Stokes: t.p., (3)-64, (4, blank); t.p., 99, (1) pp. The set of Prof. Henry Hennessy [(1826-1901), see: DNB, 1912 Suppl., 247-248; Poggendorff L1067], with his manuscript leaf at the beginning listing all the papers and headed: "Scientific Memoirs presented by the Author," and his inscriptions on the title pages of the Stokes indicating that they are presentations from the author. The other papers in this rich volume are: Boole, ‘Researches in the integral calculus’ (Dublin, 1847) with Boole’s clipped inscription; Humphrey Lloyd, ‘On the mean results of observations’ (Dublin, 1849); T. R. Robinson (Stokes’ father-in-law), ‘Experimental researches on the lifting power of the electro-magnet’ (Dublin, 1852) with his inscription to Hennessy; three offprints by S. Haughton (Dublin 1847, 1849) on topics related to Stokes’ work; and four circa 1850 publications on scientific instruments and one on astronomy. The volume is in very good condition.

Two important lengthy papers by eminent Irish physicist, G. G. Stokes, Lucasian professor of mathematics at Cambridge, are here offered in their separate printings from the ‘Transactions of the Cambridge Philosophical Society’. These are copies presented to the Irish professor of physics, Henry Hennessy. On page 44 of Stokes’ 1851 memoir appears ‘Stokes’ Law’, a formula for the forces opposing a small sphere in its progress through a viscous fluid. Here is the beginning of the modern science of hydrodynamics. This seminal paper is cited as No. 339 in ‘Historic writings on hydraulics’, on p. 336 of Parkinson’s ‘Breakthroughs’, and in Pickover’s ‘Physics Book’, p. 216. Timoshenko in his ‘History of strength of materials’ (1983, pp. 226-227) gives a detailed discussion summarizing: “In this work, he establishes two theorems which have proved very important in the theory of vibration of elastic bodies.”

In the 1850 paper (read 1849), "...Stokes treated the ether as a sensibly incompressible elastic medium. Poisson had already calculated the disturbance at any point at any time resulting from a given initial disturbance in a finite portion of an elastic solid; but Stokes presented a different derivation, which he deemed simpler and more straightforward than Poisson’s. Stokes also determined the disturbance in any direction in secondary waves, upon which the dynamical theory of diffraction depends, not limiting himself, as others had, to secondary waves in the vicinity of the normal to the primary wave. Moreover, by comparing his theory with the results of diffraction experiments that he conducted with a glass grating, Stokes answered the vexing question about the direction of vibrations of plane-polarized light by concluding that they were perpendicular to the plane of polarization." (D.S.B.). See: Timoshenko, pp. 227-228.

In the year of his death, William Sturgeon issued this large volume by subscription (approx. 275 copies in the subscriber list) "...which contains all of his important works. ...Sturgeon's major achievements concerned electromagnetism. In 1825 he received a silver medal and thirty guineas from the Society of Arts in recognition of his electromagnetic apparatus, including his important refinement of the design of the electromagnet." (D.S.B.). 'Scientific Researches' also included: a 'Sturgeon disk', the ignition of gunpowder by electrical discharge, kite experiments, the action of magnets on non-ferruginous metals, etc. The majority of the subscribers are from Sturgeon's locale, but a few identified instrument makers (like Sturgeon himself) are listed, and most significantly, two of the leading English scientists of the day, Faraday and Joule, were subscribers. Wheeler Gift Cat. 1190. Ekelöf Cat. 981. $1,500.

Varignon's First Book - A Foundation Work in Mechanics

The inventor, instrument maker and artist, Cornelius Varley (1781-1873) and his electrical engineer son, Cromwell F. Varley (1828-83), started in 1852 the Electric Telegraph Co. with Latimer Clark as its chief engineer. Cornelius' other son, Samuel Alfred, whose volume is offered here, was involved in a long-lived priority dispute over the invention of the self-excited dynamo (dynamoelectric machines) in the 1860s. Despite the priority dispute, S. A. Varley was awarded a gold medal for inventing a self-exciting dynamo at the International Inventions Exhibition in 1885. Six reprints and the pamphlet by S. A. Varley ['Compound winding dynamos - King, Brown & Co. v. The Anglo-Bush Corporation', n.p., n.d. (c. 1890), 15 pp.] concern this controversy as do the three autograph letters to Latimer Clark. The first letter (Dec. 18, 1889) is of several pages and presents Varley's revealing detailed and personal account of his view of the matter and how he has been treated by claimants and colleagues. The other two letters covered the transmittal of reprints. The topics of further reprints concern lightning conductors (1890, eight pamphlets), and the work of
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$1,800.

The First Global Meteorological Society - Set of the American Contributor,
Prof. Samuel Williams of Harvard


FIRST EDITIONS. Four volumes. 4 to. Contemp. lea. (8), 424, (4), 24 pp. + 7 engraved plates + an engraved plate in the text + double-page letterpress data chart; (12), 578, (6), 36 pp. + 2 engraved plates + 2 letterpress charts, one double-page for data and one folding table; xiv, 694, (6) 40 pp. + an engraved plate + a letterpress folding table; xvi, 724, (8), 112, (4) pp. + an engraved plate. This is the set of the Third Hollis Professor of Mathematics and Natural Philosophy at Harvard (1780-86), Samuel Williams. Not previously in commerce, the set was acquired from the estate of Frank Williams Oliver, Esq. (1920-2006), the great-grandson of Samuel Williams. Oliver inherited family books and manuscripts going back to Warham and John Williams (on this notable American family, see R. F. Rothschild, 'Two Brides for Apollo - the life of Samuel Williams', 2009). Laid into each volume is Oliver's typed descriptions with a note on provenance. Also there are a number of bookmark scraps of paper, each carrying remnants of Samuel Williams' notes and calculations, one with his signature at Cambridge and another larger scrap laid which has Williams' holograph of calculations and a 'practice' four-line salutation to Jacques Hemmer, secretary of the Palatine Meteorological Society. The bindings are dry and rubbed and there is scattered spotty foxing to the text; a good to very good set.

