

HISTORY OF SCIENCE AND TECHNOLOGY

Wednesday December 7, 2016
New York

A. Einstein. *Stohmann*

Die Grundlage der allgemeinen Relativitätstheorie

von

A. Einstein

*Die Theorie der Gravitation hat sich unterdessen
bewährt. Ihre Beziehung zu der Maxwell'schen der
Elektrizität auf dem von Kaluga zuerst eingeschlagenen
Wege dürfte wohl auch das Richtige treffen. Dagegen
ist der Zusammenhang mit der Mechanik und
der Theorie der Quanten noch dunkel
1938.*



Leipzig :: Verlag von Johann Ambrosius Barth :: 1916

Bonhams

NEW YORK



HISTORY OF SCIENCE AND TECHNOLOGY

Wednesday December 7, 2016 at 11am
New York

BONHAMS

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PREVIEW

New York

Saturday, December 3
12pm to 5pm
Sunday December 4
12pm to 5pm
Monday December 5
10am to 5pm
Tuesday December 6
10am to 5pm

SALE NUMBER: 23259
Lots 1001 - 1098

CATALOG: \$35

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bids. Telephone bidding is only
available for lots with a low
estimate in excess of \$1000.

Please contact client services
with any bidding inquiries.

Please see pages 72 to 74 for
bidder information including
Conditions of Sale, after-sale
collection and shipment.

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ILLUSTRATIONS

Front cover: Lot 1072
Inside front cover: Lot 1088
Inside back cover: Lot 1049
Back cover: Lot 1068

SESSION PAGES

Session page 1: Lot 1071
Session page 2: Lot 1001
Session page 3: Lot 1056
Session page 4: Lot 1062
Session page 5: Lot 1089

INTRODUCTION

We are pleased to present another installment of our annual History of Science and Technology auction. As with prior entries in the series, this sale offers a concentrated selection of rare printed and manuscript material related to astronomy, natural history, biology, mathematics, physics, medicine, and technology, as well as fine scientific artifacts and instruments.

The sale opens with a section on Astronomy and Scientific Instruments, highlighted by a 17th century manuscript defense of Galileo, as well as a large Antoine-Joseph Meurand brass equinoctial dial. The following section, which we have titled “Life and Earth Sciences,” features a number of important natural historical and biological works, including a series of outstanding Darwin letters and texts. Among these are a 7 page Autograph Letter Signed of Darwin praising Charles Lyell, acknowledged by Darwin as his forerunner; a first edition of the journal of the voyage of the *Beagle* including a rare prospectus; a dual publication of Darwin and Alfred Wallace, being the first announcement of the theory of evolution by natural selection; and a first edition, first issue of *On the Origin of Species*. The section also includes an unusual artifact of the history of medicine, being an original penicillin mold culture originating from the discoverer of the antibiotic, Alexander Fleming.

The “Mathematics, Physics, and Chemistry” section opens with an Autograph Manuscript Signed of Isaac Newton and a first edition in English of his *Principia*. The section also features one of the most delightful surprises of the sale: a stunning photograph album detailing Alexander Graham Bell’s experiments with tetrahedral kites, several photos bearing Bell’s annotations and nearly all initialed by him.

ORDER OF SALE

1000-1022	Astronomy & Scientific Instruments
1023-1060	Life & Earth Sciences
1061-1085	Mathematics, Physics & Chemistry
1086-1095	Cipher Equipment
1096-1098	Other Technology & Computing

Among several Einstein items in the section, we are proud to offer—one hundred years after its initial publication—a copy of the first edition, monograph issue of the General Theory of Relativity, signed and inscribed by Einstein. In the inscription, which was added in 1938, Einstein offers retrospective assessment of the theory and its place within Unified Field Theory: “*Gravitational theory has meanwhile proven itself. Its connection to Maxwell’s electromagnetic theory ... should also prove to be correct. On the other hand, the connection to atomic and quantum theory remains obscure*” (translation). This is the only copy of the General Theory that we trace which bears a scientific inscription.

The final section of the sale is devoted to cipher equipment of the World War II era, and includes Enigma machines, a NEMA cipher machine, Soviet intercept equipment, and a World War II *signalbuch* of the German *Kriegsmarine*, a very rare survival. (Please see a special introduction to the section on page 52.) Closing the sale are two lots relating to the development of television, and an important and early Apple publication inscribed by Steve Jobs.

The above represent only a few of the highlights of the sale, and at 98 lots each item bears a closer look. Please do not hesitate to contact any member of the department with questions.

Catherine Williamson, Ph.D.
Vice President, Director

IMPORTANT NOTICE

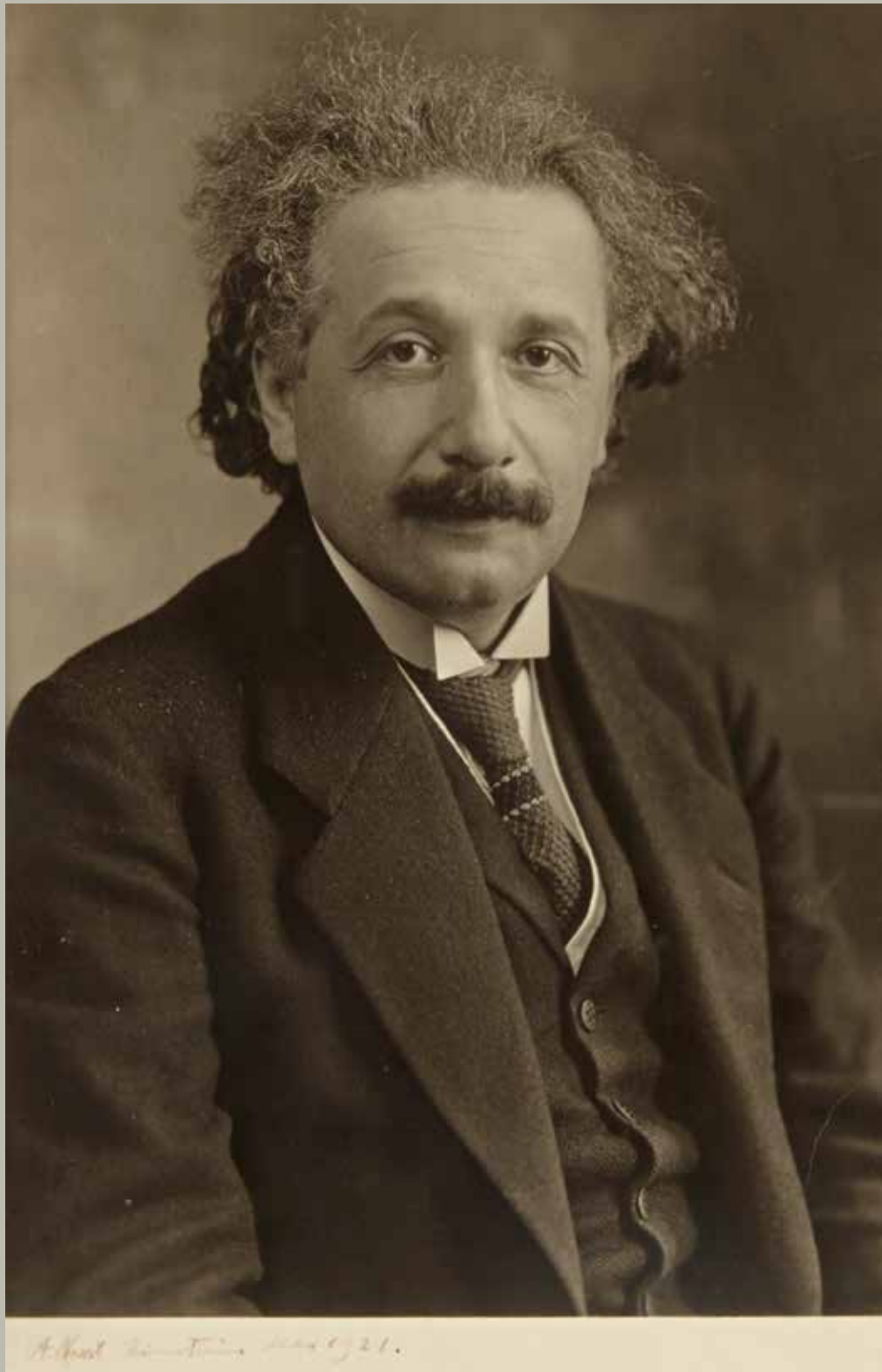
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Items indicated in the catalog as “framed” have not been examined out-of-frame, unless specifically stated.

HISTORY OF SCIENCE AND TECHNOLOGY

Lots 1001-1098



ASTRONOMY & INSTRUMENTS

Lots 1001-1022



1001



1002



1003

1001

GILT BRASS HORIZONTAL STRING-GNOMON SUN-DIAL IN THE FORM OF A VIOLA DA GAMBA.

Not signed, German, probably Nuremberg, early 17th century, the case engraved with a symmetrical scrolled decoration around a central flower, the hinged upper surface of the body decorated on its inner face by a line motif of ovals incorporating a cross; the body containing the scale for an horizontal dial usable at two ranges of latitude and reading IV-XII-VIII by undivided hours, the lines radiating from around a central tulip motif. The instrument can be oriented by a small inset compass with blued steel needle and the four cardinal points are marked by their initials, that for West being composed of two superimposed 'V' stamps, 71 x 27 mm.

Two other string-gnomon dials of this form are known, one in a private collection described and illustrated in Galerie Delalande, *Cadrans solaires/sundials*: [Catalogue of an Exhibition, 17 December 2013 to 19 January 2014], Paris 2013, pp 348-49, the other in the Collection of Historical Scientific Instruments at Harvard College (Inv. 7348). Of these, the Delalande example is of nearly the same size as that presented here and has an identically decorated case. The body of the instrument however is in ivory as is that of the Harvard instrument which is also of similar size. The engraved decoration of the case of the Harvard example differs from the other two, but is identical in form. A number of shared features, such as the shape of the latch and hinge, three small stars engraved on the sides of the top of the neck, and the lugs locking the lid against the neck, suggest that it was made in the same workshop as the other two instruments. For the moment however, this workshop resists identification.

US\$8,500 - 12,500

1002

BRASS GUNTER QUADRANT.

English, 17th century, signed with initials "S.C." engraved along the circumference with degree scale and date scale divided from winter to summer solstice with named months, also engraved with and declinations scale, line of ecliptic, horizon, and hour lines. Mounted with two pin-hole sights and with plum-line and brass bob, the reverse blank, 94 mm radius.

US\$2,000 - 3,000

1003

SAND-GLASS.

Probably French, 17th century, the two onion-shaped bulbs or phials are held between domed end-pieces supported by six screw-set columns, which may thereby be removed to allow access to the bulbs. These are filled with a rose-coloured 'sand,' the silk-wrapped joint lashed with silver bound thread.

For comparable sand-glasses in silver filigree see Anna, Dominique et Eric Delalande, *Sabliers d'autrefois/Hourglasses of the past*, Paris 2015, pp. 4, 216-19, 268-9. 120 by 58 mm.

US\$5,000 - 7,000



1004

1004

LARGE PAIR OF WING-DIVIDERS.

English, late 17th century, in brass with steel points, with 45 degrees arc graduated with inch scale and with wing-nut adjustment, engraved with leaves and flowers to hinge and legs, *height 300 mm.*

This pair of dividers is illustrated in Hambly (Mayer), *Drawing Instruments 1580-1980*, London, 1988, p 76.

US\$1,500 - 2,500



1005

1005

NICOLAS BION SILVER BUTTERFIELD DIAL.

French, 1685-1715, signed "N BION A PARIS," the octagonal dial engraved with four hour scales in Roman and Arabic numerals, inset compass rose, hinged gnomon with bird indicator, the base engraved with twenty nine European cities and their latitudes, *2 1/2 in long.*

Nicolas Bion (1656-1733) held the position of Ingenieur du Roi for mathematical instruments and was the Jure of the Founders' Corporation 1700-02. He had a Paris address at quai de l'Horloge a l'enseigne du Soleil d'or.

US\$2,200 - 3,000



1006

1006

EDMUND CULPEPER BRASS UNIVERSAL EQUINOCTIAL RING DIAL.

English, early 18th century, signed "E Culpeper fecit," the meridian ring engraved with latitude scale 90-0-90 degrees, reverse with scale for determining solar altitude and zennith distance, equinoctial ring with obverse engraved with hour scale in Roman numerals, central bridge with pin-hole sliding over calendar and zodiac scales, with suspension ring, *154 mm diam.*

Edmund Culpeper (w.1700-1737) was apprenticed to Walter Hayes in 1684 and gained freedom from the Grocer's Company in 1714. Before this date he had begun trading at Hayes's workshop under the sign of the Crossed Dagger's in Moorfields London. A form of compound microscope was named after him and his son of the same name followed him into the trade.

US\$3,000 - 5,000

1007

BRASS SECTOR.

French, early 18th century, finely engraved with linear and non-linear scales divided for lines, circles, cubic and military measures, and with circular hinge engraved with acanthus leaves, in leather covered pocket case, 6 1/4 in (16cm) radius.

Provenance: Sotheby's London, lot 168, 28th October 1998.

US\$900 - 1,200

1008

CASE SET OF DRAWING INSTRUMENTS.

English, early 18th century, the fishskin covered case fitted with a set of drawing instruments including a brass rule signed "Richard Glynne," a pair of proportional dividers, pencil holders, inking pen and compasses, the case 228 mm wide.

Richard Glynne (1681-1755) was apprenticed to Henry Wynne in 1696 in the Clockmaker's Company and freed in 1705. From 1707-1730 he worked at addresses in Cheapside and Fleet Street, London.

US\$2,000 - 3,000

1009

LOADSTONE ON ORIGINAL STAND.

Probably English, first half of the 18th century, the loadstone in metal casing with poles protruding below, suspended by a looped handle and suspended on a swinging bracket and C-scroll brass stand, on mahogany base, 350 mm high.

Loadstones were still used in courses of experimental philosophy although their use in making compass needles and experimenting with magnetism was being superseded by artificial magnets by the middle of the century.

US\$1,500 - 2,500



1007



1008



1009



1010

1010

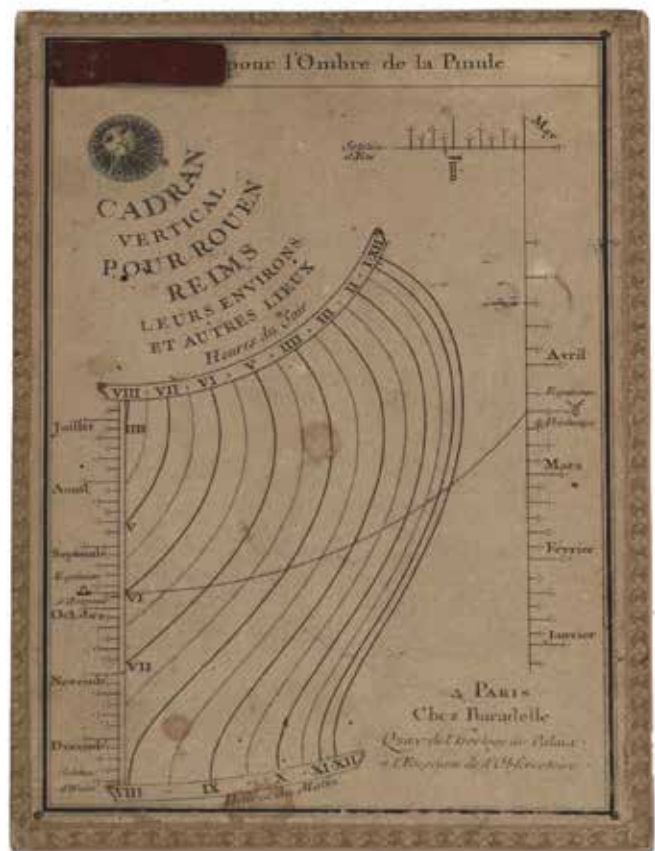
POCKET GLOBE.

CUSHEE, RICHARD. *A New Globe of the Earth*. London: R. Cushee, 1731.

A 3 inch (7 cm) diameter pocket globe in fish skin covered wood case with two brass hook-and-eye clasps. 12 hand-colored copper-engraved gores with 2 polar callotes over papier maché and plaster, each pole with pivot hole, signed within decorative cartouche in North Pacific, inside of case with 12 engraved hand-colored celestial gores depicting the northern and southern hemispheres with 48 Ptolemaic constellations, and a handful on others, including those of Hevelius. A few stray marks to globe and to base; case lacking one clasp.

A very finely made early eighteenth century pocket globe depicting California as an island, north-western America labelled as "Unknown Parts," Australia labelled "New Holland," the Dominion of Muscovy as well as the Great Wall of China are both noted. "Richard Cushee (fl.1729-32) worked as a surveyor and globe maker in the Globe and Sun between St. Dunstan's Church and Chancery Lane in London ... The gores for the celestial globe are concave, drawn as seen from the inside. This can be clearly seen from the Great Bear, looking right. In the global view, the head of this constellation points leftwards. It is known that Cushee mirrored his figures: even on his concave celestial globe, the human figures are seen backwards. The constellations also include those introduced by Hevelius; next to the Great Bear, we can see Hevelius' sharp-eyed Lynx" (Dekker Globes from the Western World p 112). Dekker Globes at Greenwich GLB0044; Van der Krogt Old Globes in the Netherlands Cus 1.

US\$4,000 - 6,000



1011

1011

BARADELLE VERTICAL SUNDIAL.

French, mid-18th century, printed "CADRAN VERTICAL POUR ROUEN REIMS LEURS ENVIRONS ET AUTRE LIEUX A PARIS Chez Baradelle Quay de l'horloge du Palais a l'Enseigne de l'Observatoire," rectangular wooden tablet with embossed card border and applied with printed dial on the obverse and set of instructions for use on the reverse, 7 by 4 5/8 in (18 by 11.8 cm).

Provenance: Sotheby's New York, Lot 781, 14th October 2004 The Time Museum sale.

US\$1,500 - 2,000



1012

1012

BRASS RULE AND A SILVER PROTRACTOR.

English, mid-18th century, the rule signed *J. Fowler fec't* engraved with various linear, non-linear and diagonal scales, *length 427 mm*. The protractor signed *J. Sisson, London* engraved with double degree scale on the obverse, reverse with diagonal scales and decimals of an inch, *length 102 mm*.

Jonathan Sissons (c.1690-1747) worked for George Graham before setting up his own workshop at "The Sphere corner of Beaufort Buildings" in The Strand, London, and in 1729 gained a royal appointment to the Prince of Wales.

US\$800 - 1,200



1013

1013

GEORGE ADAMS BRASS UNIVERSAL EQUINOCTIAL RING DIAL.

English, third quarter of the 18th century, signed "*G Adams London*," the meridian ring engraved with latitude scale 90-0-90 degrees, reverse with scale for determining solar altitude and zennith distance, equinoctial ring with obverse engraved with hour scale in Roman numerals, central bridge with pin-hole sliding over calendar and zodiac scales, 100 mm diam.

George Adams was apprenticed to James Parker in 1724 and turned over to Thomas Heath in 1726, he was freed as a member of the Grocer's company in 1733 and the following year he was working in Fleet Street, London. his appointments include: Royal appointment to the Prince of Wales and George III, mathematical instruments maker to the Office of Ordnance and supplier of instruments to Christ's Hospital. Two of his sons were also mathematical instrument makers.

US\$2,500 - 3,500





1014

LARGE ANTOINE-JOSEPH MEURAND BRASS UNIVERSAL EQUINOCTIAL DIAL.

French, dated 1782, signed "Meurand Quay de L'horloge du Palais a Paris. 1782," the self-orienting dial with lens gnomon, engraved *Lumiere du Soleil*, mounted on rectangular plate engraved with a transversal scale to adjust the dial for declination of the sun, hour circle engraved with Roman and Arabic numerals and adjustable against a latitude arc, on shaped base plate with three leveling screws and mounted with a folding armature and plumb-bob, in red cloth lined shield-shaped case with leather cover and two brass catches, 8 by 9 1/4 by 7 7/8 in (20.5 by 23.3 by 20 cm) when erect. *Provenance:* In 1786, this dial was the property of Antoine Pineton de Chambrun (1732-1798) an aristocrat who became Sergeant Major General in the French army; Sotheby's London, lot 420, 2004 Tesseract.

This type of dial is illustrated and described in the second edition of Bedos de Celles' *La Gnomonique Pratique* 1774. Antoine-Joseph Meurand (fl.1750-1794) had workshops in Paris in rue de Cloître St.Jacques, rue St Louis, Ile de la Cite and quai de l'Horloge, no.53. He was a Jure in the Founders' Corporation 1770-2. A similar dial is housed in the National Maritime Museum, Greenwich.

US\$25,000 - 35,000



1015

1015

W & S JONES NEW PORTABLE ORRERY.

English, late 18th century, with printed label, "*designed for the NEW PORTABLE ORRERY by W. Jones and made and sold by W. & S. Jones, 30 Holborn, London,*" the hand cranked and geared tellarium mechanism demonstrating the movement of the Earth, Moon and two planets around the Sun, the 38 mm diameter Earth with hand colored and printed gores, mounted above a ring engraved with the Zodiac signs and a disc showing the phases of the Moon, on circular wooden table raised on three feet applied with hand colored and printed degree calendar and zodiac scales, in original oak carrying case with turned bone winding handle, 12 in diameter.

US\$8,000 - 12,000

1016

COLLECTION OF FIVE DIVIDERS.

18th and 19th centuries, four of brass with steel points and one of silver with steel points, some with engraved decoration, *various sizes*, 96 to 470 mm.

US\$2,000 - 3,000

1017

COLLECTION OF SIX PROPORTIONAL DIVIDERS.

Late 18th and early 19th centuries, one signed "Ramsden London," another signed "W & S Jones," two in leather cases and one in fishskin case, *various sizes*, 155 to 167 mm.

US\$1,500 - 2,000

1018

GALILEI, GALILEO. 1564-1642.

Difesa di Galileo Galilei, noble Fiorentino ... contro alle Calunie & imposture di Baldessar Capra, Milanese.... Bologna: H.H. del Dozza, 1655.

4to (206 x 150 mm). [2], 83-160 pp. Woodcut diagrams in the text. Modern boards, gilt-lettered red leather spine label. Generally internally clean, some stray marks and light shelfwear to binding.

TOGETHER WITH: CAPRA, BALTAZAR. *Usus et fabrica circini cuiusdam proportionis, per quem omnia sere tum Euclidis, tum mathematicorum omnium problemata facili negotio resoluntur.* Bologna: H.H. Dozza, 1655.

4to (206 x 152 mm). [8], 80 pp. Woodcut diagrams in the text. Modern boards, gilt-lettered red leather spine label. Several leaves lightly browned, but generally clean, binding with some light shelfwear.

Provenance: Henry & Carol Faul (bookplate in both volumes).

SECOND EDITION of these two related tracts, originally printed to appear in the same volume. Capra's *Usus et fabrica circini...* was essentially a Latin translation of Galileo's first book on the use of his compass wherein Capra accuses Galileo of plagiarizing him. Galileo quickly followed this with his *Difesa* in the same year, vindicating himself as the true creator of the particular compass.

US\$3,000 - 5,000

1019

[GALILEO GALILEI. 1564-1642.]

AVERANI, BENEDETTO. 1645-1707. Italian Manuscript on paper entitled "*Lettera Apologetica del Galileo*," 50 pp recto and verso, 4to, [Italy], dated 1695, in brown ink. Modern limp velum. Some uniform staining, not effecting legibility.

CONTEMPORARY MANUSCRIPT OF THIS SPIRITED DEFENSE OF GALILEO from the condemnation of the Papal authorities, privately circulated only in manuscript at the time of its writing. Averani was a student of Galileo's own star pupil Vincenzo Viviani (1622-1703), and ends his *Lettera* by proclaiming himself "*contento di aver vendicata la gloria dell' Insigne Lince Galileo Galilei.*" Four manuscript copies were known to Favaro, who brought out the first printed edition in 1883.

This manuscript is accompanied by a copy of a letter by the prominent Galileo scholar Stillman Drake (1910-1993) with a full description of the present manuscript alongside notes on the known surviving copies. Drake confirms that this copy does not conform perfectly to the printed edition and suggests that it is a copy of an early draft. He also suggests that the work was composed and circulated in support of an ultimately successful project by Viviani to erect a proper monument to his beloved teacher. The Church's ban on reprinting Galileo's works was not lifted until 1718 and Galileo's remains were not interred in consecrated ground until 1737 (in a monument in Santa Croce Church, Florence, paid for with Viviani's bequest).