The Elector Palatine, Karl Theodor (1724-99) of the southern German state of Palatinate - Bavaria, chartered in September 1780 a permanently funded international network of meteorological observers known as the 'Societas Meteorologica Palatina' - the first global meteorological society. Hemmer, a Jesuit from Cologne, moved to Mannheim to become chaplain, canon, and spiritual counselor to Karl Theodor. Hemmer was made the Society's secretary recruiting observers, overseeing the construction of instruments, and serving as editor of the annual 'Ephemides meteorologicae'. (Hemmer) "...established altogether 39 stations that sent him reports of daily weather observations from 1781 to 1792. ...Upon reading of Hemmer's innovative plan..., Williams had the fine idea that America should be included in the network of stations." (R. F. Rothschild). Williams had considerable experience in collecting weather data which inspired Hemmer's response to Williams' offer of participation. Williams' data was first included in Volume 3 and further observations by him appear in Volumes 4 (not present) and 5. Volume 5 also includes Williams' June 1785 election to membership in the appendix. "Establishment of the station at Harvard by a leading Continental academy and the election of Fellowship of its scientist were significant honors for the College and for Williams himself." (R. F. Rothschild). Volume 1 includes Hemmer's 'Descripito instrumentorum meteorologorum', pages 54-90 and plates of instruments. Volume 3 contains an engraving of a declination compass made by the great German instrument maker, G. F. Brander. See: D. C. Cassidy, 'Meteorology in Mannheim: The Palatine Meteorological Society, 1789-1795', Sudhoffs Archiv 69, 1985. Poggendorff I. 1062.

$2,400.

C. T. R. Wilson's Copy - Nobel Laureate and Contributor


FIRST EDITION. One volume bound as two. 8 to. Contemp. cloth. xvi, 512; 513-1138 pp. Three plates + text figs. The COPY of the 1927 Nobel laureate in physics, C. T. R. Wilson, a contributor of two papers to this collection, with his characteristic ownership initials, C. T. R. W., on the front free endpaper of the first volume. Binder's stamp of J. B. Wilson & Son of Cambridge (England). C. T. R. Wilson had a long career in Cambridge at the university. His Nobel citation noted his discovery of the (Wilson) cloud chamber. A very good copy.

The foundation of the electron theory and the phenomenon of radioactivity are documented in this important compendium with papers by Wilson, Hertz, Becquerel, Crookes, Perrin, Plücker, Poincare, Righi, Rutherford, J. J. Thomson, the Curies, etc. 'Sur la theorie des electron' (pp. 430-512) by Lorentz was especially written for this collection.Wilson is noted in PMM 386. $850.
Two of the Earliest Monographs on the Newly Discovered X-rays


FIRST EDITION. Small 8 vo. Three-quarter vellum with marbled boards. (32), 168 pp. Three folding engraved plates. The boards are rubbed, heavy cancellation of old rubberstamps on first two pages of dedication, rubberstamp number on verso of title, early bookplate; otherwise, a very good copy.

J. H. Winkler published this, his first work on electricity, in 1744 after having met C. A. Hausen who inspired him "...to repeat all the electrical experiments described by Musschenbroek. The operation of the friction electricity machine was, to begin with, performed by pressing a hand (a dry hand!) against the rotating glass globe or, later glass cylinder. Winkler made the machine more effective and comfortable by replacing the hand with a leather cushion, pressed against the globe or cylinder by a spring. In his printed works Winkler also enters into the theory of electricity. His theoretical deductions are always supported by accurate experiments." (Ekelöf Cat., p. 95). Wheeler Gift Cat. 313. Ronalds, p. 547 (not in lib). Bakken 118. Gartrell 578. Ekelöf 279. Poggendorff II. 1337. Sotheran/Zeitlinger, 3rd suppl., no. 1833. $1,200.


FIRST EDITION of Wunschmann; 'IV Auflage' of Müller. 8 vo. Orig. printed wrappers; contemp. yellow cloth (book ticket: Alois Gsell, Bookbinder, Graz) with gilt title on spine. Wunschmann: 29 pp. including x-ray half-tone frontpiece + x-ray half-tone plate + F. Erncke priced x-ray apparatus list on rear wrapper; small ownership rubberstamp on front wrapper of a Dr. H. Bruchmann. Müller: 32 pp., woodcut of x-ray apparatus on title + 5 woodcuts of apparatus in the text + 4 half-tone x-ray plates, the first with ownership signature 'A Casorpicolor' dated '3/5.96'. Both printed on poor quality paper, they are evenly browned; otherwise, very good copies.

According to 'Das wreck der bucher - eine festschrift fur Horst Kliemann zu seinem 60. geburtstag herausgegeben von Fritz Hodeige' (Freiburg, 1956, pp. 58-62), Prof. Dr. Wunschmann's booklet was published on 7 Feb. 1896, and the booklet by Müller in its 4. Auflage (i.e. issue) was published on 13 Feb. 1896. These are among the very earliest monographs on the newly discovered x-rays of Wilhelm Röntgen (1845-1923). His first announcement was in the paper accepted 28 Dec. 1895 by the journal of the Physical and Medical Society of Würzburg, and its first reprints were mailed on 1 Jan. 1896. The earliest scientific notices of the discovery appeared in various American and European journals in January and February 1896. Röntgen's second paper on x-rays appeared 9 March 1896. These booklets were clearly out before the second Röntgen paper.


"...the last of the great natural philosophers..."