US\$3,000 - 5,000



1016



1018



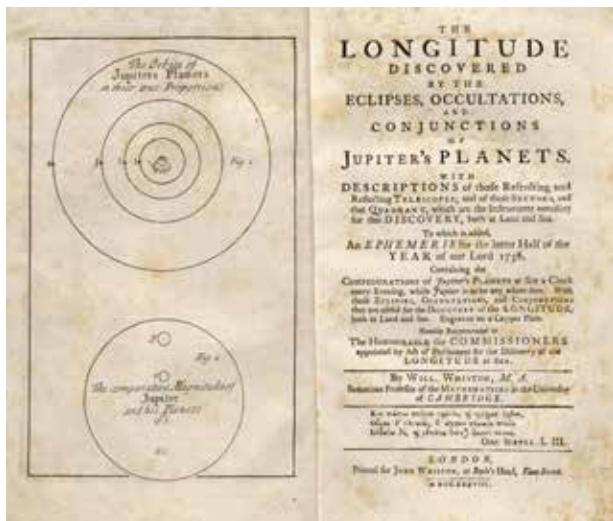
1019



1020



1021



1022

1020

KIRCHER, ATHANASIUS. 1602-1680.

Iter extaticum II. qui & mundi subterranei prodromus dicitur. Qvo geocosmi opificium, sive terrestris globi structura, una cum abditis in ea constitutis arcanioris naturae reconditorijs, per ficti raptus integumentum exponitur ad veritatem. In III. dialogos distinctum. Rome: Mascardi, 1657.

4to (217 x 172 mm). [24], 237, [13 incl index and errata] pp. Later vellum over boards. Dampstain to fore-edge, a few instances of browning, two corners torn, binding somewhat soiled.

FIRST EDITION of this collection of imaginary dialogues that explore several cosmological systems.

US\$1,000 - 1,500

1021

ACCADEMIA DEL CIMENTO.

Saggi di naturali esperienze fatte nell'Accademia Del Cimento sotto la protezione del serenissimo principe Leopoldo di Toscana e descritte dal segretario di essa accademia. Florence: Giuseppe Cocchini, 1667.

Folio (342 x 223 mm). [xvi], CCLXIX, [15] pp. Title printed in red and black, engraved title-page vignette, engraved head- and tailpieces, 75-full page engravings of experimental apparatus. Modern calf, red and black gilt-lettered leather spine labels. Title-page and half-title repaired and cleaned, toned, a few stray stains, but generally a very good copy.

FIRST EDITION, SECOND ISSUE of the only publication of the first organized scientific academy. The work became the standard laboratory manual into the 18th century.

US\$1,500 - 2,500

1022

WHISTON, WILLIAM. 1667-1752.

The Longitude Discovered by the Eclipses, Occultations, and Conjunctions of Jupiter's Planets: with Descriptions of those Refracting and Reflecting Telescopes; and of Those Sectors, and that Quadrant, which are the Instruments Necessary for This Discovery, Both at Land and Sea. To Which is Added, an Ephemeris for the Latter Half of the Year of our Lord 1738.... London: for John Whiston, 1738.

8vo (195 x 133 mm). [8], 111, [1 advert], [20 tables], 4 pp. Engraved frontispiece and 1 folding engraved plate. Contemporary marbled wrappers (original?), custom cloth clamshell case. Some light foxing, but generally clean, some table leaves trimmed close at top edge briefly affecting text, a few instances of offset in gutter margin of tables light general wear to wrappers.

Provenance: Henry & Carol Faul (bookplate to case).

FIRST EDITION. Whiston, a follower of Sir Isaac Newton, was instrumental in the passing of the Longitude Act of 1714. He spent a considerable time on the problem and published a number of tracts on the subject. The above work is also interesting in its descriptions and explanation of the use of several instruments.

US\$1,000 - 1,500

LIFE & EARTH SCIENCES

Lots 1023-1060

Jan 14th/29

DOWN,
BECKENHAM, KENT.
RAILWAY STATION
ORPINGTON S.E.R.

Dear Sir

I must send you a line

to thank you for your

letter. The notion of the

girl then men & women

are descended from distinct

progenitors is certainly

a very curious one.

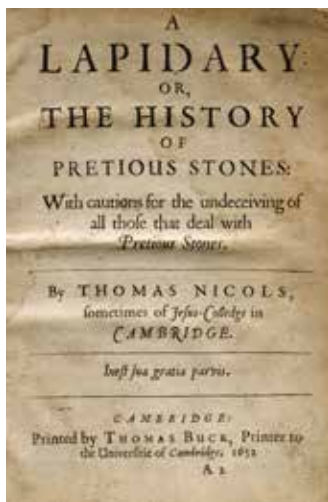
Dear Sir

Yours faithfully

Ch. Darwin



1023



1024



1025

1023

BOODT, ANSELMUS BOETIUS DE. 1550-1632.

Gemmarum Et Lapidum Historia. Leiden: Joannis Maire, 1647. BOUND WITH: LAET, JOANNIS DE. *De Gemmis et lapidibus libri duo*. Quibus praemittitur Theophrasti liber de lapidibus Graece & Latine. Leiden: Joannis Maire, 1647.

8vo (179 x 105 mm). ?4 A-Z8 Aa-Oo8 Pp4 [-Pp4 blank]; *****8 A-N8 O4. First title with 2 folding tables, both titles with numerous woodcuts in the text. Early vellum, goat gilt-lettered spine label. Modern endpapers, first table with closed tear, ?3&4 with fore-edge repair, occasional spots or toning, illegible ownership inscription to title, mild shelfwear.

THIRD EDITION of first title, *FIRST EDITION* of second title. The first title was the standard work of the 17th century for all looking for information on splitting diamonds, distinguishing genuine gemstones from fakes, the hardness of stones, various exploration sites for geologists, and even the health benefits of various minerals. The second title includes Theophrastes' work on gemstones and minerals.

US\$1,000 - 1,500

1024

NICOLS, THOMAS. FL.1659.

A Lapidary or, The History of Precious Stones: With Cautions for the Undeceiving of all Those That Deal with Precious Stones. Cambridge: Thomas Buck, 1652.

4to (178 x 130 mm). [10], 239, [1] pp. Folding table. Later half calf over marbled boards, gilt-lettered spine. Wanting first blank leaf, dampstain to first few leaves and lighter to several signatures near the end, binding with repairs to spine and to corners. *Provenance*: F.B. Lorch (leather bookplate); Henry & Carol Faul (bookplate).

FIRST EDITION of the first book written in English on gemstones.

US\$1,000 - 1,500

1025

BECHER, JOHANN JOACHIM. 1635-1682.

Sammelband containing the following 4 works:

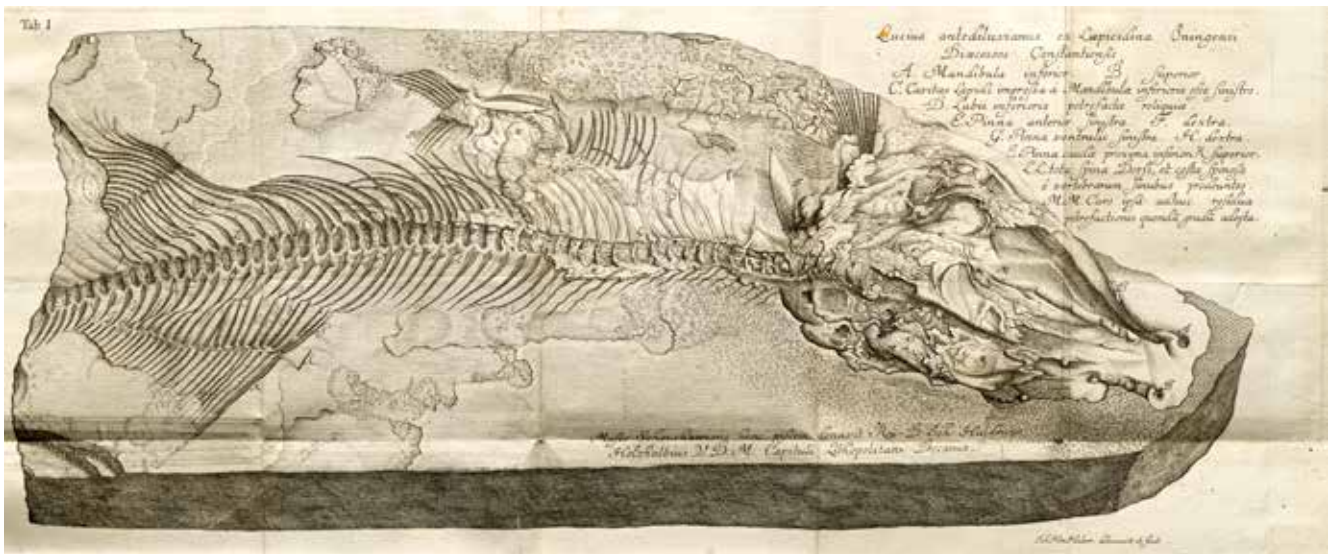
1. *Experimentum chymicum novum*. [Frankfurt]: 1680.
2. *Chymische / Die Wahr und Moglichkiet derer Metallen Verwandlung in Gold....* [Frankfurt]: 1680.
3. *Oedipus chymicus, oder Chymischer Ratfeldeuter....*
4. *Trifolium Becherianum Hollandicum....* Frankfurt: Johann David Zunners, 1679.

8vo (169 x 94 mm). 192; 175, [15], 156, [4], 54 pp. Early vellum, titles penned to spine, custom vellum slipcase. Some mild browning, text block partially cracked after first title, small crack in spine, light shelfwear.

Provenance: Johannes Samuel Ploennies (armorial bookplate).

A collection of chemical and metallurgical works from the 17th century chemist/chemist with much on gold.

US\$2,000 - 3,000



1026

1026

SCHEUCHZER, JOHANN JAKOB. 1672-1733.

Piscium querelae et vindiciae. Zurich: Gessner, 1708.
4to (212 x 160 mm). 36 pp. 5 large folding engraved plates. Modern half blue morocco over marbled boards, gilt-lettered spine, t.e.g. A few stray marks, but generally internally clean, binding with light shelfwear.

Provenance: D.R.A. (small leather bookplate); Henry & Carol Faul (bookplate).

FIRST EDITION of this rare work on fossil fish in relation to the great flood.

US\$2,000 - 3,000

1027

VALLISNERI, ANTONIO. 1661-1730.

Opere diverse. Venice: Gio. Babbriello Ertz., 1715.
3 parts in 1 volume. 4to (227 x 166 mm) [10], 200; [8], 87, [1 blank]; [4], 261, [1] pp. Engraved frontispiece portrait of the author, 31 engraved plates, most of which are folding. Contemporary speckled calf, spine gilt. Dampstain, generally light, in gutter margin at top and tail edge to first portion, though remainder quite clean, head and tail of spine rubbed, light shelfwear.

Provenance: C.E. Rappaport, Rome (bookseller's tag).



1027

FIRST EDITION. Collects 3 works: I. Istoria del Camaleonte Africano, e di varj Animali d'Italia. II. Lezione Accademica intorno all' Origine delle Fontane. III. Raccolta di varj Trattati.

US\$1,000 - 1,500

1028

SCHEUCHZER, JOHANN JAKOB. 1672-1733.

Herbarium diluvianum collectum. Leiden: Petri Vander Aa, 1723. Folio (350 x 221 mm). [iv], 119, [5] pp. Title-page printed in red and black. Engraved frontispiece portrait of the author, engraved additional title, engraved title-page vignette, 14 engraved plates. Contemporary calf, rebaked. Toned, a few scattered spots, boards worn.

SECOND EDITION of the work that helped to establish Scheuchzer as the founder of paleobotany.

US\$1,500 - 2,000



1028



1029

1029

BERINGER, JOHANN BARTHOLOMEUS ADAM. 1667-1738.

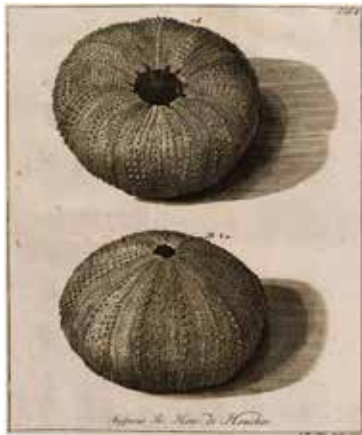
Lithographiae Wirceburgensis, ducentis lapidum figurarium a potiori insectiformium, prodigiosis imaginibus exornate specimen primum. Würzburg: Philipp Wilhelm Fuggart, 1726.

Folio (327 x 201 mm). [12], 96, [6] pp. 21 engraved plates. Original boards, custom cloth chemise, morocco-backed slipcase. Frontis in facsimile, a few leaves toned, but generally clean, general wear to binding.

Provenance: Paul Anton Wickart, 1760-1832, historian, politician and bibliophile (bookplate and ownership signature to f.f.e.p.).

FIRST EDITION, FIRST ISSUE of this rare record of "Beringer's Lying Stones" hoax. Beringer, who was Dean of the Faculty of Medicine at University of Würzburg, was targeted by two of his colleagues: J. Ignatz Roderick, Professor of Geography and Mathematics, and Johann Georg von Eckhart, privy counselor and university librarian, when they planted carved limestone "fossils" in a place where Beringer likely to dig. Beringer thought that the stones might be of a divine origin since some bore the name of God in Hebrew. He discovered the truth after the publication of the present work and did his best to destroy each copy he could find. He also took the two hoaxers to court and the affair ended in disgrace for all three.

US\$3,000 - 5,000



1030

1030

KLEIN, JACOB THEODOR. 1685-1759.

Naturalis dispositio echinodermatum. Accessit lucubratiuncula echinorum barinorum, cum bicilio de belemnitis. Gdansk (Danzig): Thom. Joh. Schreiberi, 1734.

4to (272 x 212 mm). [2], 78, [2] pp. Title in red and black. 37 engraved folding plates on 36 sheets, Title-page with engraved vignette, woodcut initial, head- and tailpiece. Contemporary speckled calf. Some light toning, but generally clean, spine and corners rubbed, light shelfwear, a very good copy.

Provenance: Comes de Solms (bookplate); D. Beok, 1790 (ownership signature); R. Martin, 1948 (ownership signature).

FIRST EDITION. Nissen ZBI 2205.

US\$1,000 - 1,500

1031

MAUPERTUIS, PIERRE LOUIS MOREAU DE. 1698-1759.

La Figure de la Terre, determinee par les observations ... faites par Ordre du Roi au Cercle Polaire. Paris: De L'Imprimerie Royale, 1738.

8vo (192 x 125 mm.) xxiv, [4], 184 pp. Folding engraved map and 9 folding plates. Contemporary calf, spine gilt and with gilt-lettered spine label. Some faint foxing, endpapers browned, binding with repair to spine and corners.

Provenance: John Couch Adams 1819-1892, noted British astronomer and mathematician (bookplate).

FIRST EDITION of this report of an expedition to the Lapland to determine the shape of the earth. French mathematician Maupertuis, following the theories of Newton, believed the Earth to be oblate and was able to prove the theory as a result of the expedition. John Couch Adams was President of the Astronomical Society, Cambridge University Professor, and discovered Neptune.

US\$1,000 - 1,500



1031

1032

MORO, ANTON LAZZARO. 1687-1764.

De Crostacei E degli altri marini corpi che si trovano su' monti libri due. Venice: Stefano Monti, 1740.
4to (264 x 183 mm). [xiv], 452 pp. Engraved title-page vignette, headpiece and initial, 8 folding engraved plates. Contemporary mottled calf, gilt-lettered red leather spine label, spine gilt. A few stray marks, but internally clean, binding with some repair to joints and corners, but an excellent copy.

FIRST EDITION. Moro, an Italian abbot, geologist and naturalist, was the first to discriminate sedimentary rocks from volcanic ones. In the present work he discusses the fossils that he had found in mountains which led him to the conclusion that they had once been buried in the sea.

US\$1,000 - 1,500

1033

BOURQUET, LOUIS. 1678-1742 & PIERRE CARTIER.

Traité des petrifications avec figures. Paris: Briasson, 1742.
2 parts in one volume. 4to (258 x 188 mm). xvi, 163, [1 blank]; 91, [1] pp. 60 engraved folding plates. Contemporary mottled calf, gilt-lettered leather spine label, spine gilt. Some toning, plates quite clean, binding with some repair to joints and corners, a very good to excellent copy overall.
Provenance: Le Chevalier, Paris (blindstamp to f.f.e.p.); Veau Delauney (ownership inscription to gutter margin of title).

FIRST EDITION.

US\$1,500 - 3,000

1034

BARTHOLIN, THOMAS. 1616-1680.

De Unicornu observationes novae. Padua: Cribellianis, 1745.
A-T8 V10. 11 engravings in the text, title-page and colophon woodcut vignettes.
BOUND WITH: *Dissertatio de cygni anatome...* [Copenhagen]: Daniel Paulus, 1668. 96 pp. One full-page engraved plate.
2 volumes bound in one. 8vo (156 x 90 mm). Contemporary speckled calf, spine gilt. Fore-edge cut close, though not affecting text, covers slightly bowed, joints rubbed, shelfwear.

FIRST EDITION of Danish physician Bartholin's scientific examination on the likelihood of unicorns, and on horned creatures in nature and in mythology. Rarely seen in first edition. Also bound in is his work on the anatomy of the swan.

US\$1,000 - 1,500

1035

LEIBNITZ, GOTTFRIED WILHELM. 1646-1716.

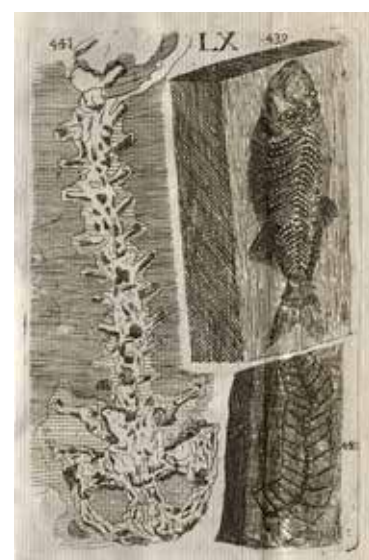
Svmmi polyhistoris ... Protogaea sive de prima facie telluris et antiquissimae historiae vestigiis in ipsis naturae monumentis dissertatio ex Schedis manuscriptis. Goettingen: Joh. Guil-Schmidt, 1749.
4to (224 x 167 mm). [4], XXVI, [2], 86 pp. 12 folding engraved plates. Later half calf over early speckled boards, gilt-lettered red leather spine label. Some foxing, text block partially separated from front endpapers, mild shelfwear.
Provenance: Henry & Carol Faul (bookplate).

FIRST EDITION of this posthumous publication on Earth's origin written by the German polymath in 1691-3, which led to much further study on fossils and the evolutionary history of the Earth.

US\$1,000 - 1,500



1032



1033



1034



1036

1036

MECATTI, GIUSEPPE MARIA.

Racconto storico-filosofico del Vesuvio.

Naples: Giovanni de Simone, 1752.

4to (226 x 177 mm). [8], CCCCXI pp. 5

folding engraved plates. Contemporary

vellum, gilt-lettered leather spine label.

Occasional foxing, some faint dampstain,

illegible early ownership signature to title,

repair to verso of some plates, binding soiled

and with shelfwear.

Provenance: H.C.C. (stamp with castle

decoration to title and subsequent leaf).

FIRST EDITION of this rare work on Vesuvius

with much on the activity of 1751/52.

US\$1,000 - 1,500

1037

TORRE, GIOVANNI MARIA DELLA. 1712-1782.

Storia e fenomeni del Vesuvio. WITH:

Supplemento all storia del Vesuvio. Naples:

Giuseppe Raimondi, 1755, [1761].

4to (266 x 202 mm). [viii], 120; 15 pp. 9

folding engraved plates. Early vellum, gilt-

lettered leather spine label. Light dampstain

to tail edge, some foxing, illegible stamp and

excised stamp to title, mild soiling to binding.

FIRST EDITION of this study of the volcanic

activity of Mount Vesuvius. This copy

complete with 1761 supplement that updates

the work with reportage of the 1760 eruption.

US\$1,200 - 1,800



1037

1038

BURTIN, FRANCOIS-XAVIER DE. 1743-1818.

Oryctographie de Bruxelles, ou description

des fossiles tant naturels qu'accidentel

découverts jusqu'à ce jour dans les environs

de cette ville. Brussels: Le Maire, 1784.

Folio (455 x 268 mm). 152 pp. Engraved title

by A. Pris after M. Speeckaert, 32 plates by

A. Pris, J. Balconi, de la Rue and others,

after Daveaux, M.J.Speeckaert, Balconi,

and others, all printed in sepia and many

finished by hand. Contemporary half calf over

marbled boards, gilt-lettered black morocco

spine label. Uncut, plate XII toned and with

spots, small dampstain in gutter margin at

tail, else internally clean, repairs to spine,

shelfwear.

FIRST EDITION, AN UNCUT COPY. Burtin

hunted for fossils, stones and petrified woods

in the vicinity of Brussels, making several

excavations including a hundred-foot-deep

shaft. An extremely lavish production charting

his discoveries, including several hitherto

unknown species. Nissen ZBI 769.

US\$3,000 - 5,000



1038

1039

THUNBERG, CARL PETER. 1743-1828.

Flora Japonica sistens plantas insularum Japonicarum. Leipzig: J.G. Muller, 1784.

8vo (202 x 112 mm). LII, [3]-418, [1 list of plates], [1 errata] pp. 39 folding engraved plates. Modern pigskin, gilt-lettered black spine labels. Foxed and toned.

Provenance: The William Beer Collection at the New York State Library, Albany (perforation stamp to title and bookplate laid in); Henry & Carol Faul (bookplate).

FIRST EDITION of the first flora of Japan. Thunberg was a student of Linnaeus and is sometimes referred to as the Japanese Linnaeus. Nissen 1959; Stafleu 1301.

US\$3,000 - 5,000

1040

SCHOEPF, JOHANN DAVID. 1752-1800.

Beyträge zur mineralogischen Kenntniß des östlichen Theils von Nordamerika und seiner Gebürge. Erlangen: Joh. Jakob Palm, 1787.

8vo (193 x 122 mm). [12], 194, [1 errata], [1 blank] pp. Early [original?] boards. Somewhat toned, binding with some repair to spine and corners, later paper title label to spine.

Provenance: H. Muhlenberg [Henry A.P.? U.S. Congressman, minister to Austria, and son of Henry Melchoir Muhlenberg] (ownership inscription); Frederick Ehrenfeld, geologist. (ownership signature and stamp).

FIRST EDITION. Schoepf came to America in 1777 as chief surgeon for the Ansbach regiment of Hessian troops fighting in the American Revolution. After the war he traveled for two years throughout the States, British Florida and the Bahamas studying the land as a scientist. The above work collects his observations on North American minerals and is considered by Howes to be the "first consequential work on American geology." This copy with excellent American provenance. Howes S175; Sabin 77754.

US\$3,000 - 5,000

1041

AMERICAN PHILOSOPHICAL SOCIETY.

Transactions of the American Philosophical Society Held at Philadelphia, for Promoting Useful Knowledge. Philadelphia: Aitken & Son, 1789.

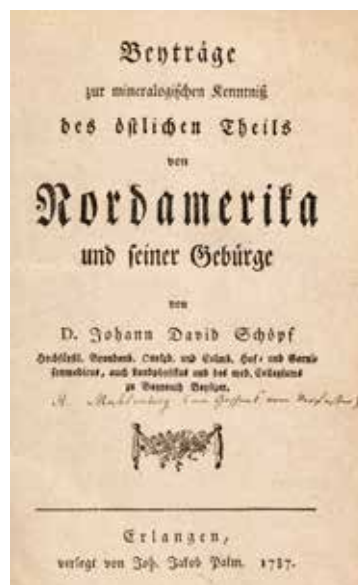
Volume I only. 4to (235 x 182 mm). xxiv, 407 pp. 8 engraved plates, 6 of which are folding; and 2 of which are duplicates. Contemporary mottled sheep over marbled boards, gilt-lettered leather spine label. Wanting map, some occasional browning and foxing, offset from plates, binding with some repairs to spine and corners.

SECOND EDITION, CORRECTED. The officers for 1770 included Benjamin Franklin as President, Joseph Galloway as one of the Vice Presidents, Thomas Mifflin as one of the Secretaries and Benjamin Rush as a Curator. Contents include much on mathematics and astronomy, agriculture including wine-making, medicine, engineering, etc. There is a particularly interesting abstract on a proposal to create canals in Pennsylvania, many years before the canal system was created and a letter from Hugh Williamson, M.D. on West-Florida. A fascinating look at the nascent years of American science.

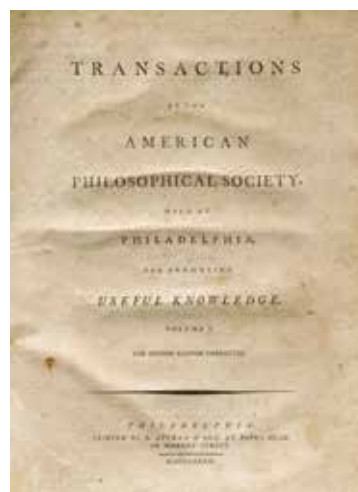
US\$1,000 - 1,500



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1042

PURSH, FREDERICK. 1774-1820.

Flora Americae Septentrionalis; or, A Systematic Arrangement and Description of the Plants of North America. London: White, Cochrane, and Co., 1814.

2 volumes. 8vo (205 x 126 mm). xxxvi, 358; [2], [359]-751 pp. 24 stipple-engraved plates. Early half green morocco over marbled boards, spine gilt, t.e.g. A few stray spots to first volume, some foxing to second, offset from some plates, binding with mild shelfwear.

Provenance: Mount Holyoak Seminary, gift from Mrs. Henry F. Durant (bookplate).

FIRST EDITION. "The first publication on plants from all of North America above Mexico, Pursh's *Flora* included more than 3,000 species and 470 genera, including the first descriptions of more than 100 species collected by the Lewis and Clark expedition" (ANB). Sabin 66728.

US\$1,000 - 1,500

1043

FISCHER VON WALDHEIM, GOTTHELF. 1771-1853.

Oryctographie du Gouvernement de Moscou. Moscow: Auguste Semen, 1830.

Folio (453 x 278 mm). IX, [1 blank], [28] pp. Hand-colored engraved vignette map to title, double-page hand-colored engraved map, 4 full-page engraved maps, and 61 engraved plates (2 of which are double-page, 7 of which with hand-coloring). Modern calf, spine gilt. A few brief tape repairs to title and half-title, light dampstain mainly to text only, a few leaves toned and with light foxing, but generally clean.

FIRST EDITION of this work by Fischer von Waldheim as Director of the Societe Imperiale des Naturalistes de Moscou, which he founded in 1805. Includes an excellent selection of plates detailing fossils found near Moscow, but also 16 plates that show a varied selection of the natural history of the area. An additional part, not included here, was published in 1837.

US\$2,500 - 3,000

1044

LYELL, CHARLES, SIR. 1797-1875.

Principles of Geology, Being an Attempt to Explain the Former Changes of the Earth's Surface, by Reference to Causes Now in Operation. London: John Murray, 1832-33.

3 volumes. 8vo (216 x 133 mm). xvi, 586; xii, 338; [iii]-xxxii, [1], 398, 109, [1] ad pp. 2 hand-colored aquatint engraved plates, 6 uncolored engraved plates, and 3 maps (2 hand-colored and 2 folding); numerous wood engravings in text. Contemporary half calf over marbled boards, gilt-lettered green morocco spine labels. Plates with some light foxing and offset to text, a few light spots to preliminary and final leaves, spines and corners rubbed, shelfwear.

Provenance: R.W.B. (bookplate); Hollingsworth (stamp to dedication leaves).

SECOND EDITION OF 1ST & 2ND VOLUME & FIRST EDITION OF 3RD VOLUME. A foundational text of modern science and a central influence on the theory of evolution. Lyell demonstrated that large-scale changes in the Earth's physical geography could be explained by uniform geological causes observable in the present day, rather than by catastrophic or biblical events. The implications of Lyell's study would have a profound effect on the development of evolutionary theory. *PMM* 344. Dibner 96; Grolier/Horblit 70; *Milestones of Science* 140; Norman 1398. [All first edition.]

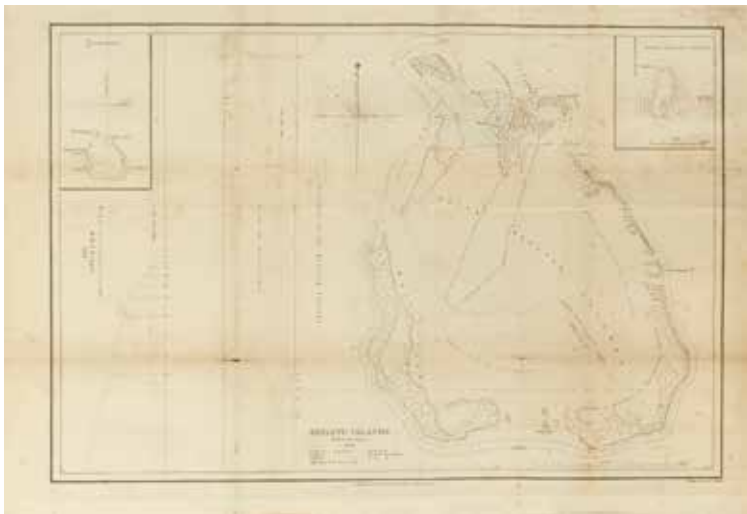
US\$1,000 - 1,500



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DARWIN, CHARLES, ROBERT FITZROY AND PHILIP PARKER KING.

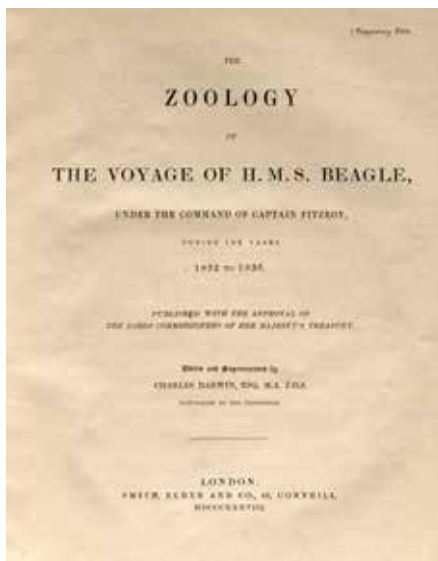
Narrative of the Surveying Voyages of the Adventure and the Beagle between the years 1826 and 1836, Describing Their Examination of the Southern Shores of South America, and the Beagle's Circumnavigation of the Globe. London: Henry Colburn, 1839. 4 volumes (including the appendix to vol II). 8vo. xxviii, [iv], 597, [1]; xiv, [iii], 694, [2]; viii, 352; xiv, 615 pp. With 47 engraved plates and 9 folding maps by J. Gardner and J. and C. Walker. Later half roan and cloth, spines gilt-lettered. Scattered toning/spotting, some dampstain to plates, closed fold and stub tears and some verso repairs to folding maps, erased ownership inscription from vol 1 title; light rubbing to binding extremities.

Provenance: Marshall Laird (Newfoundland bookplates). Six original photographs of Patagonia region, 1910s, pasted into inside covers, scattered expert marginalia (occasionally trimmed).

FIRST EDITION OF DARWIN'S FIRST PRINTED WORK. Volume III comprises the 23-year old Darwin's journal of his voyage on the *Beagle*, probably the most famous voyage of modern science. Darwin's investigations, notably in the Galapagos, provided the genesis of his theory of evolution (Hill, p 394).

THIS COPY WITH RARE PROSPECTUS FOR THE ZOOLOGY LAID IN. Measuring 171 x 105 mm it is a Smith, Elder advertisement slip for both Darwin's *The Zoology of the Voyage of H.M.S. Beagle* and *Geological Observations (with numerous maps and sections) made during the Voyage of H.M. Ship Beagle...* (foxing and an edge tear). Freeman 10; Hill I pp 104-5; Norman 584; Sabin 37826.

US\$12,000 - 18,000



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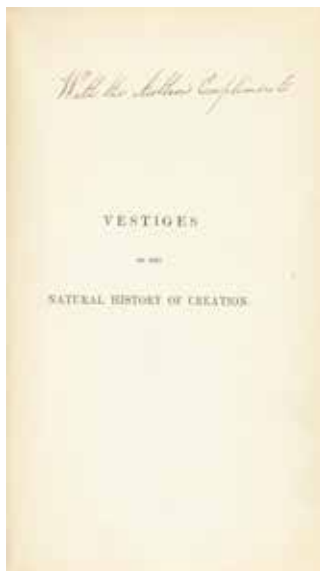
DARWIN, CHARLES. 1809-1882, & RICHARD OWEN 1804-1892.

The Zoology of the Voyage of H.M.S. Beagle, under the Command of Captain Fitzroy, during the Years 1832 to 1836. [Fossil Mammalia, Parts 1-3.] London: Smith, Elder and Co, 1838[-40].

Parts 1-3 only (of 4). Large 4to (307 x 232 mm). [2], iv, 40, [2 advert slip], [1 advert slip], 41-80, [8 advert insert] pp. 27 lithographed plates, 3 of which are folding. Modern quarter calf over pebbled reddish-brown cloth, spine titled in gilt. Large folding plate with repairs, occasional foxing to plates, a few leaves with closed tears, evenly toned, light shelfwear to binding.

FIRST EDITION of 3 parts only of the Fossil Mammalia section of the Charles Darwin edited *Zoology of the Voyage of H.M.S. Beagle*. Owen worked with the fossils that Darwin had collected and sent back to England including a number of interesting extinct mammals such as the *Toxodon Platensis*, the *Macrauchenia Patachonica*, the *Glossotherium*, the *Myodon*, and the *Scelidotherium Leptocephalum*. Rare.

US\$1,000 - 1,500



1047

1047

[CHAMBERS, ROBERT. 1802-1871.]

Vestiges of the Natural History of Creation. London: John Churchill, 1844.

8vo. vi, 390 pp. Original red cloth stamped in blind, spine gilt-lettered. Some light overall soiling, text block cracked in a couple of places, slight darkening to spine.

FIRST EDITION, PRESENTATION COPY OF THE FIRST FULL-LENGTH EXPOSITION OF AN EVOLUTIONARY THEORY IN ENGLISH, inscribed on the half-title, "With the Author's Compliments." "This outspoken statement of a belief in evolution, published anonymously to protect Chambers's reputation as a publisher, anticipated Darwin's *Origin* by 16 years and generally prepared the public for Darwin's theories. For a scientific book in the Victorian era, it became a sensational bestseller. Authorship was not revealed until the 12th edition (1884), 13 years after Chambers's death" (Garrison and Morton). With each new edition, Chambers patched up mistakes in his science, leading one of his critics to remark that his "deformities no longer appear so disgusting" and that had he begun with the revised version "he would have been more dangerous" (Desmond and Moore *Darwin*, 1992, p 321). Also of note is Chambers' lengthy reference to Charles Babbage's Difference Engine, beginning on p 206, as a metaphor for evolutionary change. GM 218, *Origins of Cyberspace* 5.

US\$1,000 - 1,500



1048

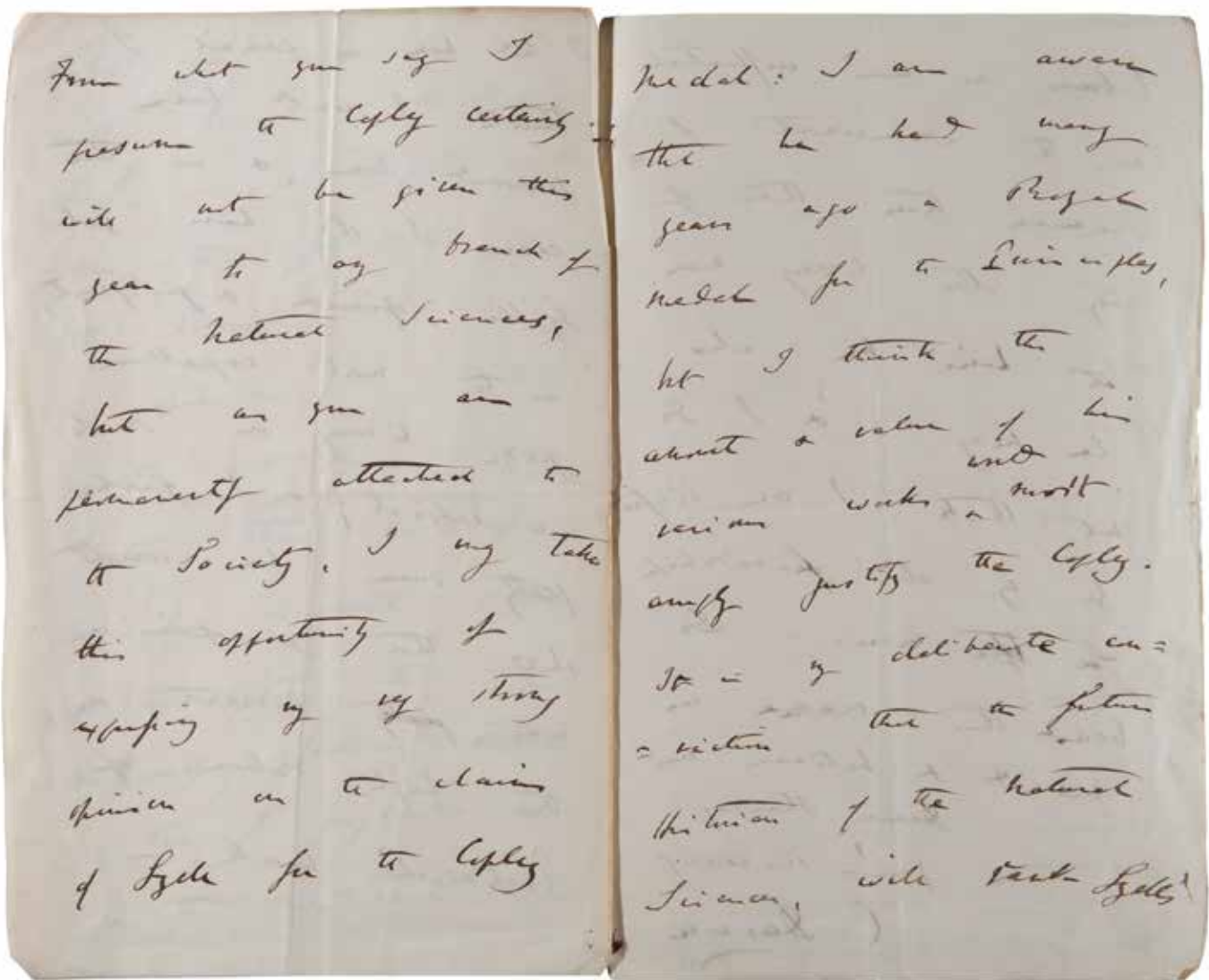
1048

HUMBOLDT, ALEXANDER VON. 1769-1859.

Kleinere Schriften. Stuttgart und Tübingen: J. G. Cotta'scher, 1853. 2 volumes. 8vo (205 x 125 mm) & oblong 4to atlas (207 x 310 mm). [4], VIII, 474, [1] pp. 6 folding tables. Atlas with engraved title and dedication leaf, 12 engraved plates and maps, one of which is hand-colored, and printed table of plates. Text in contemporary half black morocco over green pebbled cloth; atlas in original half brown cloth over boards, upper cover with printed title. Some generally light foxing, mostly affecting plate margins, atlas with boards rubbed.

FIRST EDITION of this work on the geology and volcanoes of Mexican and Andean cordillera.

US\$1,000 - 1,500



1049

"The way I try to judge of a man's merit is to imagine what would have been the state of the Science if he had not lived..."

1049

DARWIN, CHARLES. 1809-1882.

Autograph Letter Signed ("C. Darwin"), 7 pp recto and verso, 8vo (conjoined leaves), Down Bromley, Kent, May 22, [1857], to WILLIAM SHARPEY as Secretary of the Royal Society, the two notecards lightly stitched together at backfolds.

DARWIN EXPRESSES HIS MOST HEARTFELT ADMIRATION FOR LYELL: "MORE INFLUENTIAL IN THE ADVANCEMENT OF SCIENCE, THAN ... ANY OTHER LIVING MAN."

Darwin writes to William Sharpey, Secretary of the Royal Society, discussing the question of whom to award the Royal Medal and the even more prestigious Copley Medal for that year. Darwin expresses admiration for Albany Hancock's work (on the geographical ranges of marine species) and Joseph Prestwich's work on geological strata, recommending them both for a Royal Medal.

Far greater praise is reserved for Charles Lyell. Aware of Darwin's evolving ideas about natural selection, Lyell had recently (1856) strongly encouraged Darwin to publish his theories in order to

establish precedence over Wallace. Here, Darwin is not shy about expressing his "very strong opinion on the claims of Lyell for the Copley Medal." "It is my deliberate conviction that the future Historian of the Natural Sciences, will rank Lyell's labours as more influential in the advancement of Science, than those of any other living man, let him be who he may; & I do not think I am biased by my old friendship for the man." Curiously, as a post-script Darwin feels the need to further justify his high opinion of his colleague, giving some insight into how he viewed his contemporaries: "The way I try to judge of a man's merit is to imagine what would have been the state of the Science if he had not lived; & under this point of view I think no man ranks in the same class with Lyell."

For an additional context as to Lyell's personal importance to Darwin, also see the following lot.

US\$20,000 - 30,000

On the Tendency of Species to form Varieties; and on the Perpetuation of Varieties and Species by Natural Means of Selection. By CHARLES DARWIN, Esq., F.R.S., F.L.S., & F.G.S., and ALFRED WALLACE, Esq. Communicated by Sir CHARLES LYELL, F.R.S., F.L.S., and J. D. HOOKER, Esq., M.D., V.P.R.S., F.L.S., &c.

[Read July 1st, 1858.]

London, June 30th, 1858.

MY DEAR SIR,—The accompanying papers, which we have the honour of communicating to the Linnean Society, and which all relate to the same subject, viz. the Laws which affect the Production of Varieties, Races, and Species, contain the results of the investigations of two indefatigable naturalists, Mr. Charles Darwin and Mr. Alfred Wallace.

These gentlemen having, independently and unknown to one another, conceived the same very ingenious theory to account for the appearance and perpetuation of varieties and of specific forms on our planet, may both fairly claim the merit of being original thinkers in this important line of inquiry; but neither of them having published his views, though Mr. Darwin has for many years past been repeatedly urged by us to do so, and both authors having now unreservedly placed their papers in our hands, we think it would best promote the interests of science that a selection from them should be laid before the Linnean Society.

Taken in the order of their dates, they consist of:—

1. Extracts from a MS. work on Species*, by Mr. Darwin, which was sketched in 1839, and copied in 1844, when the copy was read by Dr. Hooker, and its contents afterwards communicated to Sir Charles Lyell. The first Part is devoted to "The Variation of Organic Beings under Domestication and in their Natural State;" and the second chapter of that Part, from which we propose to read to the Society the extracts referred to, is headed, "On the Variation of Organic Beings in a state of Nature; on the Natural Means of Selection; on the Comparison of Domestic Races and true Species."

2. An abstract of a private letter addressed to Professor Asa Gray, of Boston, U.S., in October 1857, by Mr. Darwin, in which

* This MS. work was never intended for publication, and therefore was not written with care.—C. D. 1858.

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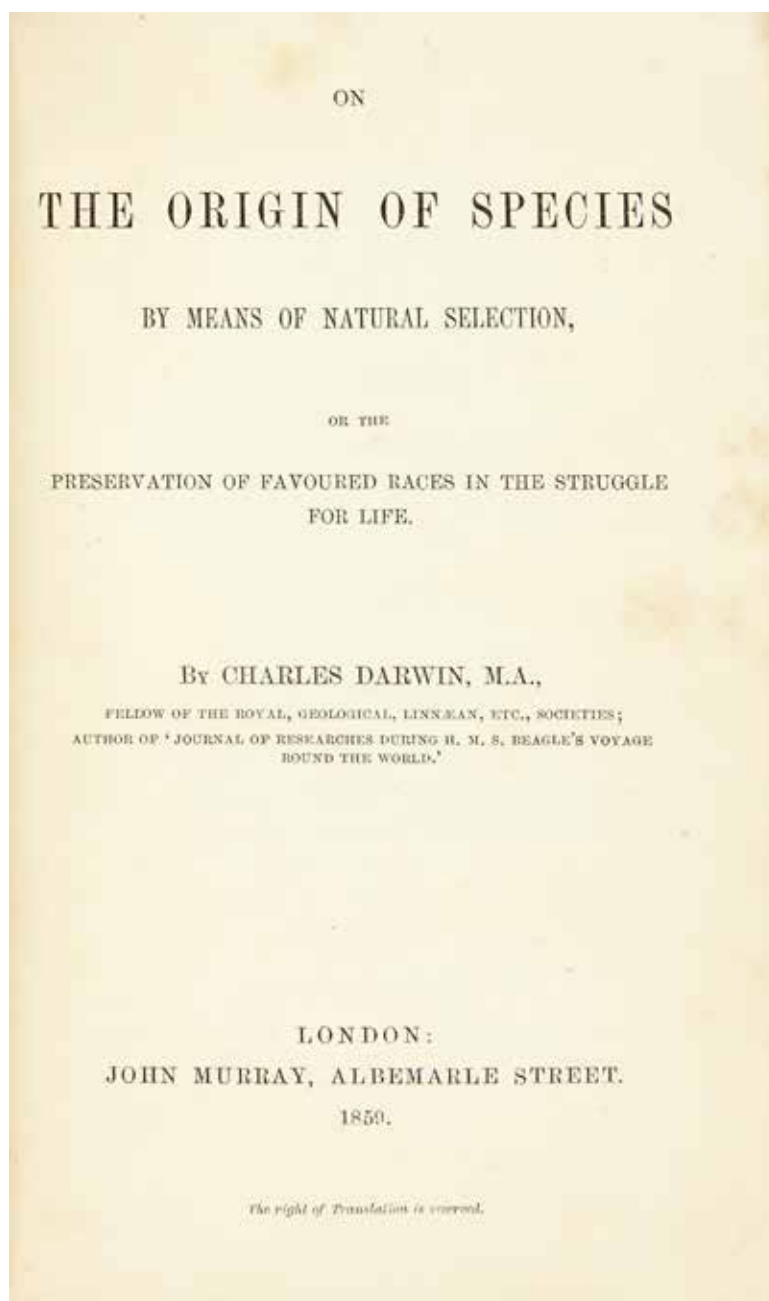
1050

DARWIN, CHARLES, AND ALFRED WALLACE.

"On the Tendency of Species to Form Varieties; and on the Perpetuation of Varieties and Species by Natural Means of Selection." [Extracted from: *Journal of the Proceedings of the Linnean Society. Zoology*. Vol. III. London: Longman, Brown, Green, Longmans & Roberts, and Williams and Norgate, August, 1858.] 8vo (225 x 137 mm). Pp 45-62. Comprising an introduction by Charles Lyell and Joseph Hooker and three papers: "Extract from an unpublished Work on Species by C. Darwin," "Abstract of a Letter from C. Darwin ... to Asa Gray, Boston, U.S., dated Down, September 5th, 1857," and "On the Tendency of Varieties to depart indefinitely from the Original Type" by Wallace. Bound in modern full morocco, spine gilt-lettered.

THE FIRST ANNOUNCEMENT OF THE THEORY OF EVOLUTION BY NATURAL SELECTION as presented to the Linnean Society on July 1, 1858, predating the publication of *On the Origin of Species* by more than a year. "In June 1858 Darwin received a letter from Wallace, then in the Malay Archipelago, which, in Darwin's own words, 'contained exactly the same theories as mine ... If Wallace had my manuscript sketch written in 1842, he could not have made a better abstract' ... Lyell and Hooker suggested simultaneous publication of Wallace's paper and passages from Darwin's unpublished monograph" (*PMM*) and in the foreword they argue for Darwin's priority. Neither author was present at the historic reading; Darwin was mourning his son and Wallace was still in Borneo. Freeman 347; Grolier/Horblit 23a; Grolier Medicine 70a; Norman 592; *Printing and the Mind of Man* 344a.

US\$15,000 - 25,000



1051

1051

DARWIN, CHARLES. 1809-1882.