Young's Masterwork with a Remarkable Provenance History Starting with Maria Edgeworth


FIRST EDITION. Two volumes. 4 to. Contemp. three-quarter polished calf with marbled boards, expert rebucking and rebacking with the large orig. lea. labels preserved. The bindery work is likely by Ward Brothers of Belfast, Bookbinders to the Prince of Wales; their book ticket is in each volume. xxiv, (2), 796; xii, (2), 738 pp. Fifty-eight engraved plates, the two optical plates hand-colored + numerous text woodcuts. The COPY of the important 19th century physicist, famous for Stokes' Law in hydrodynamics and other researches (see item 277), George Gabriel Stokes (1819-1903) with his bookplate in each volume. The line of provenance to Stokes: Presentation inscription by the famous Irish woman literary figure, Maria Edgeworth (1767-1849), to her brother, William (1794-1829), signed and dated 1 May 1817. Maria, who attended to her famous father's affairs including his library, is likely to have made the presentation from her father's holdings shortly in advance of his death on 13 June 1817. Maria's father, Richard Lovell Edgeworth (1744-1817), was a writer,
scientist, inventor, educationist, and member of the Lunar Society. His 'Phil. Trans.' paper on the resistance of air (1783) is in Young's 'Catalogue of works', vol. 2, p. 227, and on page 302 of vol. 1. Young cites a result found in Edgeworth's work. Continuing the provenance to Stokes: with the engraved armorial bookplate of the Irish astronomer and physicist, Thomas Romney Robinson (1792-1882) in each volume and his signed inscription at Armagh that the set was given to him by FBE, i.e. Francis Beaufort Edgeworth (1809-46), the half-brother of Maria Edgeworth. Robinson was appointed Director of Natural Philosophy at Trinity College, Dublin and was made F.R.S. in 1856. Robinson's daughter married G. G. Stokes, and his second wife was Lucy Jane Edgeworth, step-sister of Maria Edgeworth and one of Richard Lovell's daughters. A correspondence between Robinson and Richard Lovell Edgeworth is known. The set has rubbing to the marbled boards and minor scattered spotty foxing, it is otherwise in fine, crisp condition.

'The English physician and physicist Thomas Young was the last of the great natural philosophers; these scientists who attempted to attain complete knowledge of the state-of-art in science. His knowledge is outlined in 'A Course of Lectures...' printed in 1807. This book covering most branches of science includes much original work, such as the modulus of elasticity (Young's Modulus) so important in the theory of elasticity, and the true scientific meaning of the term 'energy'. Appended to his work are four great papers by Young, previously published in the Philosophical Transactions, in which he develops a wave theory of light, the type espoused by Huygens... in which he discovers the principle of light interference, explains the sight defect known as astigmatism, and in general establishes modern principles of physical optics.' (Stanitz, 'Sources of Science and Technology', no. 63). See: PMM 259.

Maria Edgeworth: '...the famous novelist, and her father... were ardent supporters of scientific education for women. Despite her literary avocation, it was well known that Maria preferred scientists to literary men. She has a particular interest in astronomy and helped to entertain Sir John Herschel... when he visited Edgeworthstown... Chemistry was another subject she enjoyed, and Humphry Davy was a welcome visitor... Her major work on science education, on which she again collaborated with her father, was 'Practical Education'." (P. Phillips, 'The scientific lady', 1990, pp. 170-176).

SCIENTIFIC INSTRUMENTS

"Introduced the Slide Rule in America" - Karpinski

286. Abel, Thomas (b.1738?). Substensial plain trigonometry, wrought with a sliding-rule, with Gunter's lines... And this method apply'd to navigation, and surveying. Phila.: printed and sold for the Author by Andrew Stuart, 1761.
FIRST EDITION. 12 mo. Contemp. boards, rebacked in calf. (4), 86 pp. With the final blank leaf. Seven folding engraved plates. A William Davis (signature dated 1800) in a fine hand has embellished this copy with manuscript material concerning arithmetical problems (verso of title) and poetry ('The choice of a Wife') on the final blank, on the rear free endpaper, and on the rear pastedown. Uniformly lightly browned, a few stains, old faint library rubberstamp on title; but for this book, a very good copy.

The first American book on the slide rule (see: Karpinski, pp. 66 & 69) and one of the first American books of applied science contains on pages 8 and 9 a description of a two foot sliding-rule with Gunter's lines A and B and two tables (found in the text on p. 6) on its reverse side. The instrument is illustrated in plate 7 and a number of illustrative problems, including ones in navigation and surveying, are solved with it as well as arithmetically. The Englishman, Thomas Abel, emigrated to Pennsylvania (see text, p. 67) where he had his manual printed in Philadelphia. In the chapters on surveying, Abel notes his indebtedness to a Mr. Henry Grubb of Middleton, Connecticut for his method. Abel remarks in 'To the Reader': "...Printing, Engraving, and Binding cost me near Fifty-five Pound Sterling: they will find that I am a small Gainer in the end, though I have 830 Books subscribed for. You will not find this Treatise to consist of Collections from other Authors, but the Methods entirely new..." Evans 8777. Rink 575 - the first entry under 'Sciences applied to technology: general works'. Wallis, 'Biobiblio. Brit. math.', p. 449. Rare in the marketplace.

$5,000.

The first edition of this manual on the use of the slide rule by Gravat was published in 1827. Here the work has been extended to include other forms of his rules with instructions on applications: surfaces, volumes, and trigonometry. Of special interest is the introduction of a section on chemical equivalents, pages 52 to 58 and Table II. Not in the Tomash Lib. Cat. $750.

288. BALTHASAR, THEODOR (fl. 1701-40). Micrometria, hoc est, de micrometrorum tubis optics sen telecopis & microscopis... Erlangen: J. A. Lorber, 1710.

FIRST EDITION. 12 mo. Fine dark green full goatskin with lea, spine label. (6), 120 pp. Title in red and black with woodcut device. Complete with 14 engraved plates, one large folding, containing figs. 1-49. Plate facing p. 60 has fig. IX mismembered IV. The book has been professionally washed leaving arrested light mold spots in some text page blank margins, old small private rubberstamp and manuscript initials on the title; a crisp, good to very good copy.

"The application of the micrometer to the microscope was first carried out in the mid-1670s by the French instrument maker Hautefeuille in his 'Microscope micrométrique', and later by the professor Theodor Balthasar in 1710. ...Although Balthasar's 'Micrometria' was reported in 'Journal de Trévoux' in 1710, the micrometer only really attracted interest when the English market took off in the late 1730s. There, Smith (in his massive treatise on optics, 1738) emphasized the instrument's usefulness in microscopical investigations. ...Following Balthasar and Hertel, the Germans were active in building micrometers, for instance in Göttingen." (M. J. Ratcliff, 'The quest for the invisible', 2009, pp. 168 & 24). Balthasar was city physicist (Stadtphysikus) and professor of mathematics and physics at the Ritterakademie in Erlangen. Noted in H. & W. d.e Martín, 'Vier jahrhunderte mikorskop', 1983, p. 27. See: Sotheby's/Macclesfield Sale, no. 292. $2,000.


SECOND EDITION. 4 to. Contemp. calf, spine gilt. (8), 389, (3) pp. Title in red-and-black with engraved vignette. Engraved frontispiece + 30 folding engraved plates. The binding is worn and joints cracked though holding; a good copy, internally very good.

This is the handsome printing at The Hague of the much improved second edition (1st ed. - Paris, 1709) of Bion's classic treatise on scientific instruments. The book is now offered with additional illustrations, all the plates well-engraved in a larger format on fine, thick paper. D.S.B. 1: 132-133. $975.

289a. (BROWN, JOSEPH). Philosophical and chemical apparatus, for the use of colleges, academies and common schools. The subscribers, agents for the sale of Brown's (of Boston) apparatus, illustrative of the physical sciences... No. 57 State-street, also at their branch, "Apothecaries' Hall", corner of North Pearl-street, Albany. Henry Rawls & Co. Albany, May 1836. BROADSIDE (10 x 12 3/4 inches), printed black on green paper with various type sizes within a narrow elaborate decorative border. Mostly closed tears in the blank left and right margins where once folded, that on the left just touching the border. A good to very good copy.

Joseph Brown advertised in March 1835 that he was late of the firm of Brown & Peirce at 87 Washington St., Boston. In that year Brown published a 48-page catalogue which incorporated a Claxton & Wightman catalogue of instruments for hydraulics, pneumatics, etc. The listing in 'Rittenhouse Journal', vol. 2, issue 1, p. 30 notes Joseph Brown and Charles S. Francis established an education bookstore in Boston in 1835. The text here broadcasts that Henry Rawls of Albany 'have just received a splendid assortment of instruments... (with) the great improvements recently made by Mr. Brown..." Rawls is noted under Holbrook in 'Rittenhouse Journal', vol. 2, issue 3, p. 94. The ten departments of physical sciences served by Brown's instruments are listed along with 25 instrument types. Finally a list of chemicals is given along with the availability of chemical glassware. No record found of this early American scientific instrument broadside. $775.
ANTIQUARIAN SCIENTIST


Octavo. Two volumes in one. Orig. cloth. (4), 56, 7, (1); xiv pp. Numerous woodcuts in the text. Small area of upper spine cloth and upper front cover worn away not affecting the soundness of the binding, a few very light watermarks; otherwise, a very good copy.

An important early American catalogue with fine woodcuts of the varied pneumatic apparatus. The priced catalogue is keyed to the figures in the preceding volume. Chamberlain's large rosewood frame air pump, fig. 1, was priced at $150.00. $750.

The Original Filing Papers for Chapin's Patent Adding Machine


With: Dept. of Interior, United States Patent Office document dated January 20, 1870 allowing the patent with printed conditions and fee information. Printed and manuscript entries, one side, 7 7/8 x 8 3/4 inches.

Both documents have folds, the 1870 one with a repair on verso; otherwise, in very good condition.

Though not a very successful design, Gilbert W. Chapin was granted Patent No. 99,533 on Feb. 8, 1870 for his improved adding machine. Facsimiles of the original schematics filed with the Patent Office are given on page 28 of J.A.V. Turck, 'Origin of modern calculating machines' 1921/1972 reprint, and on pages 29, 30, and 33 are the design features and their shortcomings are discussed. The 'Preliminary Examination Report', conducted by Munn & Co., who were solicitors of patents as well as publishers of 'Scientific American', is of special note since it provides a brief background relating Chapin's proposed improvement to two earlier patents: No.21,236 of S.N. Nuty and No.21,941 of O.L. Castle. Munn & Co. found "sufficient useful novelty" to justify a patent, but in the last paragraph warned Chapin of the usual risks, "viz the existence of a Caveat in the Secret Archives of the Patent Office, pending or rejected applications or the discovery of a similar foreign invention." E. Martin in his newly translated 'The calculating machines (Die Rechenmaschinen) their history and development', 1925/1992, p.64 notes Chapin's patent. It is also noted among other key-driven machines in D. Roegel, 'An overview of Schwilgue's patented adding machines' (S.I.S. Bulletin, no. 126, pp. 16-22, 2019. $1,250.

Author's Guide to His Marine Instrument


The author/inventor identifies himself in the cartouche of the fine plate as a marine engineer in Havre, and on the title as a professor of hydrography at Havre. De Gaulle's precision 'Sillometre', one of a number of marine instruments he invented, was made by Chez le Sr. Arnal in Havre and sold at the author's address. De Gaulle also published at Havre in 1779 a treatise on a new azimuthal and reflection compass. Poggendorff I. 535. Rare, only two copies in OCLC. $875.