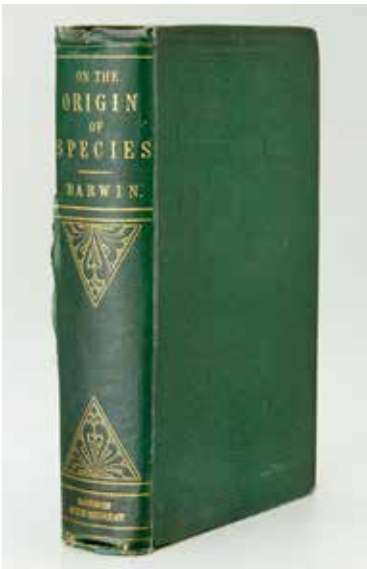
On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life. London: John Murray, 1859.

8vo in 12s. ix, [i], 502, + 32 pp publisher's ads dated June, 1859. 1 folding diagram. Later blue-green half morocco by Bayntun, top edge gilt. Few light spots at ends, some unevenly opened edges, repaired marginal tear to o2, few leaves dog-eared.

Provenance: Darwin Census No. 10035 (laid in slip).

FIRST EDITION, FIRST ISSUE OF ONE OF THE MOST IMPORTANT AND INFLUENTIAL WORKS OF THE 19TH CENTURY. "Darwin not only drew an entirely new picture of the workings of organic nature; he revolutionized our methods of thinking and our outlook on the natural order of things. The recognition that constant change is the order of the universe had been finally established and a vast step forward in the uniformity of nature had been taken" (*Printing and the Mind of Man* 344b). Dibner 199; Freeman 373; Garrison-Morton 220; Horblit 23b; Norman 593.

US\$25,000 - 35,000



1052

1052

DARWIN, CHARLES. 1809-1882.

On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life. London: John Murray, 1860.

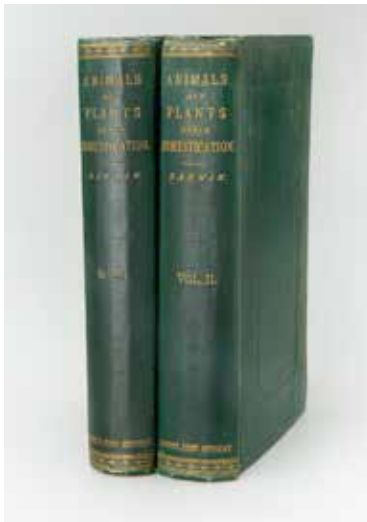
8vo. ix, [1], 502 + 32 ad pp. Half-title, ads dated January, 1860.

Original green cloth, blind-stamped and spine gilt-lettered. Hinges cracked, text block cracked in a couple of places, pencil notes at rear blank, light wear to lower joint and to cloth extremities.

Provenance: John Cunningham (ownership inscription to title dated January, 1860).

SECOND EDITION, second issue ("Fifth Thousand"). This copy with bookseller's ticket "J. Walmsley, Liverpool" on inside upper cover and with Edmonds & Remnants binder's label on inside lower cover. Freeman 176.

US\$1,500 - 2,500



1053

1053

DARWIN, CHARLES. 1809-1882.

The Variation of Animals and Plants under Domestication. London: John Murray, 1868.

2 volumes. 8vo (220 x 135 mm). viii, 411, [1] + 32 ad; viii, 486, [2 ad] pp. Ads dated April, 1867. Illustrated. Original green cloth, blind-stamped, spines gilt-lettered. Hinges cracked and showing, text blocks cracked in a few places, small tear from f.f.e. of vol 2, dampstain and some wrinkling to covers.

FIRST EDITION, FIRST ISSUE. This work "intended to provide overwhelming evidence for the ubiquity of variation" and refuted the idea "that variations had not occurred purely by chance but were providentially directed" (ODNB). It also included the first appearance of the phrase "survival of the fittest." Freeman 877; Garrison-Morton 224.1; Norman 597.

US\$1,200 - 1,800



1054

1054

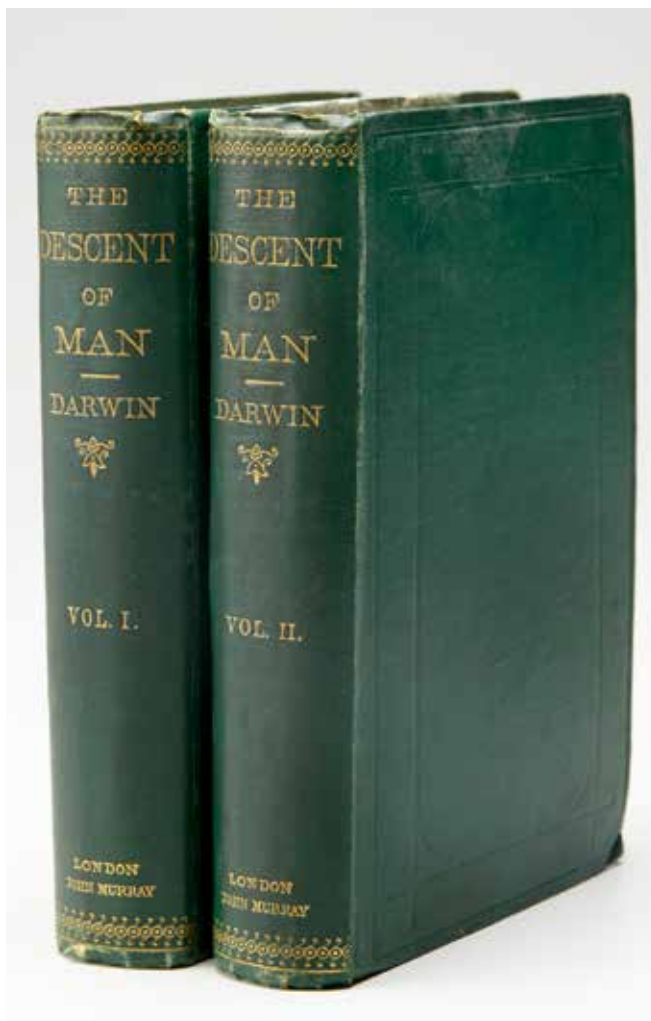
HOWARD, JOHN ELIOT. 1807-1883.

The Quinology of the East Indian Plantations. London, L. Reeve & Co., 1869-1876.

3 parts in 1 volume. Folio (495 x 351 mm). viii, [v]-x, 39, [1 blank], [v]-xiv, [2], [41]-115-[116] pp. 15 lithographs, 13 of which are hand-colored, 2 large mounted albumen photographs. Original green cloth stamped in gilt. One contents leaf sprung, several instances of light scattered foxing, somewhat toned, binding with minor shelfwear, but an attractive copy overall.

FIRST EDITION of this rare work on quinine grown in South East Asia.

US\$1,500 - 2,500



1055

1055

DARWIN, CHARLES. 1809-1882.

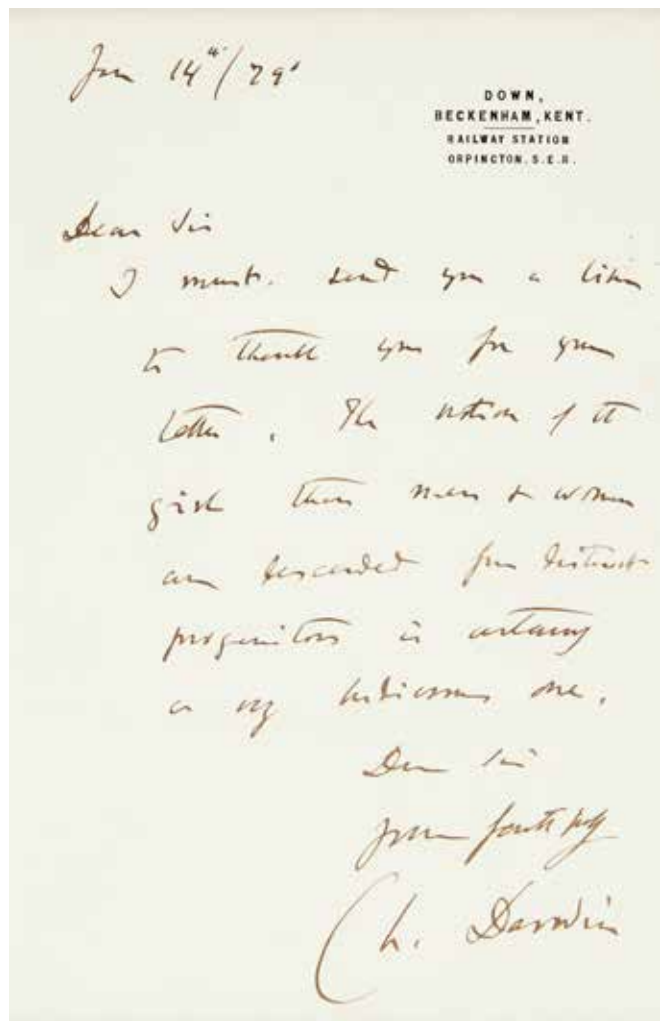
The Descent of Man, and Selection in Relation to Sex. London: John Murray, 1871.

2 volumes. 8vo (186 x 116 mm). viii, 423, [1] + 16 ad; viii, [2], 475, [1] + 16 ad pp. Half-titles and publisher's ads present in both volumes. Engraved illustrations. Original green cloth stamped in blind and gilt. Hinges cracked, lower hinges showing with some old glue, light wear to cloth extremities, ad leaves partially unopened.

Provenance: John Graham Berry (bookplates).

FIRST EDITION, FIRST ISSUE, with the errata on the verso of vol 2 title-page. Includes the first appearance of the word "evolution" in Darwin's works. Garrison & Morton 170; Freeman 937.

US\$4,000 - 6,000



1056

1056

DARWIN, CHARLES. 1809-1882.

Autograph Letter Signed ("Ch. Darwin"), 1 p, 8vo (conjoined blank), Down, January 14, 1879, to C.H. Blackley, with holograph transmittal envelope. Matted with steel-engraved portrait.

Provenance: formerly in the collection of Dr T.B. Robinson.

DARWIN ON THE HUMOR OF HUMAN ORIGINS. Darwin thanks Blackley for sharing an amusing anecdote from the provinces. Blackley had written just the day before to relate the story of a scientific lecture being given outside Lancashire. One of the attending youths, presumably to show off in front of the girls, had told them about Darwin's theory of evolution. One girl queried the lecturer on the truth of there being a man in London who claims men are descended from monkeys. On receiving a measured reply to the effect that Darwin has made a sound argument and that the change took place over a very long period of time, the girl replied that she didn't care how it was explained but that if it were true that men are descended from monkeys she is something glad that she is not a man!

Darwin calls the girl's notion, "certainly a very ridiculous one." Darwin Correspondence Project letter no 11826F.

US\$5,000 - 8,000

Mch. 8. 55.

Dear Mr. Bay

I have to thank you for a great service when on Saturday night you scared the burglars and so saved my safe and its contents. I should have been very sorry to have lost all the various medals which have been given to me and after this experience I do not trust the safe — they are in the bank.

I must apologise for my affairs having given you trouble and again thank you for your help.

Yours
Heming

1057 (enlarged)



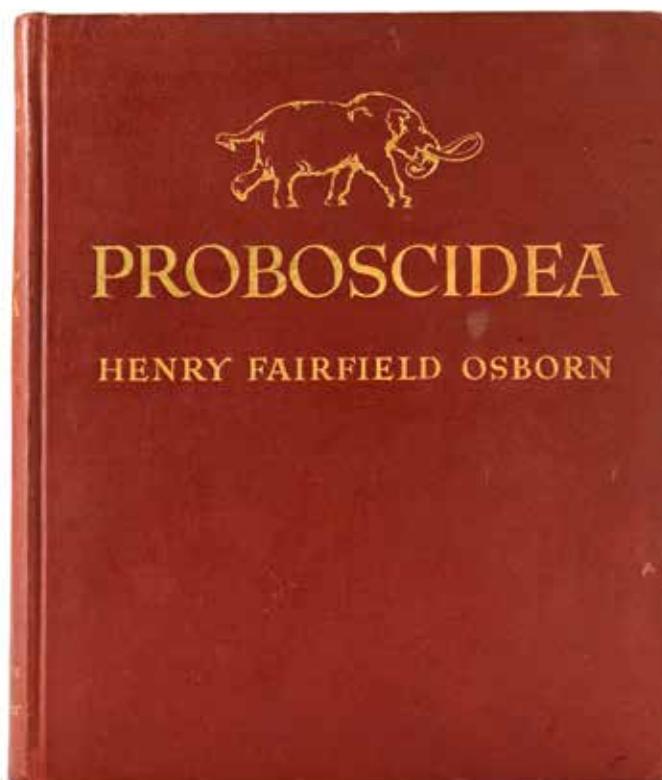
1057

1057

PENICILLIN.

FLEMING, ALEXANDER. 1881-1955. Original Penicillin Mold culture, preserved between two pieces of glass, each approx 50 mm in diameter, glass pieces sealed together with clear packing tape. Signed and dated on underside "Alexander Fleming / 1954". WITH: An Autograph Letter Signed ("Alexander Fleming"), 1 p, [London], March 8, 1955 to Mr Bax, thanking him for saving his home from burglary. AND: A Letter from Elizabeth Montgomery (presumed Fleming's housekeeper), 2 pp, Christchurch, England, n.d., to Mr and Mrs Bax, transmitting the current sample. *Provenance*: Bax Family (accompanying letters).

THE FIRST ANTIBIOTIC. Fleming's discovery of the antibacterial properties of penicillin is one of the most sensational in medical history. Fleming himself would say of it, "When I woke up just after dawn on September 28, 1928, I certainly didn't plan to revolutionise all medicine by discovering the world's first antibiotic, or bacteria killer. But I suppose that was exactly what I did." He had left a stack of staph cultures in his study next to an open window where they were contaminated by an airborne mold during his holiday. Before disposing of the cultures, he noticed that the mold had prevented normal growth by the staph. Fleming's incredible discovery was somewhat neglected until it was taken up by Howard Florey and his assistant Ernst Chain in 1938, barely in time for World War II. By the end of the War, vast quantities of penicillin were produced every month saving untold millions of lives. In 1945, Fleming, Florey and Chain were jointly awarded the Nobel Prize in Medicine. Interestingly, the current penicillin culture directly relates to that Prize. It was given by Fleming and his housekeeper to their neighbors, the Bax family, in 1955. Mr Bax had scared off some burglars from Fleming's home and in his letter of thanks Fleming



1058

specifically says Mr Bax, "saved my safe and its contents. I should have been very sorry to have lost all the various medals which have been given to me and after this experience I do not trust the safe—they are in the bank." This makes this sample all the more piquant as presumably the Nobel Prize medal itself had been in the safe. The letter from Fleming's housekeeper is also of interest. Of the present "souvenir of the Fleming family" she writes: "P.S. As though you didn't know - but just in case - this round affair is a blob of the original Mould of Penicillin, not to be confused with Gorgonzola cheese!!!"

US\$10,000 - 15,000

1058

OSBORN, HENRY FAIRFIELD. 1857-1935.

Proboscidea, a Monograph of the Discovery, Evolution, Migration and Extinction of the Mastodonts and Elephants of the World. New York: American Museum Press, 1936-1942. 2 volumes. 4to (325 x 267 mm). Edited by Mabel Rice Percy. xl, 802; xxvii, [1], [805]-1675, [1 errata] pp. Profusely illustrated. Original red cloth stamped in gilt. Some toning, 2 newspaper clippings pasted to front flyleaf of 2nd volume, stamps removed from spines, some shelfwear. *Provenance*: St. Bernard Library, Alabama (perforated stamps); J.A. Phillips (ownership signatures in first volume).

LIMITED FIRST EDITION, 464 of 675 copies.

US\$1,000 - 1,500

MOLECULAR STRUCTURE OF NUCLEIC ACIDS

A Structure for Deoxyribose Nucleic Acid

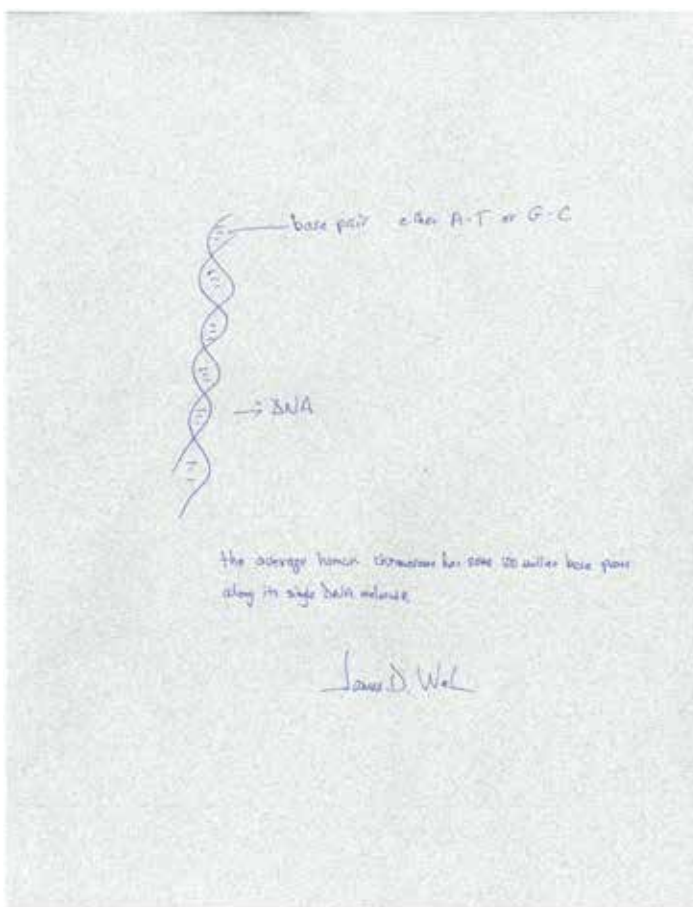
WE wish to suggest a structure for the salt of deoxyribose nucleic acid (D.N.A.). This structure has novel features which are of considerable biological interest.

A structure for nucleic acid has already been proposed by Pauling and Corey¹. They kindly made their manuscript available to us in advance of publication. Their model consists of three intertwined chains, with the phosphates near the fibre axis, and the bases on the outside. In our opinion, this structure is unsatisfactory for two reasons:

(1) We believe that the material which gives the X-ray diagrams is the salt, not the free acid. Without the acidic hydrogen atoms it is not clear what forces would hold the structure together, especially as the negatively charged phosphates near the axis will repel each other. (2) Some of the van der Waals distances appear to be too small.

Another three-chain structure has also been suggested by Fraser (in the press). In his model the phosphates are on the outside and the bases on the inside, linked together by hydrogen bonds. This structure as described is rather ill-defined, and for this reason we shall not comment on it.

We wish to put forward a radically different structure for the salt of deoxyribose nucleic acid. This structure has two helical chains each coiled round the same axis (see diagram). We have made the usual chemical assumptions, namely, that each chain consists of phosphate di-ester groups joining 5'-deoxyribofuranose residues with 3',5' linkages. The two chains (but not their bases) are related by a dyad perpendicular to the fibre axis. Both chains follow right-handed helices, but owing to the dyad the sequences of the atoms in the two chains run in opposite directions. Each chain loosely resembles Furberg's model No. 1; that is, the bases are on the inside of the helix and the phosphates on the outside. The configuration of the sugar and the atoms near it is close to Furberg's "standard configuration", the sugar being roughly perpendicular to the attached base. There is a residue on each chain every 3.4 Å. in the z-direction. We have assumed an angle of 36° between adjacent residues in the same



1059

1060

"It has not escaped our notice that the specific pairing we have postulated immediately suggests a possible copying mechanism for the genetic material."

1059

WATSON & CRICK: THE DISCOVERY OF THE STRUCTURE OF DNA.

1. WATSON, JAMES D., AND FRANCIS H.C. CRICK. "Molecular Structure of Nucleic Acids. A Structure for Deoxyribose Nucleic Acid." In: *Nature* offprint, Vol 171, [St. Albans], April 25, 1953, pp 737-[750]. Small 8vo. Offprint also contains "Molecular Structure of Deoxypentose Nucleic Acids" by M.H.F. WILKINS, A.R. Stokes, and H.R. Wilson and "Molecular Configuration in Sodium Thymonucleate" by Rosalind E. FRANKLIN and R.G. Gosling. Three papers in one offprint, a single stapled gathering with a final leaf tipped onto the inner margin of [A]6r as issued.

2. CRICK, F.H.C. *The Structure of the Hereditary Material*. Offprint of: *Scientific American*, October 1954. 4to. 8 pp.

3. CRICK, F.H.C. *Nucleic Acids*. Offprint of: *Scientific American*, September 1957. 4to. 12 pp.

Together, 3 items. Each illustrated with half-tone and line illustrations. Few light handling marks, but overall very fine. Housed together in a folding cloth chemise and full morocco clamshell box.

Provenance: chemical biologist Stephen Neidle[?] A Typed Letter Signed from Maurice WILKINS to Neidle, January 16, 1985 is included with the group.

THE RARER 3-PAPER OFFPRINT ISSUE OF THE FIRST PUBLISHED ACCOUNT OF THE MOLECULAR STRUCTURE OF DNA ALONG WITH TWO FURTHER RARE OFFPRINTS BY CRICK EXPANDING HYPOTHESES OF DNA'S REPLICATION METHOD. Of the primary paper two offprint issues were produced: the first simply reprinted Watson and Crick's paper, and the present second issue reprinted the three key papers that provided a full explanation of the background to the discovery. For the 3-paper offprint issue, the text

of the papers was partially reset, printed as a single column on a small octavo page (as opposed to the double-column octavo pages of the journal issue), and re-paginated. The print run would have been small and, although it is difficult to ascertain the exact number of copies printed, this issue is considerably rarer than the journal issue.

The two other scarce offprints both expand on Crick's work to explain how DNA functions as a hereditary agent. The 1954 article includes a model of how DNA might replicate. The 1957 article presents Crick's "Central Dogma" to the effect that proteins are not vectors of information.

US\$5,000 - 7,000

1060

WATSON, JAMES D. B.1928.

Autograph Quotation with Diagram Signed ("James D. Watson"), on single sheet of gray wove paper, [Cold Spring Harbor Laboratories, 2009], with transmittal envelope to the collector.

DEPICTING THE DOUBLE-HELIX OF DNA AND SIGNED BY WATSON. Watson has both labeled the sketch, "DNA" and "base pair either A-T or G-C" and captioned it below, "the average human chromosome has some 100 million base pairs along its single DNA molecule." An attractive manuscript memorializing Watson and Crick's discovery of the double-helix structure of DNA.

US\$1,000 - 1,500

MATHEMATICS, PHYSICS & CHEMISTRY

Lots 1061-1085



1061

NEWTON, ISAAC. 1642-1727.

Autograph Manuscript in English, Signed Integrally ("Isaac Newton"), 1 p, folio (298 x 183 mm), [n.p.], c.1705, tracing the descent of himself, "Isaac Newton born December 1642", back to John Newton of Westby. Light soiling, silked repairing a closed tear in lower right corner.

Provenance: Viscount Lymington (his sale of the Newton Papers at Sotheby's in 1936, lot 177), eventually acquired by John Maynard Keynes.

In preparation for his knighthood in 1705, and ever-cognizant of his relatively humble upbringing, Newton began to take a deep interest in the matter of his own genealogy. According to Brewster, later that year Newton presented to the Herald's Office "an elaborate pedigree, stating upon oath that he had reason to believe that John Newton of Westby, in the county of Lincoln, was his great-grandfather's father..." This is a pedigree which Newton apparently came to doubt later in life, when he favored an alternative theory that his great-grandfather had been a Scot.

A worthy testament to Newton's preoccupation with his own heritage, as well as his incessant need to organize and codify all kinds of information. The handful of crossed-out corrections and inter-linear additions suggest this was a working copy, perhaps in preparation for the pedigree presented to the Herald's Office. The "Newton" name here appears in his own hand 19 times, twice as "Isaac Newton," once for his father and once for himself.

US\$50,000 - 70,000

John Newton of Westby in Lincolshire
descended from Newton of Lancaster

John Newton
born 1516

Thos. Newton
born

Rich. Newton

William Newton of Gunningby in
Lincolnshire born 1534
died 1584 Ann 8 of
Katherine of Ropely 3rd wife
of John Newton, to whom of Ropely
Weyen & afterwards the wife of
John Newton.

Thos. Newton of Gunningby
married Eliz. 5th of Thos.
Parker of Kibworth d. line
born 1565 died 1580

John Newton 8 years old
1634, born 1526

Richard Newton died about 78 or 80 years old &
left the name of his estate to Thos. Newton in the year
1533 or thereabouts & Thos. Newton was about
88 or 89 years old when his son John Newton
was born & therefore was born about 7 years
1507 & Richard Newton was born about 7 years
1554

John Newton of Bitchfield in Lincolnshire.

Michael Newton of Kirk Stoke in Lincolnshire son &
heir of 7th said John Newton An 4th Eliz. July 2
(1562) sold a farm & cottage in Woolthorpe to Collyer
to John Newton of Bitchfield who, by the name of

John Newton of Westby in line. Decemb 19th Ann 8
Eliz. 1562, sold the same, upon his son Rich. Newton
& his heirs &c. to whom it has ever since descended
in a right line.

* Richard Newton George. Robert. Simon. William
born 1562

Richard Newton
born 1562
Richard, sold Richard, or before,
purchased the Manour of Woolthorpe 1623,
died 1640. line.

Richard
of Woolthorpe
born 1575

Richard Newton born 1575
died 1642
Richard Newton born 1575
died 1642
Richard Newton born 1575
died 1642

Isaac Newton born Decemb 2 1642.

Robert
of Conington
born 1605

Richard
of Conington
born 1605

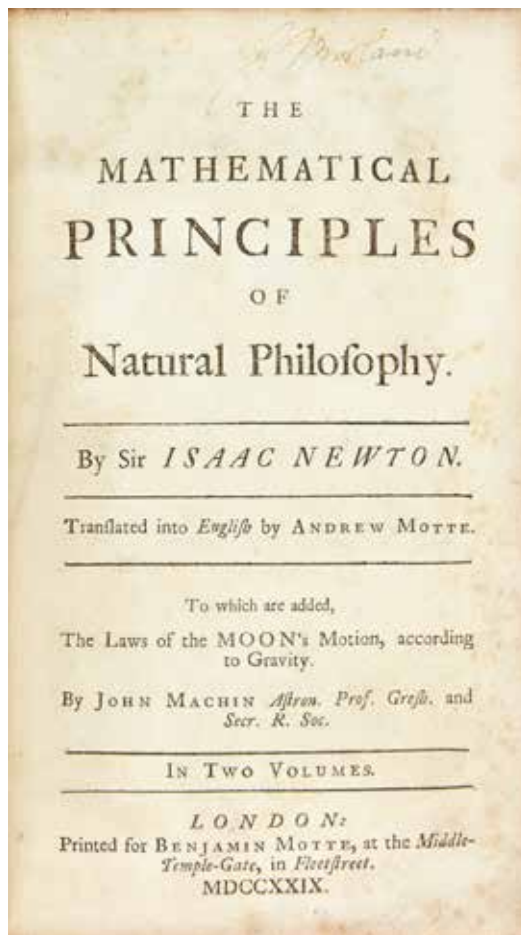
Richard
born 1605

Robert
of Conington
born 1605

Richard
born 1605



1062



1062

1062

NEWTON, ISAAC. 1643-1727.

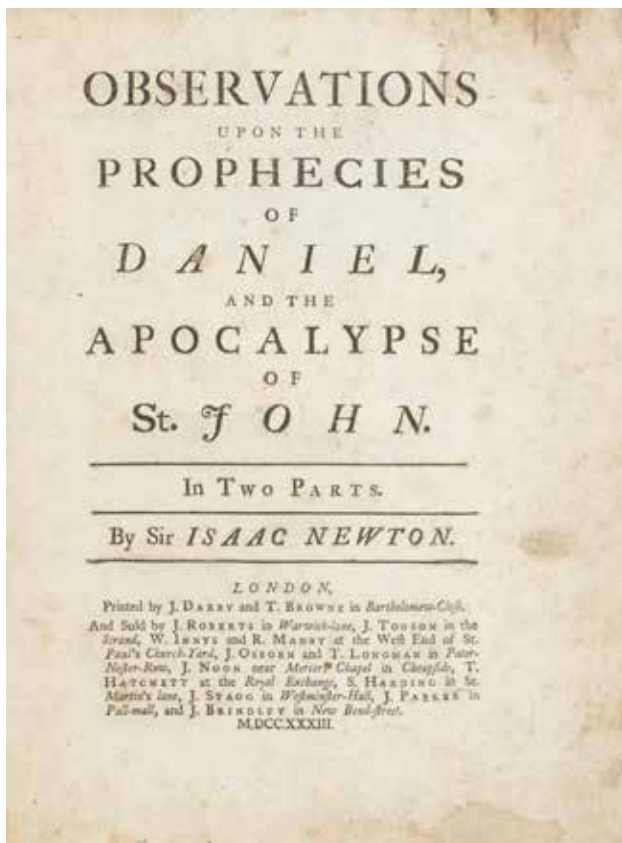
The Mathematical Principles of Natural Philosophy. London: Benjamin Motte, 1729.

2 volumes. 8vo (194 x 111 mm). [38], 320; [2], 393, [13], viii, 71, [1 errata] pp. "The Laws of the Moon's Motion" section by John Machin bound at the end of volume 2. With 2 engraved allegorical frontispieces, 47 engraved folding charts on full aprons, 2 folding tables, other illustrations and tables in text. Modern full speckled calf antique, spines gilt-lettered, morocco spine labels. Frontispieces remounted, closed tear to pl 8 (vol 1), some pale gutter dampstain, plates in vol 2 toned, minor occasional soiling, narrow marginal worming to last few leaves of vol 1.

Provenance: G. Morland (ownership inscription to vol 1); James Irwin (ownership inscription to vol 2, dated 1793).

FIRST EDITION OF THE PRINCIPIA IN ENGLISH. First published in Latin in 1687, followed by a second edition in 1713, this translation was made by Andrew Motte. He was the brother of the printer Benjamin Motte, and the author of *A Treatise of the Mechanical Powers* (1727). "The *Principia* is generally described as the greatest work in the history of science. Copernicus, Galileo and Kepler had certainly shown the way; but where they described the phenomena they observed, Newton explained the underlying laws" (PMM 161). Babson 20; Wallis 23.

US\$20,000 - 30,000



1063

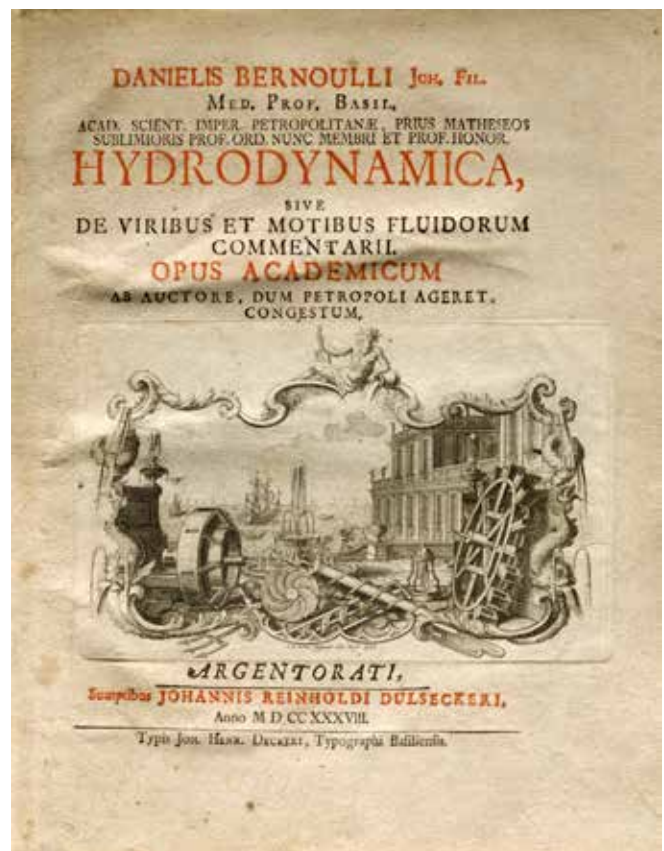
1063

NEWTON, ISAAC. 1643-1727.

Observations upon the Prophecies of Daniel, and the Apocalypse of St. John. London: printed by J. Darby and T. Browne, 1733. 4to (258 x 190 mm). vi, [2], 323 pp. Contemporary calf. Soiling to title, some scattered marginal soiling, small loss to blank corner of last page of text, chipping to joints.

FIRST EDITION. Babson 224.

US\$400 - 600



1064

1064

BERNOULLI, DANIEL. 1700-1782.

Hydrodynamica, sive De viribus et motibus fluidorum commentarii. Strasbourg: Johann Heinrich Decker for Johann Reinhold Dulsecker, 1738. 4to (255 x 205 mm). [8], 304 pp. 12 engraved folding plates, large engraved title-page vignette, engraved headpiece. Early 19th century burgundy morocco, rebaked, custom slipcase. Some mild browning, several stray marks, repairs to boards. Provenance: Robert Elmer Horton (bookplate). Considered the father of modern hydrology.

FIRST EDITION of the chief work by the Swiss mathematician and physicist. The work deals with fluid mechanics and lead to its naming as hydrodynamics. Bernoulli discusses hydrodynamic pressure, hydraulic machines and he discusses the first model of the kinetic theory of gasses.

US\$5,000 - 7,000

1065

LUCINIO, PAULLO.

Opticae iuxta Newtonianas leges...libri quatuor. Parma: Giambattista Bodoni, 1793. 8vo (228 x 146 mm). VIII, 119 pp. Contemporary mottled calf over marbled boards, gilt-lettered red leather spine label. Uncut, light foxing, mainly to preliminary and final leaves, else generally clean, binding with light shelfwear.

Rare Bodoni imprint. No copies located on Rare Book Hub.

US\$1,000 - 1,500



1066

1066

HAMILTON, WILLIAM ROWAN. 1805-1865.

Three Items: Autograph Document Signed in Initials ("WRH"); Autograph Letter Signed Integrally ("Sir William Rowan Hamilton"); and a Letterpress Document accomplished in Autograph Manuscript and Signed ("William Rowan Hamilton"), 3 pp in all, 4to, Dublin, 1841. Slight loss to fold and lower left corner of two documents, affecting a few letters.

RARE AUTOGRAPHS BY THE INVENTOR OF HAMILTONIAN MECHANICS AND QUATERNIONS, all supporting documents for Hamilton's inclusion in Charles Dodd's *Peerage* and with markings suggesting that they derive from Dodd's files. One document is a printed questionnaire filled out completely by Hamilton with responses to questions on his descent, marriage, profession ("Andrews' Professor of Astronomy in Trinity College, Dublin"), and residence ("Observatory of Trinity College Dublin"). Another is a manuscript copy of an extract from the Dublin Gazette announcing Hamilton's knighthood, signed by Hamilton for Dodd's records; and the last is a personal letter to Dodd, apologizing for the lateness of his response and hoping that Dodd will still be able to include him in the upcoming *Peerage*.

A rare grouping of autographs by the Irish physicist, mathematician, and Royal Astronomer famous for his contributions to dynamics, optics, and algebra (in particular the creation of Quaternions, a system of 3-dimensional complex numbers). The Hamiltonian operator in quantum physics testifies to the continued relevance of his important work on dynamics.

US\$3,000 - 5,000



1067

1067

VAN DER WAALS, JOHANN DIDERIK. 1837-1923.

Autograph Letter Signed ("J. D van der Waals"), in French, including several formulae, 3 pp recto and verso, 8vo (conjoined leaves), Amsterdam, June 22, 1898, to HENRI BECQUEREL, with original holograph envelope, additionally signed "J.D v d Waals" in lower left corner (postage stamp removed).

DETAILED AND RARE SCIENTIFIC LETTER FROM VAN DER WAALS TO BECQUEREL. Van der Waals critiques a recent note by Daniel Berthelot which had appeared in the *Comptes Rendues* of the Académie des Sciences, and requests Becquerel to ensure that his response is transmitted to the Académie on his behalf. He accuses Berthelot of re-packaging his own formula describing the mixture of two gases as laid out in an article on the subject in 1891, and gives arguments about the best expressions to represent the variables A and B in his equation. Despite these advances Van der Waals predicts that further forces will be discovered governing the behavior of molecules: "l'attraction moléculaire ne dépend pas simplement du poids moléculaire, mais possède quelque chose de spécifique, dont on n'a pas encore trouvé la cause, mais qui pourtant subsiste."

The letter was duly published by Becquerel, as directed, in the *Comptes rendus hebdomadaires des séances de l'Académie des sciences*, Vol CXXVI, pp 1856-1857 (1898).

US\$4,000 - 6,000

9 9

Recd June 16 1904
agk



04 June 13
1904 June 13

10

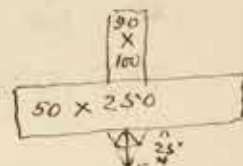
Recd June 16 1904
agk



04 June 13
1904 June 13



See Lab. 1904 June 27/1-31
Long-tailed Oionos
Kite of red silk



Head frame 209 gms
Tail piece 357 gms
Wing piece 819 gms
Total weight 1385 gms

Surface 5 m²

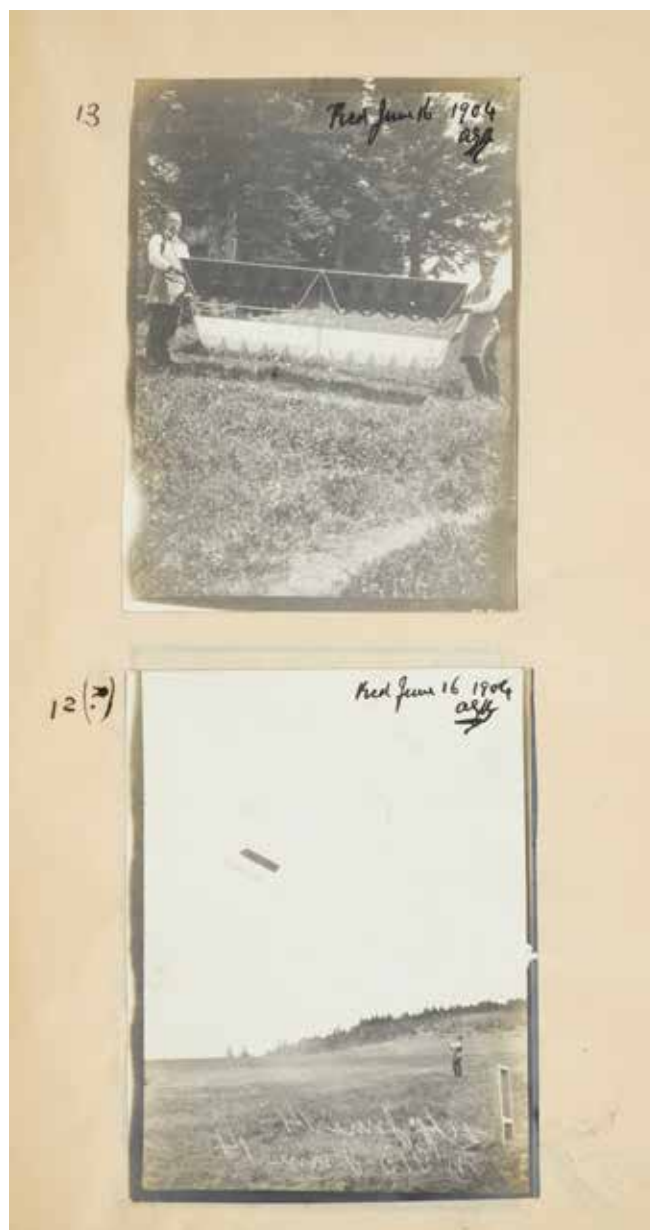
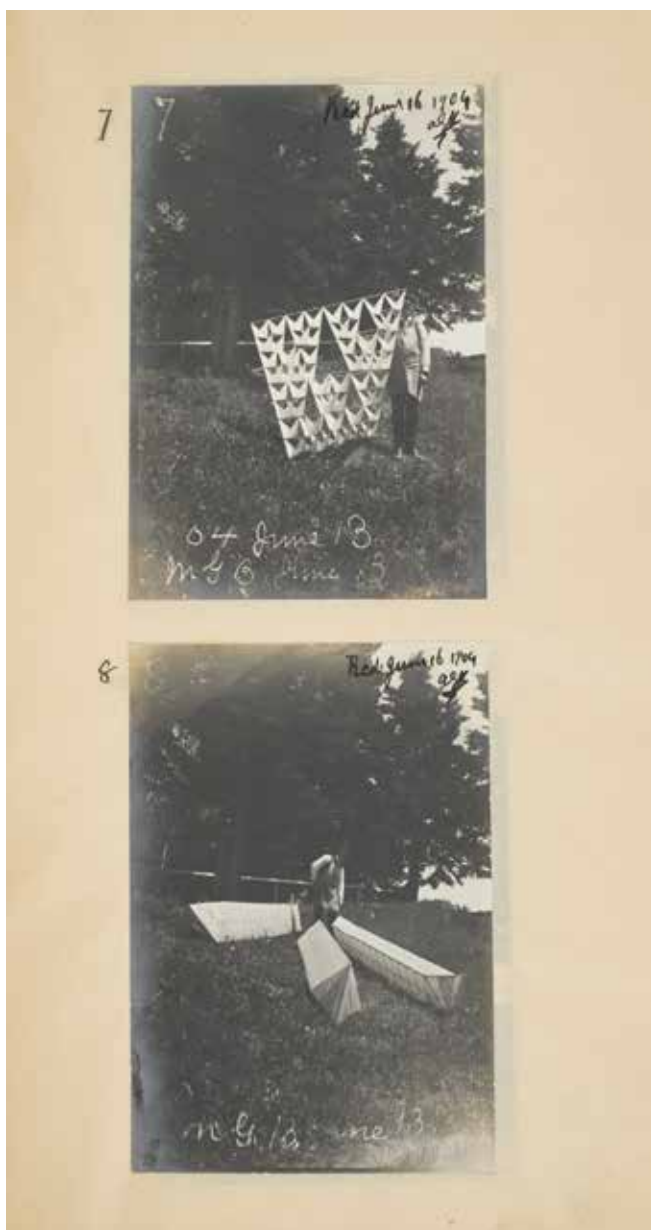
Flying weight 277 gms per m²



Tail-piece
weight 357 gms
Surface 0.5 m²
Ratio 714 gms per m²

Wing-piece
weight 819 gms
Surface 4.5 m²
Ratio 182 gms per m²

Long-tailed Oionos
of red silk.
No 55-56



1068

BELL, ALEXANDER GRAHAM. 1847-1942.

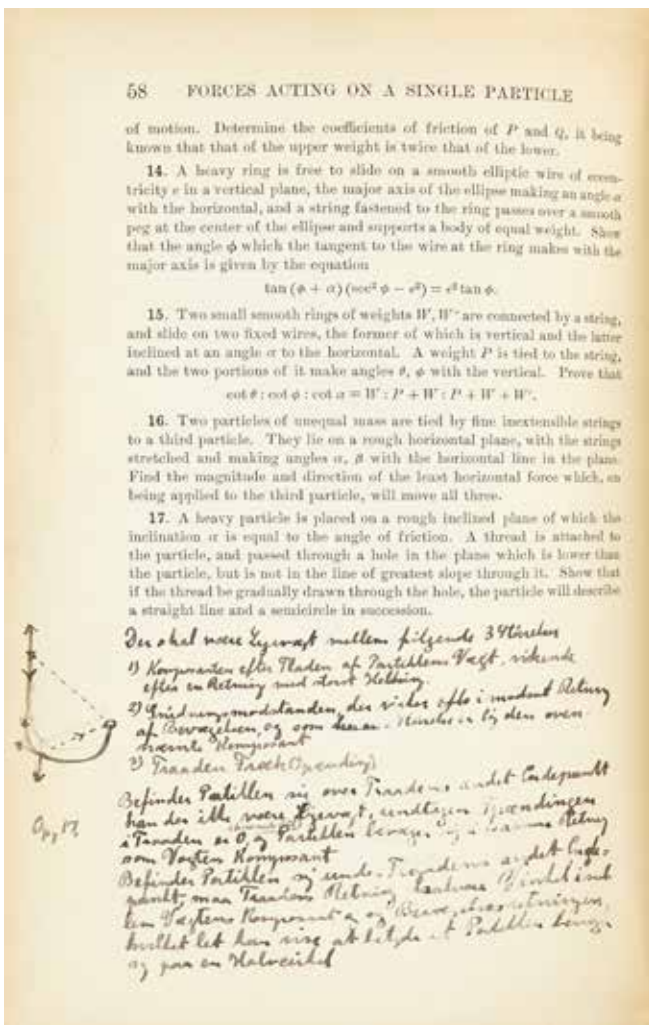
Photograph Album, entitled "Photographs taken at Beinn Bhreagh, 1904" (typed paper label on front), comprising approximately 320 gelatin silver prints, nearly all 3 x 4 inches and mounted two to a page (rectos only), dated and signed in initials by Bell ("A.G.B."), Beinn Bhreagh, Nova Scotia, dated June 16, 1904 to December 20, 1904 with the majority being from the summer. In original cloth-bound album. Occasional silvering or fading to photographs, light wear to album covers; overall excellent.

Provenance: Catherine D. MacKenzie (d.1949), Bell's biographer and his secretary in Nova Scotia (according to information supplied by the current owner).

STUNNING, ANNOTATED PHOTOGRAPH ALBUM DETAILING BELL'S EXPERIMENTS WITH TETRAHEDRAL KITES which led to the development of the aileron (wing flap) and solutions for the problem of aircraft stability generally. In this album, Bell is most excited about his "long-tailed Oionos" kite of red silk and several photographs

from June 30th bear long annotations by him and diagrams. The "Oionos" form was eventually used in the "Oionos 1" a tetrahedral triplane designed for powered and manned flight. About 19 photographs have annotations by Bell and nearly all are initialed by him. Photographs show tetrahedral kites in construction and in the air in a wide variety of shapes and sizes: horseshoes, rings, towers, etc. He employed local seamstresses and carpenters and even a draft horse, all of whom occasionally appear in the photographs. Just five of the photographs (appearing on one leaf) are slightly smaller and not initialed by Bell, these were taken by Bell's wife Mabel on July 28, 1904 and depict the family tugging on kite ropes. One of these depicts a small child clinging to the lead (not quite manned flight). There are other of Bell's photograph albums pertaining to kite experimentation in the Gilbert H. Grosvenor Collection at the Library of Congress; but an example such as this in private hands is very rare.

US\$50,000 - 80,000



1069

1069

[BOHR, NIELS. 1885-1962.]

JEANS, JAMES HOPWOOD. 1877-1946. *An Elementary Treatise on Theoretical Mechanics*. Boston etc: Ginn & Co, [1907].

8vo. 364 pp + advertisements. With numerous diagrams in text. Original publisher's cloth.

Provenance: NIELS BOHR (ownership signature "Niels Bohr," ownership stamp, and several annotations in text, see below).

BOHR'S COPY OF AN IMPORTANT STUDENT TEXTBOOK IN DYNAMICS WITH BOHR'S AUTOGRAPH ANNOTATION. Bohr arrived at Cambridge in 1911 where he took several of Jeans' courses, including statistical mechanics and radiation theory. A classmate (William Bragg) described Bohr as "a strange young man [who] used to draw me aside and explain at enormous length just where Jeans was wrong." In addition to the two signatures of Bohr, there is a lengthy manuscript note with diagram on p 58 offering an elegant solution to one of Jeans' example problems; penciled brackets on pp 92-3; and several penciled equations and a diagram on p 309. Scientific autographs by Bohr are very rare at auction, and the present is an unusual and distinctive form linked in time with Bohr's early scientific career and his ground-breaking 1913 work on the constitution of the atom.