Fine French Treatise on Sundials


ANTHONY COTT, BART. (1728-1806).  A treatise of tents, in military and civil, for all sorts of weather, and the several climates.  London: W. Strahan, 1795.  Second edition.  4to.  Woodcut frontispiece, 40 illustrations, 1 folding plate.  Laid paper.  First of Anthony Cott’s works. First edition of 1795, the second edition. Though not new in concept (Cott built upon the work of Louis-Simon Bréguet, one of the most respected military engineers of his day), Cott’s treatise represents an important contribution to the modern history of military field equipment and tactical planning, his approach to the subject reflecting the influence of the French Revolution and the Napoleonic Wars. $1,200.

Dollond’s Meteorograph - Arnold Guyot’s Copy

294.  DOLLOND, GEORGE (1774-1856).  Description of the atmospheric recorder, or self-registering apparatus for the various changes of the barometer, thermometer, hygrometer, electrometer, pluviometer, and evaporator, and of the force and direction of the wind. Arranged and manufactured by G. Dollond... (London, 1846).

FIRST EDITION. Small oblong folio. Thin card printed boards, printed across both surfaces are the details of the instrument with the heading: “Description of the atmospheric recorder.” Laid in between attached tissue papers is a folding detailed lithographed plate (10 1/2 x 16 inches) of the meteorograph. PRESENTATION COPY from Edward Everett (1794-1865), the famous American Unitarian clergyman, orator, and statesman to Arnold Guyot (1807-84), the Swiss-American geographer and geologist who joined Agassiz in Cambridge in 1848. For a number of years he lectured in the Boston area until he assumed the professorship in physical geography and geology at Princeton (1854-84). Guyot, sponsored by the Smithsonian, undertook the task of locating and equipping weather observation stations, especially in Massachusetts and New York. In this he laid the groundwork for weather stations throughout the U.S. Everett was a representative in Congress, governor of Massachusetts, president of Harvard (1846-49), U.S. Secretary of State, and a U.S. Senator. Minor dust stain along edge of front cover; a very good copy.

W. E. K. Middleton in chapter seven of his 'Invention of the meteorological instruments' (1969) covers the development of self-registering complete weather stations, meteorographs. Middleton includes a full-page reproduction of the plate here and a discussion of the complex instrument’s operation (fig. 7.4 & pp. 256-258). He comments: “Instrument makers... occasionally designed and built such instruments. A famous one that was described briefly in 1846 to the British Association by George Dollond of the famous London optical firm. This ‘atmospheric recorder’ included a barometer, thermometer, hygrometer, electrometer, pluviometer, rain gauge, atmometer, pressure plate anemometer, and windvane. ...We know a great deal about this meteorograph because he set it up at the Great Exhibition of 1851...”

$1,100.

Author’s Copy with Transmittal Letter to His Female Cousins


FIRST EDITION. 8 vo. Orig. cloth-backed boards with printed paper label on spine. vii, (1), 191, (1) pp. Woodcuts in the text, five full-page. The AUTHOR’S COPY signed and dated 1840 on the front pastedown with note: “Marked for examiners case. 1840.” Long ago was mounted to the front free fly-leaf an affectionate three-paragraph transmittal letter (probably originally attached to the rear outside board with sealing wax) in Eaton’s hand to his second cousin, Misses Hyde, the daughters of Deborah Thomas. The letter is signed by Eaton and dated Troy, Oct. 1st. 1840. He suggests this book, with his added pencil annotations in the table of contents, as a guide to their studies, and notes in a post-script: “I have no copy at hand, but this marked one.” Small library call number label at foot of spine with their withdrawn label on the front pastedown; otherwise, a very good copy.

Engineering, including surveying, was introduced to the Rensselaer Institute curriculum in 1834 and the ‘Prodromus’ was derived from Eaton’s notes of the course he taught there. D.S.B. 4: 273-275.

$1,700.

First Complete Surveying Text Published in America


FIRST AMERICAN EDITIONS. Two volumes in one. 8 vo. Contemp. tree sheep with orig. black lea. label on spine. viii, 272; t.p., 90, (1, blank) pp. Twelve folding engraved plates. The rear joint is partially cracked, several plates have repaired tears (no losses); still, for this book, a very good copy.
This is the first complete surveying text to be published in America, a reprint of the fourth edition of Gibson's 'Treatise', Dublin, 1777 "...with alterations and amendments, adapted to the use of American surveyors" (title page). The first edition of this text by the Irish teacher of mathematics and land surveyor, Robert Gibson, was first published at Dublin in 1752. Bound with the 'Practical surveyor', with its own title page, pagination, and dated imprint, are the 'Tables'. These appeared in editions of John Robertson’s 'Elements of navigation', reprinted on their own at Dublin in 1770, and first combined with the Gibson in this Philadelphia edition. Interestingly, these tables were added to the later American surveying texts by Zachariah Jess and John Gummere. Highly successful, the 'Treatise' had an edition at Hartford as late as 1840.


Seventeenth Century Collection of Clocks and Machines


First Edition. 4 to. Contemp. sheep, rebacked, spine gilt within compartments. (28), 101, (1, blank), (9, contents, list of plates, errata), (1, blank) pp. Eighty-five engraved plates, some folding + woodcut head and tail-pieces. Title in red and black. Ink number in upper blank margin of verso of first dedication leaf with some bleed-through to recto, faint blindstamp at foot of title; a very good copy.

This attractive copy of this handsome book describes and illustrates the collection of handiwork, both mathematical and mechanical, designed and made by Nicolas Grollier (1593-1686), Baron de Serviere, and grandfather of the author. Most familiar is the often illustrated book-wheel (plate 85) as a reading aid. In addition, there are numerous plates of clocks, water-raising machines, water- and windmills, bridges, military machinery, fortifications, lamps, rafts, ornamental turning, etc. G.H. Baillie, in his historical bibliography of horology (1951, pp. 153-154), refers to the nine plates (reproducing plate 14) and discusses their historical background. A second edition appeared in 1733. It was re-issued with a Paris title page in 1751. Spaulding and Karpinski 240. Wheeler Gift Cat. 369 (1751 ed.). Horblit Sale no. 494 and Honeyman Sale no. 1560 (both with illus.). $3,250.