US\$4,000 - 6,000



1070

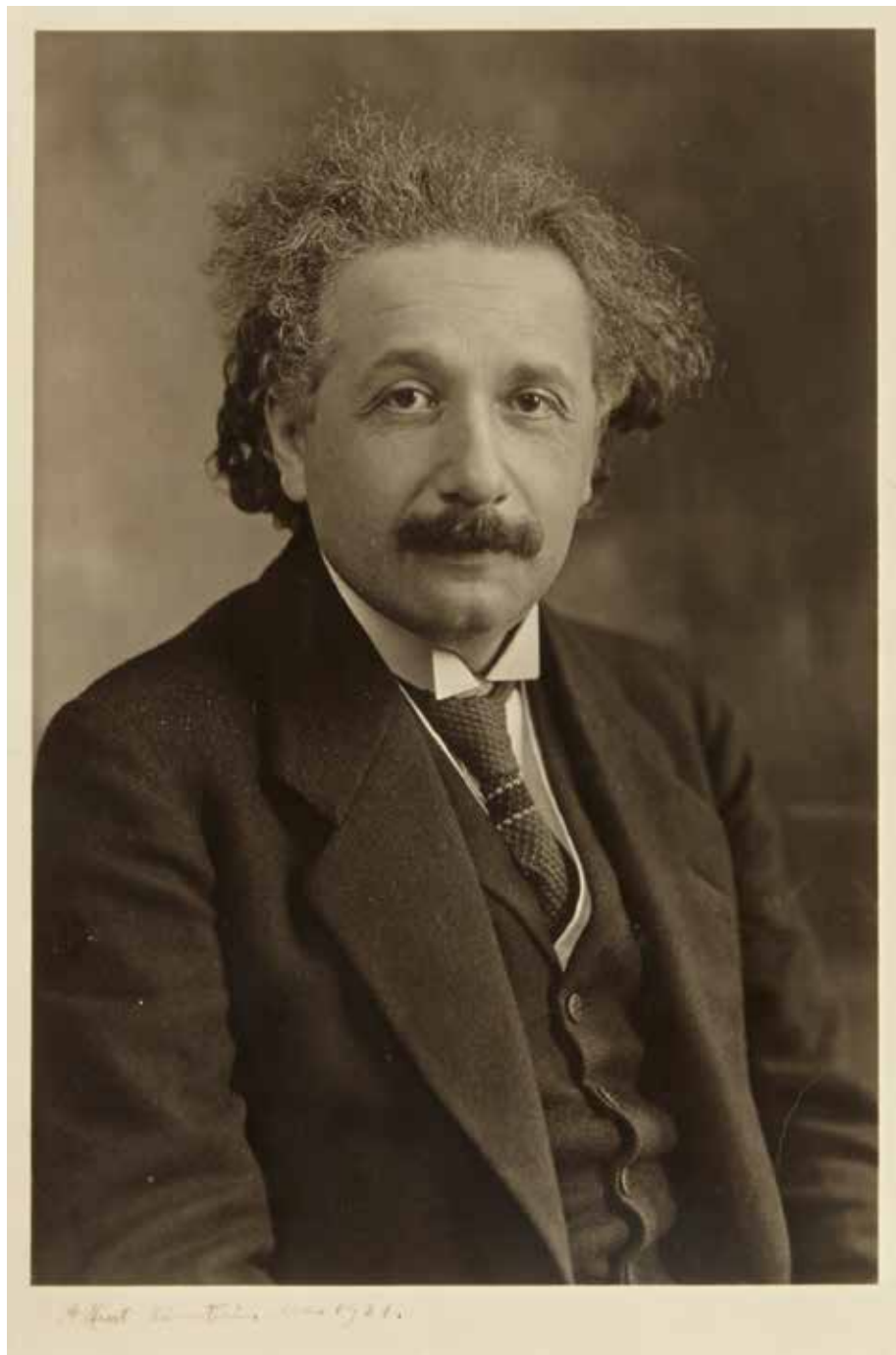
1070

BOHR, NIELS. 1885-1962.

Portrait Signed ("Niels Bohr"), 12 x 9 3/8 inch photogravure, dated January 3, 1960, light wear to left edge (where detached from a volume) and a patch of wear to upper right corner, still overall near fine.

Large and rare signed portrait of Niels Bohr, we trace very few signed photographic portraits of the great physicist at auction.

US\$1,500 - 2,500



1071

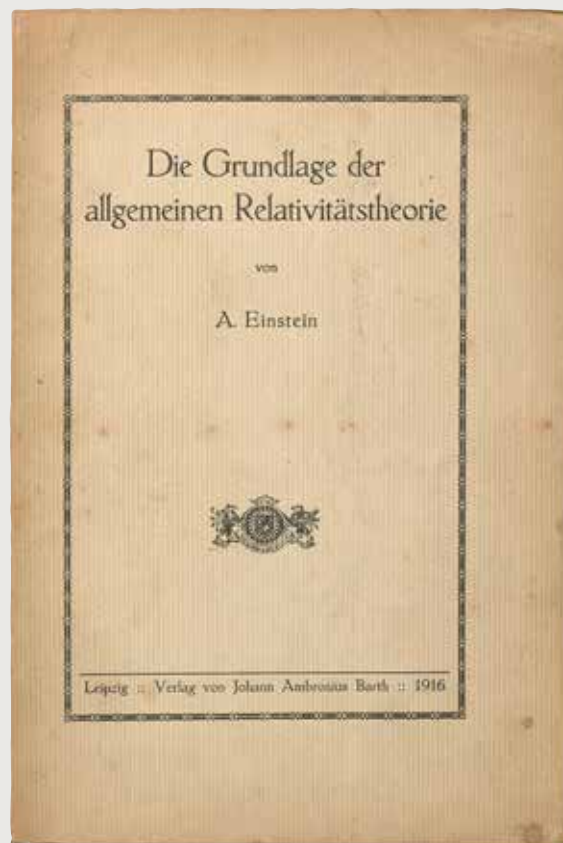
1071

EINSTEIN, ALBERT. 1879-1955.

Photograph Signed ("Albert Einstein"), 9 x 6 inch gelatin silver print portrait by HERMAN MISHKIN, signed in sepia ink below the image and dated May 1921. Matted and framed.

THE GREAT SCIENTIST AT AGE 42, THE YEAR HE WON THE NOBEL PRIZE FOR PHYSICS. He sat for famed Russian-born photographer Herman Mishkin (1870-1948) in New York City while he was on a lecture tour of the United States to raise funds for the newly founded Hebrew University in Jerusalem. Mishkin was best known for his portraits of famous opera singers including Caruso, Chaliapin and Mary Garden and dancers Anna Pavlova and Ruth St. Denis.

US\$5,000 - 8,000



1072

EINSTEIN, ALBERT. 1879-1955.

Die Grundlage der allgemeinen Relativitätstheorie. Leipzig: Johann Ambrosius Barth, 1916.

8vo. 64 pp. Original printed buff wrappers. Custom cloth chemise and red quarter morocco slipcase, spine gilt. Few spots and light soiling to covers, mild rubbing to backstrip; excellent.

Provenance: Hermann Rohmann, 1886-1931 (ownership inscription to title); American Art Association (Anderson Galleries), November 11-12, 1937, lot 175; to Halsted Billings Vander Poel, 1911-2003 (his sale, Christie's, Mar 3, 2004, lot 327).

Exhibited: The Grolier Club (1947[?] exhibition card laid in).

FIRST EDITION, MONOGRAPH ISSUE OF THE GENERAL THEORY OF RELATIVITY, SIGNED, AND WITH IMPORTANT INSCRIPTION BY EINSTEIN GRAPPLING WITH UNIFIED FIELD THEORY. The offprint is the first issue with correct printer's imprints.

The title-page is signed by Einstein in the upper left and inscribed by him below his printed name and dated 1938. Halsted Vander Poel purchased this signed offprint at auction as a young man and shortly thereafter must have asked Einstein to inscribe the book during one of his New York visits. Fortune favors the bold, and Vander Poel acquired a truly landmark item when he asked for the inscription. The present is the only first edition of Einstein's General Theory of Relativity that we trace with a scientific inscription. It reads in full: "*Die Theorie der Gravitation hat sich unterdessen bewahrt. Ihre Beziehung zu der Maxwell'schen der Elektrizität auf den von Kaluza zuerst eingeschlagenen Wege dürfte wohl auch das Richtige treffen. Dagegen ist der Zusammenhang mit der Atomistik und der Theorie der Quanten noch dunkel*" (in translation: "Gravitational theory has meanwhile proven itself. Its connection to Maxwell's electromagnetic theory, along paths first opened by Kaluza, should also prove to be correct. On the other hand, the connection to atomic and quantum theory remains obscure").

Theodor Kaluza (1885-1954) had written in 1919 that Einstein's gravitation and Maxwell's electromagnetism could be described in one theory if he introduced five, instead of four, dimensions. Einstein

tried to achieve such unification at first in other ways but in the 1930s he returned to Kaluza's idea and published several papers. One of them, published in July, 1938 was "On a Generalization of Kaluza's Theory of Electricity" co-authored by Einstein with Peter Bergmann which ascribed a physical reality to Kaluza's fifth dimension. These field theories operate with continuous quantities (fields) but according to quantum theory, nature is ultimately atomistic (discrete). Einstein's aim was to design a field theory with equations the solutions of which would describe discrete particles like electrons—so as to best quantum mechanics, which he disliked. The program never succeeded. His remark here, in 1938, refers to his ongoing search for a unified field theory. At this time Einstein believed he was on the verge of unifying the gravitational and electromagnetic fields but he also expresses his frustration that he has not yet managed to derive the existence of particles from the theory (hence the relation to quantum mechanics is "*dunkel*").

That the two best theories for explaining the universe: quantum mechanics and general relativity, work splendidly well individually but have resisted attempts to combine them mathematically, remains one of the most intractable problems in physics. The present inscription, being so characteristic of Einstein's philosophical drive to unification and actually written on the first edition of General Relativity Theory presents one of the most quintessential Einstein items imaginable.

Also noteworthy is that this is the paper in which Einstein first predicted the existence of gravitational waves, ripples in the metric of space-time that propagate as waves at the speed of light. Earlier this year, on February 11, 2016, LIGO announced the first direct observation of gravitational waves originating from a pair of merging black holes. A second detection from coalescing black holes was announced on June 15, 2016, almost exactly 100 years after Einstein's paper. Grolier/Horblit 26c; Norman 696; *PMM* 408; Weil *Checklist* (1960), 80a.

US\$80,000 - 120,000

A. Einstein.

Blomann

Die Grundlage der allgemeinen Relativitätstheorie

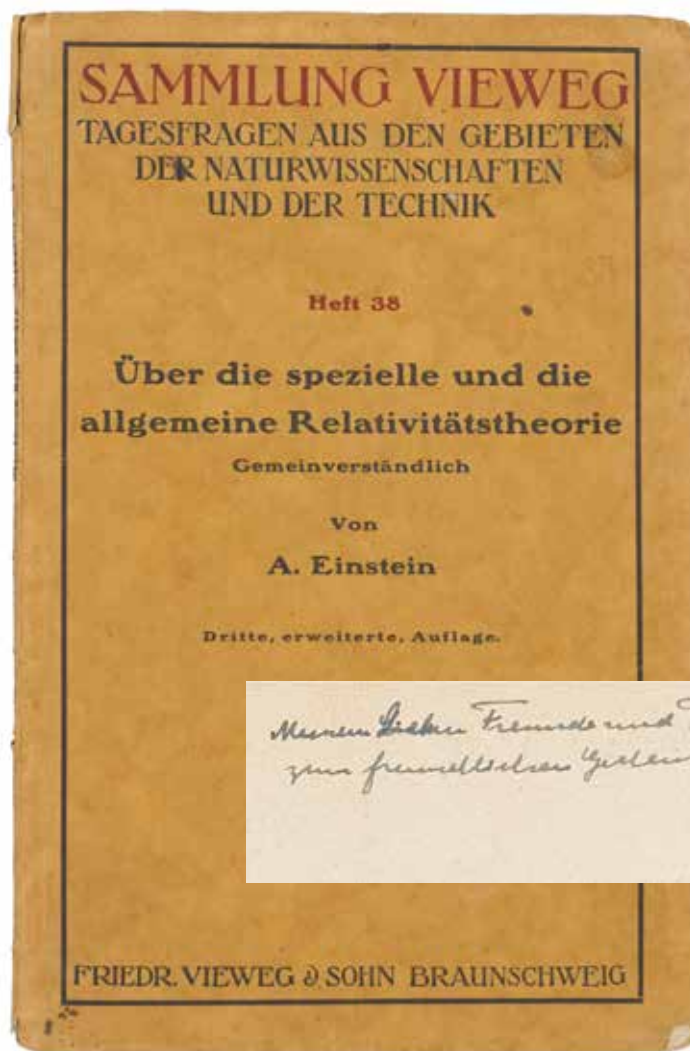
von

A. Einstein

*Die Theorie der Gravitation hat sich mittlerweile
bewährt. Ihre Beziehung zu der Maxwell'schen der
Elektrizität auf dem von Kaluga zuerst eingeschlagenen
Wege dürfte wohl auch das Richtige treffen. Dagegen
ist der Zusammenhang mit der Statististik und
der Theorie der Quanten noch dunkel
1938.*



Leipzig :: Verlag von Johann Ambrosius Barth :: 1916



1074

1073

EINSTEIN, ALBERT. 1879-1955.

Zur einheitlichen Feldtheorie. Berlin: Verlag der Akademie der Wissenschaften, in Kommission bei Walter de Gruyter, 1929. 8vo. 8 pp. Original orange printed wrappers. Minor handling creases and a little sun.

FIRST EDITION OF EINSTEIN'S UNIFIED FIELD THEORY, a breakthrough which was front page news on its publication, but which Einstein came to hedge on soon after. From 1923 to the end of his life, much of Einstein's work was dedicated to the study of a Unified Field Theory, the attempt to see the whole of physics as an entity, where no part can be separated from any other without a severe loss of meaning. Einstein's attempts to formulate a unified field theory stemmed from his dissatisfaction with the general relativity theory, which did not adequately incorporate the electromagnetic field into the geometry of space-time. See preceding lot for further context. Norman 700; Weil 165; cf. *PMM* 416.

US\$600 - 900

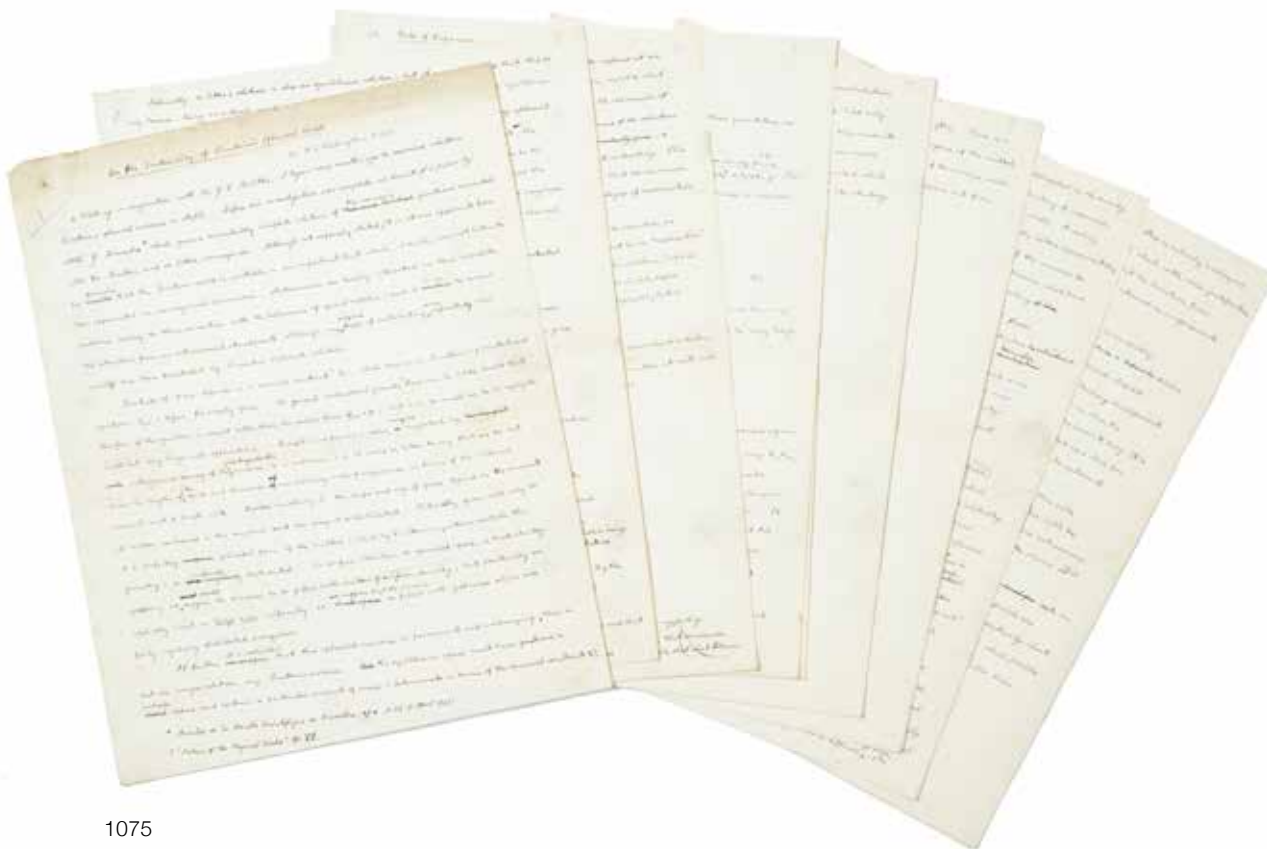
1074

EINSTEIN, ALBERT. 1879-1955.

Über die spezielle und die allgemeine Relativitätstheorie (Gemeinverständlich). Braunschweig: Friedr. Vieweg & Sohn, 1918. 8vo (219 x 143 mm). iv, 83 pp. Original printed wrappers. Light wear to backstrip, corners a little soft.

PRESENTATION COPY, INSCRIBED AND SIGNED ON THE TITLE: "Meinem Lieben Freunden und Prozessgegner zum freundlichen Gedanken von seinem A. Einstein." and dated February 14, 1919. This edition is an offprint of *Sammlung Vieweg*, Heft 18, being the third edition of the Special and General Theory of Relativity published for general readership.

US\$10,000 - 15,000



1075

1075

EDDINGTON, ARTHUR STANLEY. 1882-1944.

22 Autograph Manuscripts (one signed "A.S. Eddington"), 227 pp, folio and 4to, various places including Cambridge and Edinburgh, 1911-1930, includes text delivered at conferences and as lectures, plus draft material for articles and books, some thumbing, wear to edges throughout, but generally good.

Provenance: Sold Sotheby's Parke-Bernet, January 21, 1975, to Dawson; sold by him privately; descended to the present owner.

Sir Arthur Eddington was a British mathematician, astronomer and physicist who is best remembered for having introduced and explained Einstein's Theory of Relativity to the English-speaking world. Eddington was an important astrophysicist in his own right, however, helping to develop the first true understanding of stellar processes and the internal structure of stars. The Eddington limit, which dictates the natural limit to the luminosity of stars, is named for him.

The present archive represents perhaps 50% of a massive Eddington manuscript archive which sold in 1975 at Sotheby Parke Bernet to

Dawson's Book Shop of Los Angeles, who then sold a portion of that lot to the benefactor of the present owner. The 1975 auction lot was broken down into the following subsets, according to Eddington's interests: Theory of Relativity; Astrophysics; Celestial Mechanics; Philosophical Papers; Stellar Motions; and Contributions to the Popularization of Science. The present archive contains only one manuscript from the first two subsets, the 1930 essay, "On the Instability of Einstein's Spherical World." The rest of the subsets, however, are well represented here. There are several works from the Celestial Mechanics subset, most of which are lecture notes from Cambridge reflecting Eddington's work on comets of the period. There are also partial chapter drafts from Eddington's book, *The Mathematical Theory of Relativity*, including work on the Law of Gravitation and the curvature of space and time; 4 partial chapters from his work *The Nature of the Physical World* (many of which began life as his series of Gifford Lectures), covering the nature of time and time and entropy, among other subjects.

US\$10,000 - 15,000



1076

1076

CURIE, MARIE. 1867-1934.

Document Signed ("M. Curie"), partially printed and accomplished in manuscript, 1 p, 305 x 205 mm, Paris, February 26, 1921, being a "Certificat no. 1486. Dosage de Radium par le Rayonnement γ ," from the Institut du Radium, Laboratoire Curie, matted and framed, fold creases, else very good.

Marie Curie here signs this receipt for radium as "Directeur du Laboratoire" for 12.75 mg of elemental radium. An accompanying note from the son of the radium recipient describes how his father, a medical doctor, had placed the "needles" of radium in his vest pocket on receipt and proceeded to take a 24 hour train from Paris to Rome. This resulted in an ulcer on his chest that took a couple of years to heal. Interestingly, Curie also was a victim of radiation exposure from carrying test tubes in her pockets. This led to her eventually developing and dying from aplastic anemia.

US\$2,000 - 3,000

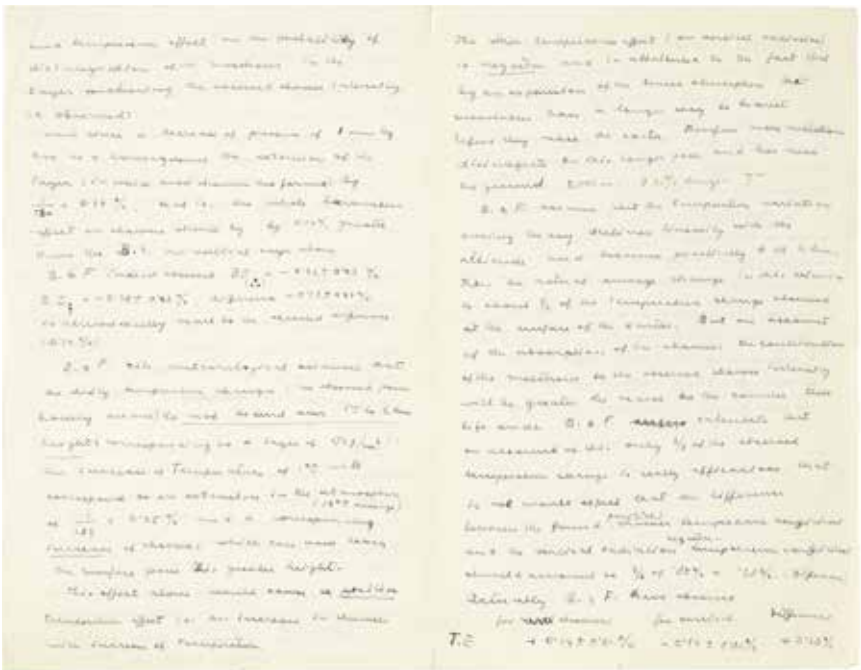
1077

PLANCK, MAX. 1858-1947.

Typed Letter Signed ("Planck"), in German, 1 p, 4to, Berlin, October 2, 1936, to Dr. August Heisler, on Kaiser Wilhelm Society for the Advancement of Sciences letterhead, faint toning, old folding creases.

The Nobel Prize winning physicist Planck invites Dr. August Heisler to become a member of the Kaiser Wilhelm Society.

US\$500 - 700



1078

1078

HESS, VICTOR FRANZ. 1883-1964.

Autograph Manuscript in English, headed "B.E. & Temp Effect" (Barometric Effect and Temperature Effect), 3 1/2 pp recto and verso, 8vo (conjoined leaves), n.p., after May 1, 1939, about fine. Provenance: Harvey Plotnick (his sale, Christie's New York, October 4, 2002, lot 134).

RARE VICTOR HESS MANUSCRIPT, ON COSMIC RAYS. Hess provides detailed commentary on an article central to his own research, being "Influences on Shower and Vertical Intensity of Cosmic Rays" by J. Barnóthy and M. Forró (*Physical Review* 55, p 868ff). It was for his discovery of cosmic rays that Hess won the 1936 Nobel Prize in physics (shared with Carl Anderson). Hess made his discovery in 1912, collecting ionization data at heights of up to 5350 meters in a series of daring balloon ascents. "Hess's discovery of what Millikan had named *cosmic rays* was important not only for what information they might give concerning astrophysical processes and the theory of the Universe, but also important as an especially concentrated form of energy. In cosmic-ray research, Anderson discovered the positron and Powell discovered the pi-meson" (Weber *Pioneers of Science* p 105). The present is one of only two Victor Hess scientific manuscripts we trace in the auction records (the other last appearing in 1987).

US\$4,000 - 6,000

1079

No lot

1080

EINSTEIN, ALBERT. 1879-1955.

Typed Letter Signed ("A. Einstein"), 1 p, 4to, Princeton, January 31, 1945, in German, to Erwin Piscator, on personal letterhead, unevenly toned. Matted WITH: Additional Signature ("A. Einstein") on card, dated [19]54 and a photographic portrait. Also with the carbon of Piscator's letter to Einstein (worn).

Provenance: Hamilton, Oct 2, 1975, lot 181 (letters only); The Autograph Collection of Harry E. Gould Jr.

AT THE CLOSE OF THE WAR, EINSTEIN HONORS THE PACIFIST WRITER ROMAIN ROLLAND. Rolland won the Nobel Prize for Literature in 1915, six years before Einstein won his for Physics. Rolland died on December 30, 1944 and a tribute was being organized by Erwin Piscator of the Drama Workshop at the New School. Piscator tempts Einstein to attend with the news that Bruno Walter will personally be playing the Kreutzer Sonata with Bronislaw Huberman. In the present letter Einstein agrees to join the Sponsor-Committee but declines attending on the grounds of ill health (if he made an exception he would arouse indignation). He concludes, "Man muss versuchen, den Geist Romain Rollands zu erhalten, wenn man nicht an einer erträglichen Zukunft verzweifeln will" (in translation "we must try to preserve the spirit of Romain Rolland if we are not to despair of a tolerable future.")

US\$2,000 - 3,000

1081

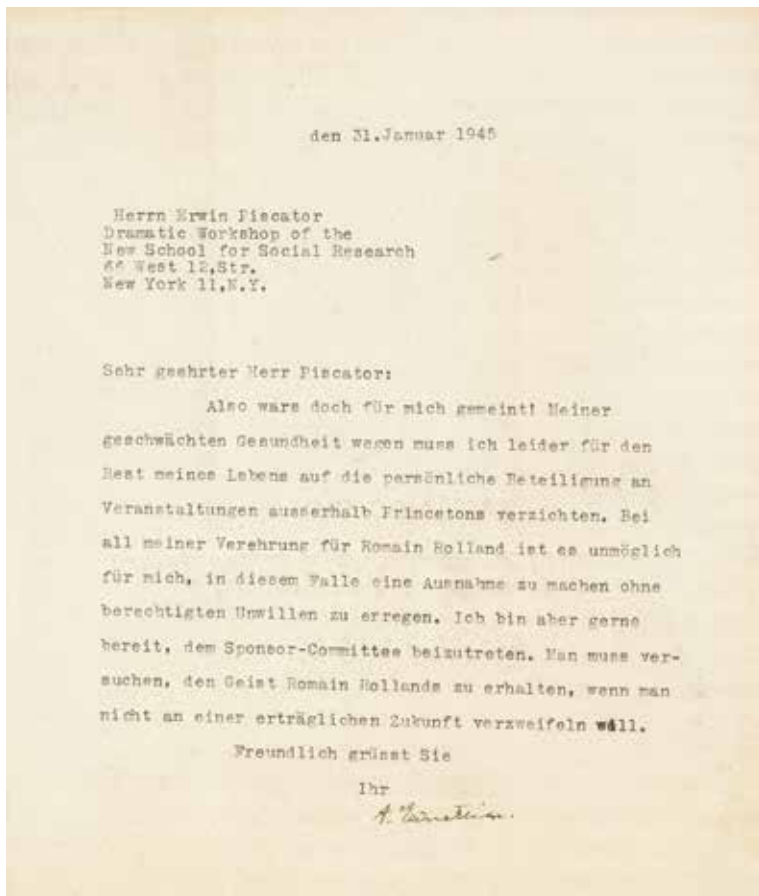
HOFMANN, ALBERT. 1906-2008.

Autograph Quotation Signed ("Albert Hofmann"), being the Chemical Structure of LSD, inscribed, [Switzerland?], n.d., ink on blank white card, 147 x 104 mm.

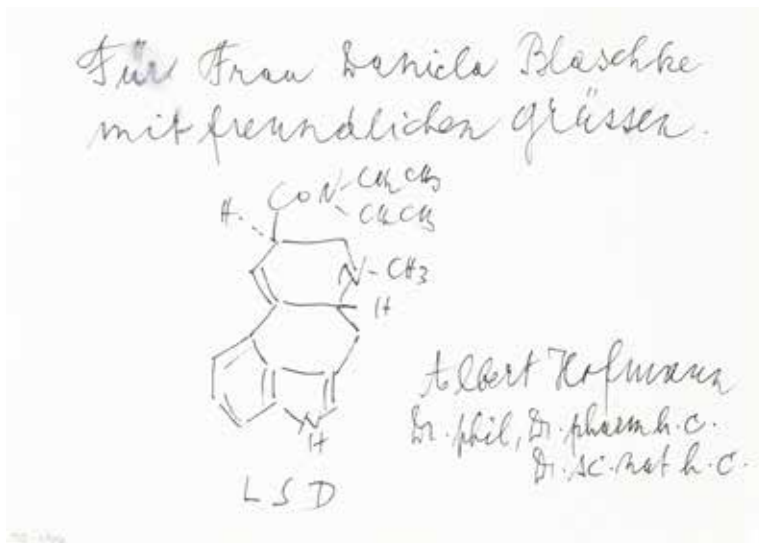
The inscription reads: "Für Frau Daniela Blaschke mit freundlichen Grüßen. Albert Hofmann, Dr. phil, Dr. pharm h. c., Dr. sc. nat h. c."

Hofmann first synthesized LSD in November 1938 but would not discover its hallucinogenic effects until 1943. His first intentional acid trip on April 19, 1943 has since been mythologized as "Bicycle Day."

US\$600 - 900



1080



1081



1082

1082 ▲

EINSTEIN, ALBERT. 1879-1955.

Typed Letter Signed ("A. Einstein"), 1 p, 4to, in German, Princeton, New Jersey, February 23, 1948, personal blindstamped letterhead, folded in sixths, some creases, mild toning to edges. Float-mounted in clear frame.

Einstein writes Dr. Gabriel Segall to thank him for recent correspondence and to say he's looking forward to a planned future meeting. Segall had been Einstein's personal doctor during his stay in California and the two remained friends.

US\$3,000 - 5,000

1083

EINSTEIN, ALBERT. 1879-1955.

Albert Einstein: Philosopher-Scientist. Evanston, Illinois: Library of Living Philosophers, 1949.

Edited by Paul Arthur Schilpp. 8vo. Photographic frontispiece portrait and plates. Publisher's brown cloth over beveled boards, top edge gilt, uncut and partially unopened, original glassine dust jacket, in publisher's slipcase. Some chipping to glassine jacket, minor shelfwear to slipcase, otherwise fine.

LIMITED EDITION, SIGNED BY EINSTEIN, number 282 of 760 copies. Contributors to this volume include Arnold Sommerfeld, Louis de Broglie, Wolfgang Pauli, Max Born, Niels Bohr, Hans Reichenbach, Percy Bridgman, F. S. C. Northrop, E. A. Milne, Leopold Infeld, Max von Laue, and Kurt Gödel. This deluxe edition is the only edition of any book for which Einstein signed a significant number of copies, typically refusing to do so.

US\$3,000 - 5,000

1084

U.S. ATOMIC ENERGY COMMISSION.

[Understanding the Atom.] Oak Ridge, Tenn.: USAEC Division of Technical Information Extension, 1963-1969.

51 volumes (1 duplicate). 8vo (215 x 139 mm.) Stapled into original color illustrated wrappers. Some occasional light surface wear, otherwise near fine.

Provenance: Robert Gounley, former NASA engineer (ownership inscriptions).

The United States Atomic Energy Commission (AEC) was a US government agency established by Congress after WWII to control and promote the peacetime development of atomic science and technology. These technical pamphlets, published as part of the Atomic Energy Commission's educational assistance program cover various topics; titles in the series include: *Fallout from Nuclear Tests*; *Nuclear Propulsion for Space*; *Cryogenics*, *The Uncommon Cold*; *The Genetic Effects of Radiation*; *Snap. Nuclear Space Reactors*; and *The Elusive Neutrino* to name but a few. A complete listing of titles is available upon request.

US\$800 - 1,200



1083



1084

Erziehung der Provinz der Kantonen des Landes.

[illegible]

I. Die Formenscheidungen der Welt des 9. J.

c.) Methyl mit Methylpropanat vor 40 Jahren. Senats des
Breslauer Magistrats der akademischen Fakultät. H-abom oder
H-abom. Unterschied: unimodale Symmetrie: s-Zustände
hyperkonjugativ, p-Zustände hyperkonjugativ. H-abom
die P.T. Methylpropanat "des letzten".
~~Schlechte~~ Schlechte Methylpropanat, Schlechte, Schlechte
Symmetrie schlechte Methylpropanat die unimodale.
Lagerungsgeschwindigkeit (auch das am Freitag!)

b) Ausdrückliche Bilder. Die beiden Bilder des
Hauptgipfels: Hekt. + Kern. ^{der Hekt. + Kern.} ^{der Hekt. + Kern.} ^{der Hekt. + Kern.}
der Hekt. + Kern. ^{der Hekt. + Kern.} ^{der Hekt. + Kern.} ^{der Hekt. + Kern.}
aus allen zusammengefasst. ^{der Hekt. + Kern.} ^{der Hekt. + Kern.} ^{der Hekt. + Kern.}
"vielleicht" ^{der Hekt. + Kern.} ^{der Hekt. + Kern.} ^{der Hekt. + Kern.}
Zellenprotektion. ^{der Hekt. + Kern.} ^{der Hekt. + Kern.} ^{der Hekt. + Kern.}

c.) Kettenbrücke Komplettierung: Vergleich mit
 Kettenbrücke. Kettenbrücken. Kettenbrücken. Kettenbrücken.
 Kettenbrücken in H-atom voll möglich. Kettenbrücken.
 Kettenbrücken. Kettenbrücken. Kettenbrücken. Kettenbrücken.
 Kettenbrücken. Kettenbrücken. Kettenbrücken. Kettenbrücken.

1085

HEISENBERG, WERNER. 1901-1976.

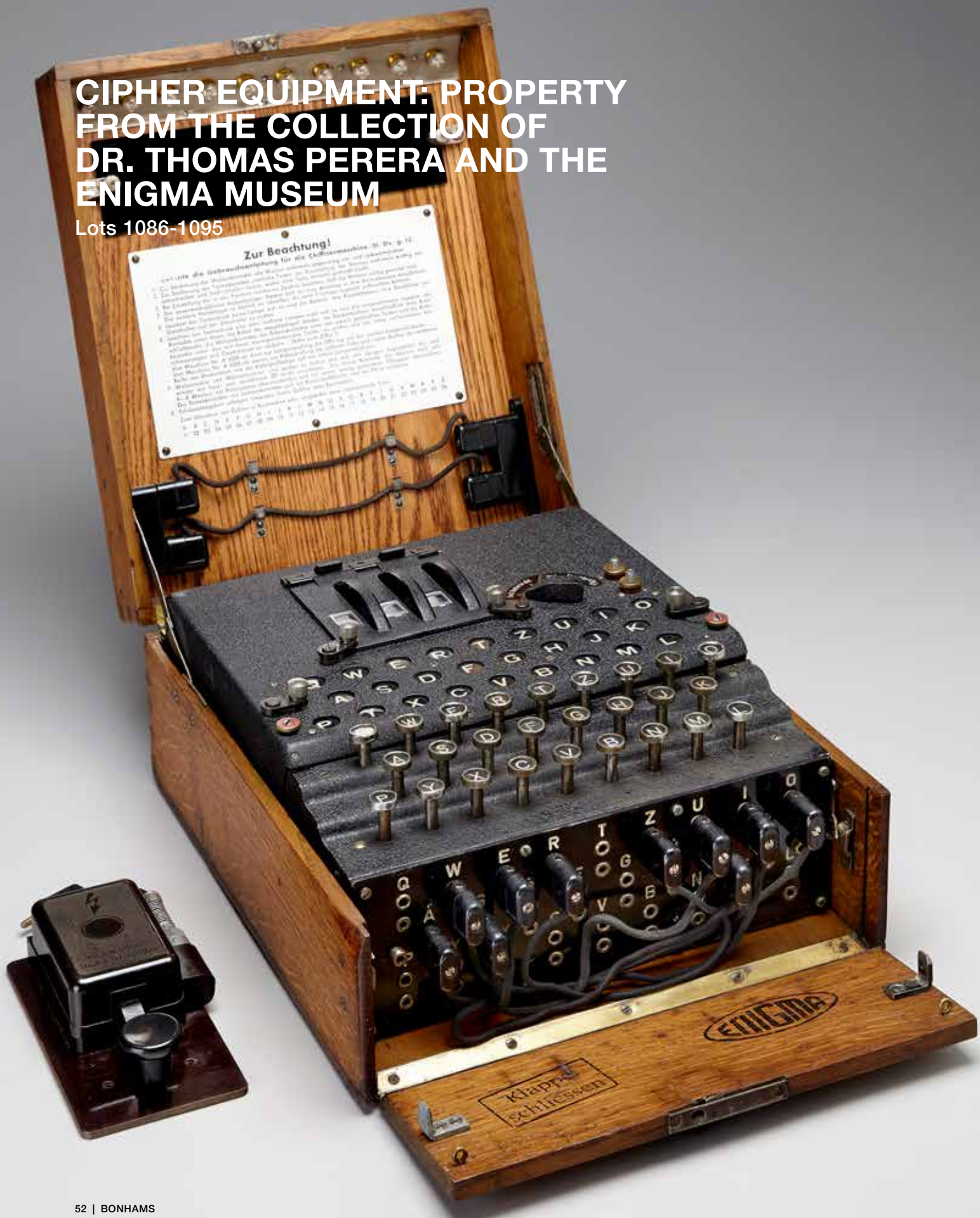
Autograph Manuscript entitled "*Entwicklung der Theorie der Elementarteilche*," 2 1/2 pages, 4to, [Badenweiler, 1964], a working manuscript with autograph deletions and insertions.

HEISENBERG'S DRAFT LECTURE NOTES ON THE HISTORY OF PARTICLE PHYSICS AND THE MEANING OF UNIFIED FIELD THEORY, apparently unpublished. The lecture was delivered on March 5, 1964 on the occasion of the presentation to Heisenberg of an honorary doctorate by the Eötvös Loránd University, Budapest. Heisenberg, one of the chief architects of quantum theory and most famous for the formulation of the uncertainty principle, makes notes on the nature and future of particle physics, referencing Plato, Newton, Bohr and Einstein, and concludes by propounding a "Platonic" vision of particles as "mathematical forms." In part (in translation): "*Misunderstandings: Now is physics self-contained, the new no longer possible. This is false, but on the one hand perhaps true: in any given space, the smaller energy or in any given space, the larger energy ... But decidedly: such questions that are 2500 years old shall now actually be settled. Already in a few years we will know what the structure of the world in the smallest form is ... that will be settled by experimental physicists.*" Full translation available upon request.

US\$15,000 - 25,000

CIPHER EQUIPMENT: PROPERTY FROM THE COLLECTION OF DR. THOMAS PERERA AND THE ENIGMA MUSEUM

Lots 1086-1095



INTRODUCTION

The following 9 lots are the property of my father, Dr. Thomas Perera, Ph.D., one of the foremost specialists and collectors in the field of cipher equipment. It was some 29 years ago that he stumbled upon his first Enigma machine at an electronics flea market in Germany. He was there hunting for antique telegraph equipment and was intrigued by this interesting device that looked very much like an old typewriter.

My father first became interested in antique radio equipment in the 1950s, when as a ham radio operator he began piecing together old radio equipment and sending and receiving Morse code messages with other like-minded amateur radio enthusiasts from around the world. In later decades, as a Professor of Neuroscience at Columbia University, Barnard College, and Montclair State College, he was involved in the teaching of, and research on, the electrical coding strategies that occur in the brain's function.

With such an academic and medical background in the neuroscience of coding, the discovery of his first Enigma machine on a flea market table in Germany opened up a whole new world to him, and launched decades of research on the history and technology of cipher machines. My father has spent the last 30 years making frequent trips abroad to locate, document, and retrieve Enigma machines, as well as to record the oral histories of Enigma operators. Over the years he has established a network of Enigma historians and collectors who share information amongst themselves, as new discoveries are made.

The phenomena that is the Enigma machine has really only come to public awareness with the 1974 work on the codebreaking successes of the Allies in Poland and later at Bletchley Park, England, when F.W. Winterbotham published *The Ultra Secret*. His accounts of the efforts at Bletchley Park revealed, for the first time, the unprecedented access the Allies had to German secrets through their decoding successes during the World War II. It took a few decades after 1974 for declassified documents to begin to become available for evaluation and to reveal the huge role that the breaking of the Enigma codes played in the Allies' victory over the Germans. Much of the governmental information regarding the breaking of Enigma codes has only been declassified in the past 10 to 20 years, and now the historians are fitting this information into the history of World War II and showing how it influenced the post-war development of advanced cipher equipment.

The work surrounding the breaking of Enigma coded messages resulted in the creation of the first computers, as well as the next generation of cipher equipment, as the world quickly transitioned from World War II to the Cold War. The use of rotors in the German Enigma machine was adopted by the Swiss, Russians, and others as they developed ever more secure electromechanical cipher machines in the age before the microchip. The Swiss NEMA and Russian Fialka M-125 are both direct descendants of German Enigma machines.

Dr. Perera has worked with various institutions including Bletchley Park, and some of the Enigma machines he found and restored have been featured in films such as *The Imitation Game* and *Snowden*. He was able to provide the NSA's National Cryptologic Museum with its first Russian Fialka cipher machine and has worked with the Museum of World War II to bring their Enigma machine collection back into working condition for a celebration of Alan Turing in 2015.

My father's work in finding and documenting these important artifacts has become a true passion and a lifelong pleasure. Most antique cipher machines are in institutional or governmental collections making this equipment increasingly challenging to locate for private collectors. We are pleased to be able to offer this small, but exciting, selection of some of the key machines in the development of cipher equipment in the 20th century, in this Bonhams History of Science and Technology auction. We hope that future collectors and aficionados will come to enjoy owning and using them as much as my father. The world of cipher machines is a wonderful field of technology, waiting to be discovered.

Dan Perera
Enigma Museum
October, 2016



1086



1086

1086

SWISS K MODEL ENIGMA.

A Rare Swiss K, a 3-rotor German Enigma Enciphering machine manufactured for the Swiss Government, Berlin, Heimsoeth and Rinke, delivered 1938-40.

A pre-war/early war Enigma machine, with serial number K767, manufactured for the Swiss Government. In original oak box with leather handle, rotors I, II, and III, and a fourth *umkerwalze* (an adjustable reflector), standard QWERTY keyboard of 26 keys, white on black backgrounds, with separate remote display housed in part of the main case, additional wooden case with multiple voltage power transformer, with 3 wires. The lid with 10 spare bulbs, green glare filter, and a delivery proforma titled "*chiffriermachine 'Enigma'*". The Enigma in its original Swiss made oak box, 15 x 11 x 6 inches. WITH: Power transformer in oak box, with power cord and 2 wires, 4¼ x 7¾ x 5¼ inches.

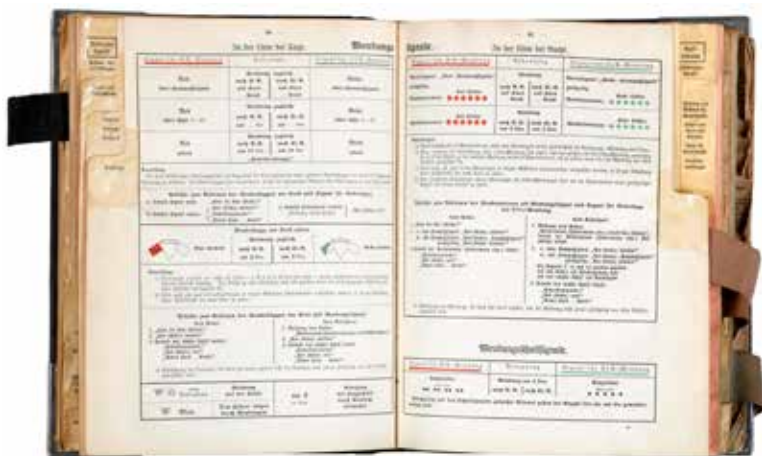
A fine example of the Swiss K, especially supplied to the Swiss government in 1938, 1939 and 1940 for use by their Army and Air Force. Given that Switzerland was neutral during WW2 it is likely that these machines were supplied as a gift so that relations between the countries could be kept on an even footing much as was the case with the banking sector. The K was derived from the commercial Enigma D (A27), which came into production from 1927,

the D being provided to the railways of Germany and other friendly powers including Spain (during the Spanish Civil War, 1936-39), Italy and to Switzerland. The Swiss made their first order for the Enigma D in 1938 when they ordered 14 machines, a further 39 machines in 1939 and finally two further batches in 1940, giving them some 265 machines in total, 102 for the Swiss Army and 163 for the Airforce. The additional light panel was supplied by a Swiss firm and incorporated into the large carrying case, which is of Swiss manufacture. The light panel is wired directly into the machine and makes it possible for a second operator to decode the more secret messages! The final variation from the standard Enigma D, is the power transformer, supplied by another Swiss company making possible for 4 machines to be working off the same transformer.

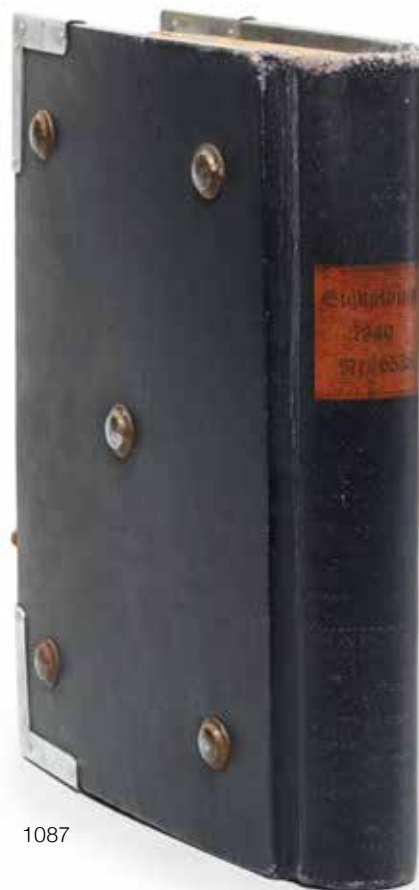
Interestingly enough the French broke the Swiss Enigma K in 1941, the Allies soon after, and the Germans had been reading the diplomatic and military messages since 1939 (even though the Swiss had rewired the machines as soon as they received them). Because the code had been broken, the Swiss developed a new machine the NEMA, which didn't come out until 1946.

US\$80,000 - 120,000





1087



1087



1087

1087

KRIEGSMARINE SIGNALBUCH.

THIRD REICH NAVAL HIGH COMMAND. *Signalbuch der Kriegsmarine*. Berlin: Oberkommando der Kriegsmarine, 1940. BOUND WITH: *Marineliste 1944 (Kriegsliste) zum Signalbuch*. Aufgestellt im Juli, 1944.

Folio (315 x 240 pp). 300; 117 pp. With hundreds of hand-colored signals and flags in text; numerous manuscript and paper corrections throughout. Laminated tabs in first work; some sections printed on yellow or pink paper. Some soiling to tabs of second work, commensurate with use. Original black leather over thick boards with metal studs and corners on both covers. Spine title "*Signalbuch 1940 Nr. 6538*."

WITH: *Deckblätter Nr. 477-507 und Handschriftliche Berichtigungen Nr. 380-391 zum Signalbuch M. Dv. Nr. 150*. [14] pp booklet laid in. Provenance: Property of a European Collector

EXTREMELY RARE, WELL-USED BUT IN A FINE STATE OF PRESERVATION. Sole edition, with the supplement issued in July, 1944, of this top secret guide to the signals used by the Kriegsmarine. An enormously complex publication, this copy features hundreds of handwritten or paper corrections and entries, indicating it was kept up-to-date into the closing months of the war. Judging by the slips at the rear, the book was first received by the station on August 20, 1944; it was prepared and ready for use on September 8; and the supplement was received on December 7.

We have traced copies at the Danish National Library, Washington University (MO), the Bundesarchiv in Berlin, and Defense Academie

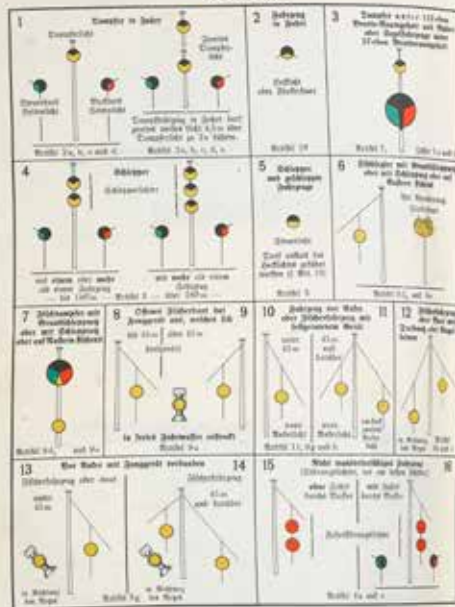
in The Hague but they do not seem to be as complete as the present example. As a highly sensitive publication, the *Signalbuch* was intended to be destroyed upon capture (see below), perhaps explaining its low rate of survival. This copy was likely used on land, judging by the paper slip for "*Landdienststellen*" pasted onto p 3. Several revisions relating to "*Flugzeugsignale*" (aircraft signals) also seem to bear this out.