Herschel’s Analog Calculator - Presentation Copy to Oersted

298. HERSCHEL, JOHN (1792-1871). Description of a machine for resolving by inspection certain important forms of transcendental equations. Cambridge: printed by J. Smith, printer to the University, 1832.

Offprint from the Cambridge Philosophical Society Transactions, volume four. 4 to. Contemp. half lea. with marbled boards with gilt title and author on front cover. (2), 16 pp. Engraved plate. Presentation copy to Prof. Oersted with Herschel’s holograph inscription. Leather a bit rubbed and small chip to upper spine end, spotty foxing to the plate; a very good copy.

H. C. Oersted (1777-1851) visited England in 1836 "...and he was among those present at the meeting of the British Association at Southampton where he listened to Sir John Herschel state that 'in science there was but one direction which the needle would take, when pointed towards the European continent, and that was towards his esteemed friend, Professor Oersted.' (B. Dibner, ‘Oersted and the discovery of electromagnetism’, N.Y., 1962, p. 62). Herschel and Oersted corresponded from 1825 to 1849. The offprint of this paper on an analog calculator for solving transcendental equations appears to have preceded its journal appearance since Volume 4 of the Transactions was published in 1833. The plate illustrates in detail the calculator Herschel designed with its train of wheels (pulleys) interconnected by wire belts, levers, and divided linear and circular scales. "In an analog device a direct proportion is established between the quantity represented and the position of a sliding or rotating part in a mechanical system..." (W. Aspray, ed., ‘Computing before computers’, chap. 5, 1990). His pursuit of this topic came from a conversation with Babbage, as the opening sentence indicates, on "...applying machinery to the performance of numerical calculations...", and his current work on "...the elliptical orbits of some of the most remarkable double stars..." Herschel's analog calculator seems to have attracted little attention within the history of the subject which itself has not been comprehensively reviewed. On some general principles see: G. Ifrah, 'The universal history of computing', N.Y., 2001, pp. 154-167. $2,000.
ANTiquarian SCIENTIST

Miniature 18th Century Instrument Trade Manual

299. JONES & SON. A concise explanation of the barometer, etc. With rules for predicting changes of the weather. London: J. Jones and Son, n.d. (c. 1785).

FIRST EDITION. Square 16 mo. (3 1/8 x 4 inches). Orig. pasteboard covers with orig. printed label on front cover. Attached within are two letterpress multiple folding sheets headed as above. Unfolds to 12 1/2 x 8 inches). Breaks in some folds repaired, old light brown stain with small hole at fold in blank area, one corner originally cut too closely affecting three words, bookseller’s rubberstamp on blank verso of one sheet; still, considering the fragility of this publication, a very good copy.

A rare trade publication in a very small unusual pocket format by the English instrument maker John Jones in partnership with his son, William. John Jones, Sr. worked on his own from 1759 to 1784. The partnership formed in 1784 and was located at 135 Holborn, as the imprint here shows, and it changed to Jones & Sons in 1790 with the addition of a second son, Samuel. In 1792 William and Samuel became the well known firm of W. & S. Jones (see item 300). The imprint, at the bottom of the second sheet, further reads: “…who make and repair Barometers, Thermometers, Hygrometers, etc, in the best manner, and as low in price as any of the hawkers.” The weather rules on the second sheet are noted as extracted from Dr. Halley and Mr. Patrick. $1,500.


Hundreds of instruments and some books are listed and priced by this notable London firm. Included are theodolites and perambulators priced to £10,10s; reflecting telescopes to £1000; best solar microscope £25,4s; Farey’s elliptic machine £5,5s; best astronomical transit £105; new large air pump for the production of ice to £84; Kinnersley’s electrical air thermometer £1,1s; Magellan’s portable table lamp furnace with blowpipe £5,5s; etc. $800.

301. LAURENCE, EDWARD (1690- fl. 1740). The young surveyor’s guide: or, a new introduction to the whole art of surveying land. London: James Knapton, 1716.

Laurence was a land surveyor and teacher of mathematics and bookkeeping in Northampton. When in London he was at the premises of the globe and map maker, John Senex. "The first original text on surveying published in the eighteenth century… (It was)… published in 1716 and reprinted in 1717. This text discusses surveying in a manner similar to Leybourn’s and the better texts of the late seventeenth century." (A. W. Richeson, ‘English Land Measuring to 1800’, 1966, pp. 150-151). A 3rd edition (reprint) appeared in 1736. Taylor II. 216. Wallis, p. 76a. $975.


Pages 24 to 28 carry an 1812 report signed by Arago, Bouvard, and Delambre on Lerebours’ achromatic telescopes, and the final page is an extract of an 1816 report by Bouvard, Arago, and Biot on the same subject. The priced catalogue includes a wide range of instruments: Charles megascopes, kaleidoscopes, Wollaston camera lucida, Leslie differential thermometer, balance of Sanctorius, graphometers, globes, etc. See: P. Brenni, Bulletin S.I.S., no. 40, pp. 3-6. $1,100.

Important Early American Ownership

303. LOVE, JOHN (fl. 1688-1711). Geodesia: or, the art of surveying and measuring land made easy… As also, How to lay out new lands in America… London: W. Innys, 1744.

FIFTH EDITION. 8 vo. Contemp. marbled paper, rebacked, the matching spine with raised bands, gilt ruled, and red lea. label. (16), 196, (4, misbound prelims), 195-196, (16, tables), 7, (1) pp. Woodcuts in the text, some full-page. The COPY of Edward W. Holyoke (1728-1829), the son of President Holyoke of Harvard, a
famous practitioner of Salem and Harvard's first M.D. who had a considerable influence on medical education.

E. A. Holyoke received his A.B. degree from Harvard in 1746. His ownership signature on the front fly-leaf is dated 1745 along with his purchase price of 31/-.

Holyoke's manuscript corrections are in a number of places in the text. It is likely that this book served as his text while at college. Holyoke's longevity (101 years) became a public sensation towards the end of his life. Uniform light browning, but a nice copy for this type of book.

John Love published his 'Geodaesia' in 1688 and for more than a century (thirteen editions) it remained an important text both in the U.K. and America. "Love states that he was impelled to write a treatise on surveying by a desire to help young surveyors in America, whom he had seen trying to lay out lands when their books would not give them any aid in their work, and further that he wished to give new methods of mapping and making soundings of the entrances to rivers and harbors. ...Little is known of his early life, but he was a surveyor in North Carolina and Jamaica before returning to England to write his surveying text." (A. W. Richeson, 'English land measuring to 1800: instruments and practices', 1966, pp. 126-129 with details on his methods). Taylor I.458. $975.

B. Martin on Dialling

304. MARTIN, BENJAMIN (1704-82). Horologia nova; or the new art of dialling in theory and practice. ...Also, the rationale and use of the lines of latitudes and hours, on the dialing-sector and trigon. London: for the Author, 1770.

FIRST EDITION. 4 to. Twentieth century boards with vellum-like back and red leather label on spine. (4). 15. (Martin's ad for his clock treatise & named clocks, dials, orreries available at his shop along with a variety of instruments) pp. An engraved plate. A very good, crisp copy.

Benjamin Martin, the famous Fleet Street instrument maker, who also lectured and wrote numerous books and pamphlets on instruments, presents with this scarce publication his view that for "...the whole Art to the Construction (of dials)...three different Dials only..." are required. These are: a horizontal, a vertical decliner, and a polar dial, all illustrated in the plate. In addition, Martin describes two aids to dial construction: a dialing-sector and a gnomonical trigon, both illustrated diagrammatically in the plate. J. Millburn, 'Benjamin Martin, author, instrument-maker, and 'country showman', Leyden, 1976 - bibliography, p. 204 and noted in text pages 152-153. Taylor II. 289. $1,600.


SECOND EDITION of the Martin. Two volumes in one. 8 vo. Contemp. calf. 42; 14, 2 (Jones ad) pp. Engraved frontispiece of the pump + a folding engraved plate. Front joint cracked but holding, minor spotty foxing; a very good copy.

This posthumous edition issued by Gregory & Wright of B. Martin's manual on the air-pump was preceded by a 1766 first edition. Martin describes the mechanism and operation of his air-pump and provides 54 experiments, of which 40 are illustrated in the busy, but well done, folding plate. The priced W. & S. Jones catalog still has their earlier address at 135 Holborn. J. R. Middleton, 'Benjamin Martin', Leyden, 1976, listed on p. 203 of 'Martin's publications'. $1,250.

N & Z's Grand Six Hundred Page Catalogue of Scientific Instruments


Orig. gilt decorated cloth. (2, title leaf, viii, 602 pp. Wood engraved frontispiece of the façades of the firm's three shops in London + a full page wood engraved view of their display at the Crystal Palace, Sydenham + hundreds of woodcuts of instruments in the text. A very good copy.

Negretti & Zambra published one of the great 19th century comprehensive priced instrument catalogs, well-illustrated with text rich in details and scientific information. Henry Negretti and Joseph Warren Zambra began their successful partnership in 1850 at 11 Hatton Garden, London. The Firm continued beyond their deaths (Negretti, 1879; Zambra 1897) as Negretti & Zambra Ltd. They offered a full line of instruments with a specialization in meteorological instruments. $1,400.
ANTIQUARIAN SCIENTIST

Early Seventeenth Century English Surveying Text


Norden's treatise on surveying received three editions in the 17th century: 1607, 1610 (addition of sixth book), and 1618. Though this commentary concentrates on its importance to surveying history, the book is also noted for pointing towards the agrarian roots of English capitalism. "It is the second (and last) surveying text to be written in dialogue form, and consists of a discussion among the surveyor, a farmer, the lord of the manor, a bailiff, and a purchaser." (A. W. Richeson, 'English land measuring to 1800: instruments and practices', 1966). Richeson discusses the land use content of the dialogue in some detail and adds concerning instruments: "...explains for the first time in an English text, the difference between the theodolite and the circumferentor... Norden's survey goes around the entire manor and then around each field using the plane table, although he points out that other instruments may be used. In this discussion he mentions backsighting each station that he has passed. This is the first mention of backsighting in an English text... After giving the necessary geometry relating to various types of figures, the author explains how land area may be found. ...His tables, he explains, were taken from the texts of Benese, Leigh, and Digges. ...This text is important because of Norden's clear account of the operation of the court of survey and because of his efforts to reconcile the differences between surveyor and tenant. His methods are generally superior to those given by sixteenth-century writers on surveying." To this edition Norden has added an epistle dated 16 December 1617 to Richard Smith Knight, Surveyor General of the Lands of Prince Charles. Taylor I. 177. Noted in Kiely's history of surveying instruments (1947), pages 106 and 184. $1,400.

The Invention of the Logarithmic Slide Rule


THIRD EDITION. Small 8 vo. Twentieth century English polished calf with raised bands. (4), 254, (2, blank) pp. With the blank leaves before or after each plate. Eight folding engraved plates and a full-page woodcut. Some browning, a very good copy.

Oughtred's treatise on the slide rule was first published in 1632 for the prominent instrument maker, Elias Allen. The first plate is of Oughtred's circular slide rule. In 1633, the navigation part and Gunter's tables were introduced along with the 'Two Rulers for Calculation'. The plates were extended to eight in number in the 1660 edition. The Second Hollis Professor at Harvard, John Winthrop (1714-79), owned a copy of this 1660 edition. 'Oughtred is generally regarded as the inventor of the circular and rectilinear slide rules. (Though Richard Delamain, one of Oughtred's pupils, published a description two years earlier.), Oughtred's claim to priority in the invention of the rectilinear slide rule... is beyond dispute, since it is known that he had designed the instrument as early as 1621.' (D.S.B.). See: F. Cajori's joint works on the slide rule published by the Astragel Press, 1994. Tomash Lib. O39. Taylor I. 94. $2,850.

Ozanam's Rare Second Book

A Treatise on Sundials in a Binding by Louis XV's Binder


FIRST EDITION. 12 mo. Contemp. maroon morocco (possibly for presentation) with gilt ruled sides and floral corners, spine gilt within compartments, all edges gilt. (16), 92 pp. Two large folding sheets containing the eight engraved plates with 29 figs. Engraved armorial bookplate of Wilkes of Layton-Bossard with manuscript addition concerning the binding: "Reliure de Matre Du Sevill". This is likely referring to the
2°19'5". The angles for Roy's 16 triangles were found to be accurate to within just over a second. (A. J. Turner, "Mostra di una collezione veneta, Retmi del cielo e misura del tempo" (1885), no. 87 (date and plate count are incorrect). Poggendorff II. 342. Sotheran/Zeitlinger, 1st suppl., no. 2918.

Large, Handsome Treatise on the Uses of the Armillary Sphere


FIRST EDITION. 4 to. Contemp. Italian boards with calligraphic title and device on spine. viii, xlii, 476 pp. Title in red and black. Fine engraved frontispiece by Carlo Gregori after Mauro Soderini + engraved vignette on title + nine fine large engraved headpieces by M. A. Corsi after G. Menaboni + nine fine large engraved historiated initials. Blank lower corner of title expertly restored, plate VII once dissected into several parts then reassembled and backed; a bright, crisp, very good copy.

Pappiani, Professor of Philosophy and Mathematics in the College of Florence, published this ornate treatise on instruction in the use of the armillary sphere both in nautical astronomy and with sundials at Florence in 1745. In his preface, Pappiani has provided an interesting detailed chronology of astronomy, geography, chronology, navigation, and dialing from 1590 to 1745. The handsome pictorial vignettes depict constellations, astronomical scenes, and instruments. Riccardi I. 245. - "Bella edizione". Sotheran/Zeitlinger, 2nd suppl., no. 3622.

$2,250.

Jesse Ramsden's Thirty-Six Inch Theodolite

311. ROY, WILLIAM (1726-90). An account of the trigonometrical operation, whereby the distance between the meridians of the observatories of Greenwich and Paris has been determined. (London, 1790).


The 36-inch theodolite built by the great English instrument maker, Jesse Ramsden (1735-1800), for General Roy’s triangulation in 1787 is illustrated in a number of the excellent plates in this handsome volume. It was “one of the earliest instruments to bear superior circular divisions, conical spoke bracings, and microscopes.... Though this was not the first full-circular instrument commenced by Ramsden, it was the first to become operational and be described. It was built to survey with critical accuracy the longitudes between the Greenwich and Paris Observatories.... Though the success of the survey cannot be wholly ascribed to the quality of the theodolite, the instrument was of great importance in establishing a revised Greenwich-Paris longitude value of 2°19'5". The angles for Roy’s 16 triangles were found to be accurate to within just over a second.” (A. Chapman, ‘Dividing the circle’, 1995). Poggendorff II. 708.

$1,500.

Special Copy of the First Treatment of Champlain’s Lost Astrolabe

312. RUSSELL, ALEXANDER J. (1807-87). On Champlain’s astrolabe, lost on the 7th June 1613, and found in August 1867...Montreal: printed by the Burland-Desbarats Lith. Co., 1879.

FIRST EDITION. 8 vo. Three-quarter dark green levant with compartmented spine and marbled boards by the Rose Bindery, Boston, c. 1904. Top edge gilt. 24 pp. + an actual photograph of the astrolabe. The COPY of Frank Cutter Deering (1866-1939) extensively extra-illustrated with 109 plates, most with associated letterpress text, exactly prepared and mounted within precisely cut windows, all inserted into a fine binding on thin cloth tabs. The illustrations are gathered from many sources and relate to Champlain and region of Canada where the mariner’s astrolabe was found. They include copperplates, colored engravings, photographic plates, maps, woodcuts, mezzotints, lithographs, photographures, and an original watercolor. Deering of Saco, Maine, was a noted American book collector with a special interest in captivity tales. On a goodly number of the extra
plates, he has added his finely printed comments on their versos. Other grangerized books from his library are known. A unique volume in fine condition.

A. J. Russell's 'Preface' states: "...I have been induced by the flattering recommendation of a few friends to have a very limited edition of it published..." According to Russell, Champlain's astrolabe, dated 1603, was found on the River Ottawa in Ross, Ontario by Captain Overman's people in 1613. See: A. Stimson, 'The mariner's astrolabe - a survey of known, surviving sea astrolabes', 1988, NMM 8, pp. 72-73. $2,000.


SECOND EDITION, improved and enlarged. 8 vo. Orig. cloth-backed boards, rebacked, the orig. large printed label on the front cover. xi, (1), 118, (6). 7 ('Catalogue of Instruments made by Troughton and Simms, 136, Fleet Street, London') pp. Text woodcuts of instruments. Lower corners of boards a bit worn, wrinkle in t.p., bookplate; a very good copy.

The important, authoritative manual on scientific instruments with Troughton & Simms valuable priced catalogue.

Offered with:


FIRST EDITION. Two volumes in one. 8 vo. Orig. cloth. (4), 74, (2, blank); 16 pp. Text woodcuts of instruments. Spine a bit faded; a very good copy.

A useful book on the telescope from the important nineteenth century scientific instrument makers coupled with their priced catalogue. $750.
## Antiquarian Scientist

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