A lengthy notice on the front inside cover warns the user about the sensitive nature of the contents and threatens punishment for any misuse. It also gives instructions to prevent the book from ever possibly falling into enemy hands. It should always be burned before capture; if this is not possible, it should be "dropped into deep water" (perhaps explaining the exceptionally heavy binding). Though rare, the *Signalbuch* continues to be cited by cryptographers. Philip M. Arnold devoted an article in *Cryptologia* (October, 1979) to the copy held at Washington University; more recently Ralph Erskine has discussed how cryptographers at Bletchley Park used the Kriegsmarine's short signal systems to crack the ciphers used by naval Enigma machines (*Cryptologia* XXIII, 1999). With a loose booklet, enclosed in the rear pocket and probably not belonging to the publication: color illustrations, with captions in English, of the uniforms of various military and navy personnel of all countries – apparently a guide to identifying the nationality and rank of casualties or captured combatants.

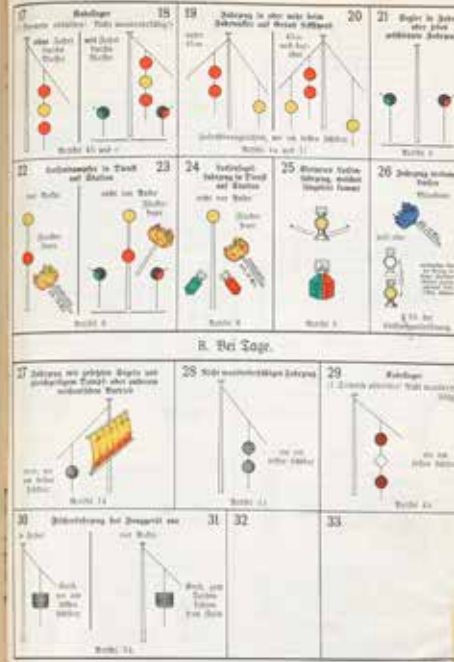
US\$20,000 - 30,000

Abzeichen und Signale der G. Str. O.

A. Bei Nacht



200



1087

Signal	Bedeutung	Signal	Bedeutung
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M4 ENIGMA MACHINE FOR GERMAN NAVAL USE.

A German Naval 4-rotor Enigma enciphering machine (M4), made by Heimsoeth and Rinke, Berlin, 1943.

Operational M4 Enigma machine, for exclusive German Naval use, serial number M5521, and aluminum rotors I, III, VII, and Beta rotor and reflector, all with matching numbers M5521, lamp-board display, standard QWERTY keyboard of 26 keys, white on black, battery switch, ebonite *steckerbrett* (plugboard), with 5 cables, the case lid with 4 spare cables, a colored glare screen, pasted typed instructions in German (in facsimile), and a set of 10 spare bulbs, inner front panel with ink stamp "*Klappe schliessen.*" The keyboard and rotors set in a black crackle finish metal case. Slight oxidation of metal brackets on front panel, the lock located below the external power socket is a replica. Facsimile manual included. Mounted in an oak outer case with metal lock and carrying handle, 13¾ x 11 x 6¼ inches.

WITH: German Naval Telegraph Key, gray metal, 7½ x 3 x 2 inches.

A RARE, FULLY OPERATIONAL, M4 KREIGSMARINE ENIGMA MACHINE, 1943 VINTAGE, ALL ROTORS MATCHING, ONE OF THE RAREST OF ALL THE ENIGMA MACHINES, IN FINE CONDITION.

The M4 was used by Admiral Doenitz U-boat forces and not the entire German navy; it would have been on U-boats, U-boat support ships, and shore installations supporting U-boat operations. This example believed to have been from a U-boat base on shore rather than from a U-Boat due to its fine condition and that it was purchased by the Enigma Museum from a family in Norway. Admiral Doenitz ordered the M4 in late 1941, as he suspected (rightly) that the security of the Naval 3 rotor machine had been compromised with the capture of U-570 in August 1941. He ordered it specifically for the use of the growing U-Boat fleet, which Germany required to take the war to the Allies in the Atlantic. For this campaign, the Naval High Command needed to know, on a daily basis, the positions of the U-Boats, and the vessels needed to receive orders as to where they were to go, and all this information had to be secure.



1088

In terms of the numbers of M4 machines now extant, various estimates have been made. After February 1942 when the M4 became operational, perhaps some 500 U-Boats were constructed, and as the machines were also replaced in the earlier submarines, it is likely that from 1942, 700 to 800 submarines had been equipped, most with two M4s each (they needed the two machines with the two settings for when the changeover of coding occurred at midnight). This would make a total production of probably just over 1600 machines in the period 1942-45. Since over 80% of all U-boats were sunk in World War II, the survival rate is particularly low, and of course Captains had strict orders to smash their machines when captured. We know the Allies, in late 1945 and early 1946, assembled the majority of the 'Allied captured' U-Boats in Lisahally, Northern Ireland, and in Loch Ryan, Scotland, some 154 vessels in all. 121 of these submarines were stripped, and scuttled in deep water in short time. The Danish, Dutch, and French also had a few U-boats, and the Danish sold two of theirs to the Israelis, soon after the war. The Americans gathered the U-boats which surrendered (in mid-1945) along the eastern seaboard and any machines captured from those submarines would have gone to Annapolis Naval Base.

The numbers of surviving M4s both from surviving submarines and from the shore bases along the Atlantic coasts (given that at least 70% of commanders should have destroyed their machines before surrendering) CAN BE ESTIMATED AT A MAXIMUM OF PERHAPS 120 EXAMPLES EXTANT, mostly now languishing in Government storerooms around the world. The M4s, all came directly into the hands of the Allied Naval Forces after the war, whether it be in Britain, France, Australia, US, Denmark or Holland, and were not allowed to slip out of military control. The US/British forces rounded up as many M3 (army) machines as they could from the surrendering German Forces and many of them were sold back to the Eastern Bloc on a clandestine basis, which allowed the Allies to listen in to military orders throughout the Cold War. Of the surviving M4s it is suspected that for every 10 M3s there might be one M4. Analysis of the 24 Museums around the world that exhibit Enigma machines, show a total of about 50 Enigma machines on display, of which 7 are M4s, taken from captured U-Boats. The remainder are M3s, with the occasional late war M6 or M7.



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The story of the German Enigma machine starts in WWI, when the British were intercepting and reading all the German Navy signals, which gave them a significant advantage at sea throughout the War. The Enigma was patented by Arthur Scherbius in 1918, but it was not until 1926 that the code-breaking of the WWI naval signals by the Western Allies was discovered by the German High Command. The Enigma was then chosen as the German enciphering machine for the military. The early enigmas had 3 interchangeable rotors, which scrambled plain-text messages to produce a cipher text message, which was then sent via Morse code to a receiver machine with the same settings. The breaking of the Enigma codes by the Allies was one of the most important breakthroughs of World War II, and is regarded as shortening the war by at least 2 years. It started when Polish cryptographers passed on to the British their research on the codes in 1937, and in 1939 the French captured a German submarine with a codebook, and other information was retrieved by a spy in Germany. The outcome of this was that the 3 rotor code was broken early on in the war by the code breakers at Bletchley Park set up in 1937, who included Turing, Foss, Knox and many others. When the M4 came into use on February 1, 1942 it took over 9 months for

Bletchley to crack that code, assisted by the capture of codebooks from U-599 in October 1942. Various other devices were added to the M4 from 1944 to complicate the messages, notably a UKW-D, a field rewirable refractor to replace the reflector and extra wheel. This example does not have the locking key but is unlocked.

US\$280,000 - 350,000



1089



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ENIGMA I MACHINE.

A Rare 3-rotor German Enigma I Enciphering Machine, Modell 1, for Heer (Army) use, Berlin, 1943. Mid-war Enigma machine in working condition, serial number A16672, manufactured for the German military. In original oak box with hinged front panel and leather handle, inner front panel with "ENIGMA" and "Klappe schliessen" stamps, rotors I, II, and III, each rotor with serial number A16672, with separate wooden box containing spare rotors IV and V, both also stamped A16672, standard QWERTY keyboard of 26 keys, white on black backgrounds, battery switch, ebonite *Steckerbrett* [plugboard] with 5 stecker cables and 2 spares stored in the top lid of case), upper lid with 10 spare bulbs, colored glare filter, and "Zur Beachtung" metal instruction sign. Some light restoration to finish, electrical contacts have been cleaned to improve operation of lamps. The oak case 13 x 11 x 6½ inches.

WITH: Black metal WWII German telegraph key, 2 facsimile manuals and an ORIGINAL EXTRA ROTOR BOX with two extra rotors for Enigma A16672, this box 5 x 9½ x 3 inches.

A FINE EXAMPLE OF THE GERMAN ENIGMA I MACHINE (HEERS ENIGMA) WITH A FULL COMPLEMENT OF MATCHING ROTORS. Patented by Arthur Scherbius in 1918, the Enigma machine utilizes three interchangeable rotors which scramble plain-text messages and produce a cipher text message which is then sent, generally via Morse code, to a receiving party with an Enigma set up in the same configuration as the sending Enigma. All of the machines could use the interchangeable wheels from any enigma, so to find a matching set of wheels with the same serial number as the Enigma is extremely rare. Though the German military was familiar with the Enigma, it

was not adopted as their primary cipher device until 1926, when they discovered that all German naval coded messages had been intercepted and read by the British during the latter half of WWI. It is unknown exactly how many of these machines were made, but we know that their survival rate is very low. There are around 40 examples in Museums around the world. The 3-rotor Enigma was used by the German army up to end of the war, by the navy until 1942, and also by the Airforce until c.1944. The Navy changed their machines to M4s in 1942 and the Airforce near the end of the war, to M5s and upwards to prevent the Allies continually breaking the code. At the end of the war, rather than have the machines fall into enemy hands, they were destroyed by the German forces upon retreat, many simply thrown into rivers and lakes, and documents pertaining to their manufacture were burned or in many cases simply lost.

This example of the standard three rotor enigma machine "Modell 1" was used principally by the army (*Wehrmacht*), and was their favored enciphering device. British attempts to break the Enigma code were fruitless for years. The breakthrough eventually came after the creation of the famous British codebreaking center Bletchley Park in 1937. Using the technology transferred to them from the brilliant Polish codebreaking team in 1939, as well as documents supplied by the French Intelligence from a German spy, Alan Turing, along with Knox, Foss and many others were able to break the Enigma code, shortening the war by an estimated two years, and saving countless lives. See background information on the previous lot.

US\$150,000 - 250,000





1090

1090

ENIGMA UHR BOX.

Enigma "Uhr", Berlin, Konski & Kruger, 1944. With label "Ln. - H.R.B. (GL) 1/III Gerät. E.U. Werk. Nr. 193." 20 numbered patch cables and wooden rotary switch, as well as two metal brackets on left-hand side to allow attachment to the Enigma machine. In original grey wooden case with canvas carry strap, 7 3/4 x 6 x 5 inches. Box lightly chipped at corners; several cables lightly frayed.

EXTREMELY RARE ENIGMA MACHINE ACCESSORY. The Enigma Uhr ("clock") was introduced in July 1944 by the Luftwaffe in order to add an extra layer of security to Enigma-encoded communications. Mounted beside the Enigma machine, the Uhr was capable of changing the configuration of the plugboard circuits every hour by turning the wooden rotary knob. Despite managing to keep its development secret from the Allies, the Uhr's code was broken after just a few days by Bletchley Park.

US\$18,000 - 25,000



1091



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SWISS MODEL 45 NEMA CIPHER MACHINE.

A Swiss Model 45 NEMA, Type T-D enciphering machine, serial number TD 678, Switzerland, manufactured by Zellweger AG, c. 1950. The machine with ten wheels, four of which are coding wheels, one a reflector (right side red wheel, similar to the enigma construction), and the other 5 all driving wheels, mounted under hinged cover with letter-counter, lamp panel and standard keyboard layout, 4v electrical input to the side and mains lead inside, the inside lid of the cover with external lamp panel, lamp cable, 16 spare bulbs, extra wheel cases and a contact cleaning brush. The carrying case lid with stencilled numbers 678 and TD678, and special printed red period label indicating its use in time of war, leather carrying handle, lock and key present. The carrying case 14 1/2 x 12 3/4 x 5 1/2in (36.5 x 32.5 x 14 cm).

WITH: Original NEMA instruction booklet, in German and French, marked SECRET, and stamped 295, with declassification stamp at upper left of the front cover dated July 9, 1992.

A FINE AND RARE SWISS NEMA MACHINE, ALMOST MINT AND PREVIOUSLY IN MILITARY STORAGE, an example of the new breed of ciphering machines which developed from the German Enigma

wartime series, in this case developed by the Swiss. Following the realization that their Enigma K series was compromised by the codebreakers of most of Europe, a team of professors from Bern and other universities, from 1941, began to develop this new machine, a prototype of which was made in 1944, and a design for manufacture which was passed in spring of 1945. The name NEMA derives from NEu MASchine, made by Zellweger AG in Uster. 640 machines (numbered 100-740) were built, the first was in active service by 1947, and many of the higher numbered machines (such as this one), have the special label pasted onto lid, and were put in storage to be used in time of war. NEMA was declassified in July 1992, and examples now come to the market on occasion. The NEMA machines were distributed as follows, those numbered under 100 were for training use and are mostly worn out, those allocated to the diplomatic service of which apparently none of which have been released, and those put aside for the next World War in bunkers around Switzerland, all of which have the red label on the case, they were generally unused except for occasional testing, and appear to be released only very occasionally.

US\$15,000 - 20,000



1092



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1092

RUSSIAN M-125 FIALKA CIPHER MACHINE.

A Fialka M-125 MN, a 10 rotor-based cipher machine, serial number 98-70259, Russia, 1950's. The machine complete with ten rotors, each with 30 Cyrillic characters, and a three row key board in Latin and Cyrillic with five-level paper tape reader below and paper tape punch and tape printing mechanism on top with punch card input on the left hand side, in grey metal casing with cover, the case with stencil number 98-70259, 12 x 10½ x 8 inches.

WITH: Power supply, hand telegraph key unit and later reference manual. The power supply is a standard Eastern Bloc (DDR and Czech) metal-cased 24 volt PSU, with stencil number 98-70246 to case, 6 x 10 x 6½ inches.

RARE EXAMPLE OF THE FIRST VERSION OF THE RUSSIAN FIALKA M-125 MN CIPHERING MACHINE. A highly complex ciphering machine used by the Soviets during the Cold War era, and also

widely used by many of the Warsaw Pact countries of Europe and their allies including Cuba. For many decades this machine was virtually unobtainable from behind the iron curtain, but in the last few decades examples have been released to the world. The Fialka, often called the Russian Enigma, was developed in the late 40s and early 50s by the Soviets, who needed a secure ciphering machine for message transmissions. The first one was used in 1956 and was the mainstay of secure communications until the fall of the Berlin Wall in 1989. The original M-125 was succeeded by the new revised version the M-25 3 in the 60s, and various communist countries rewired and changed the settings for their own languages. Some have compared the structure of Fialta to NEMA, but it is far more complex with the 10 electronic rotors as compared to 4, but in its structure it derives much from the German Enigma.

US\$10,000 - 15,000

1093

SOVIET BODY-WEARABLE INTERCEPT RECEIVER.

Body-wearable intercept receiver, code-named "*Filin*" ("owl"), USSR / East Germany, c.1970. Type B (60-150 MHz), serial number 178034, 8 1/4 x 6 1/4 x 2 inches. With tuning dial, frequency scale, mode selector (long- or short-distance), volume dials, and various inputs/outputs. Including original headphone speaker and original speaker cable; antenna also present, with cable. Power cable connector present but cables cut. Some (deliberate?) scratching to receiver and antenna.

AN ELABORATE EAVESDROPPING DEVICE TO BE WORN BY COLD WAR AGENTS. The curved design was intended to be worn around the chest. Using the headphone (present here, 3 cm in diameter) attached on the inside of the user's collar, enemy communication signals could be detected, tracked, and intercepted. The cryptomuseum website describes the original speaker cable as "extremely hard to find."

This model, with its 'near-' and 'far-' switch, was apparently in use by the Stasi (East German Secret Police).



1093

US\$1,000 - 1,500

1094

SOVIET BURST ENCODER.

"*Datchik*" R-014D Burst Encoder, USSR, c.1979. Waterproof keyboard with 16 rubber keys; black lamp panel; both original metal screw caps covering transmitter and power supply. Serial number N008797. With paper label inside lid giving German operating instructions. Lid with repair kit, comprising flat-tip screwdriver, black wrench, and replacement wooden screw cap. Housed in original green-brown metal case built for field use, 13 3/4 x 10 x 6 3/4 inches. Case lightly abraded.

WITH: Original power cord (not housed in case).

FOR USE IN EAST GERMANY. The "*Datchik*" burst encoder transmitted Morse coded messages at high speed. Developed in 1979, it was used throughout the Cold War, with this particular example evidently employed in East Germany. It could transmit commands of up to 59 digits in length, and was relatively straightforward to operate in the field—as the succinct German instruction on the inner lid suggest.



1094

US\$2,000 - 3,000

1095

SEVEROK-K SPY RADIO.

Severok-K Spy Radio, USSR, c.1993. Severok-K radio with full complement of accessories, various serial numbers, for field use, some dials in English (International settings?). Accessories comprise: Severok-K radio canvas carrying pouch; various smaller carrying pouches and canvas straps; 11 frequency plug-in units (one already attached to radio); canvas battery belt with 10 batteries (with signs of use); burst encoder DKM-S; microphone and headphones with connector; speaker / amplifier; Block-S (already attached to radio); folded wire-antenna; "spares" box with 5 spare fuses and 5 spare lightbulbs; battery charger in separate metal case; 5 separate user manuals in Russian; power cables and adapters; plus an orange eye-dropper, capacity 6 mL; long metal tuning device (?); 2 spare, unused batteries; two unidentified tubes (one black, one metal in canvas case).

According to the cryptomuseum website the spare lightbulbs in particular are purpose-built and are extremely rare.

US\$800 - 1,200



1095



1096



1096 (back)

1096

EXTREMELY RARE MIRROR-LID TYPE 23 TELEVISOR TELEVISION RECEIVER, BY BAIRD TELEVISION LTD.

C. 1936, serial no 39, with 15" screen circular Cathovisor CRT, black mask with rectangular outer surround, behind safety glass, polished mahogany baffle board, image on reflection from full lid interior mirror plate, in tall mahogany veneered console cabinet with butterfly-cut veneers revealing lighter core to center seams on side and front planes, moulded edge lid with rounded corners. Front with twin column handles — the right opening to access picture and sound controls, the left is fixed to match appearance when closed, on/off toggle switch with concave metal faceplate inset to left-side of cabinet. The back with two cloth-fielded panels for access to CRT and full chassis layout, with the EHT generator within fully enclosed metal case, control mounting chassis numbered A01433, almost all components and vacuum tubes from the manufacturing date, Rola speaker with the matching transformer, the back cabinet strut bearing the two Baird manufacturing plates in brown painted metal for this set, each stamped with set type and serial number. 25" wide, 43" high and 20" deep overall.

THE LOWEST SERIAL-NUMBERED PRE-1940 ELECTRONIC TELEVISION RECEIVER YET DISCOVERED. One of the rarest and most desired treasures of pre-1940 television sets. The T-5 and T-22/23 had the most interesting features technically, both with large screen diameters and a very stable vision strip, helped by the use of a separate chassis mounted away from the EHT transformer in order to try and eliminate RF interference. Almost all the components are from manufacturing date to include all major LT and HT wax condensers, with just a very small number on the vision strip being 1950s aluminium cased types. All wiring is correct with cloth covered VR cable used including the main aerial-in feed and the rubber EHT

lead which goes into the base of the CRT through the center of the connection boss. Very little work has been undertaken on this set and it looks as though it left Britain many years ago where it has been in this "time capsule" condition ever since.

The electronic standard line scanning in 1936 was between two systems - the short-lived Baird 240-line and the later commercially successful Marconi-EMI 405 line system, with both being broadcast from London's Alexandra Palace regularly from the end of November 1936. Baird Ltd were designing these sets from mid 1936 in preparation of the few experimental transmissions before the official November start. Exceedingly expensive, the average set cost in excess of £100 pounds (half the price of the average house).

Of the few hundred pre-1940 televisions made and sold in Britain at the time, only a very small handful have survived. This is one of the best preserved and most complete T-series Baird sets that has come to light. The condition is outstanding, with even the back cloth-panels and mirror untouched. There is every chance this set will run again after concise and sensible work in professional hands. Amateurs should be aware this set carries lethal voltages when switched on, with the mains-derived EHT feeding the CRT field delivering over 5000 volts, so this highly specialist work requires a great degree of care.

This museum-quality example is a historical landmark in the history of early television, bearing the name of the first successful pioneer who demonstrated the first live moving pictures, the Scotsman, John Logie Baird.

US\$15,000 - 20,000



1097

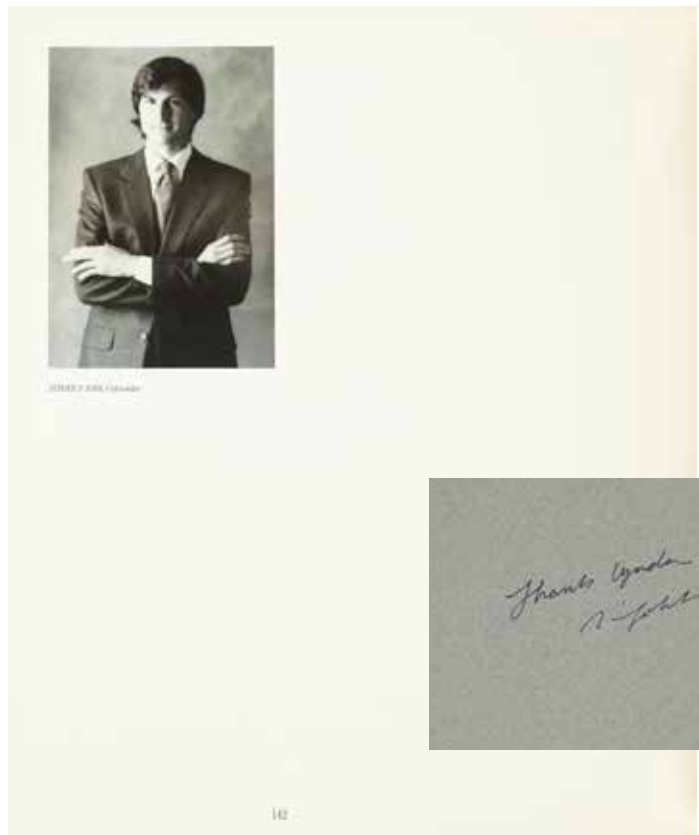
1097

CATHOVISOR CATHODE RAY TUBE, BAIRD TELEVISION LTD.

C.1936, Hysil (Pyrex glass), type 15 MW2, serial No. A2666, pre-mask screen diameter 14½". With the early roundel strip contact boss in black Bakelite, with gilt capital company transfer BAIRD reading across, exposed glass area at neck for heater element view, neck funnel with internal anodised beam coating, etched to cone section with serial and type details with BRITISH MADE below, good phosphorous coated screen field with no ion burn trace in disconnected status. Total length 32 inches.

Complete 5/6 and 6/6 sized CRTs which were used for these first Baird and Marconi/EMI-made mirror-lid televisions are rare enough, but this piece of television history is a true survivor. Heater continuity and emission rate estimated as good. With its original Baird Ltd label, this high-vacuum CRT is one of the best original examples of its type encountered.

US\$1,000 - 1,500



1098

1098

[JOBS, STEVE. 1955-2011.]

PRICE, ROB. *So Far. The First Ten Years of a Vision.* [Palo Alto]: Apple, [1987].

4to (330 x 276 mm). Profusely illustrated from photographs. Original cloth; dust jacket. Light wear to jacket; about fine.

Provenance: Lynda Heideman (presentation inscriptions); "Tom" (gift inscription from the above).

SIGNED BY STEVE JOBS: AN IMPORTANT EARLY APPLE PUBLICATION celebrating the company's first ten years in business and privately issued to employees and close associates. This copy inscribed and signed on the front free endpaper, "*Thanks Lynda / S Jobs*" along with additional inscriptions from Rob Price (the author), Thom Marchionna (creative director), Jill Savini (designer) and an unidentified "Steve." Lynda Heideman also worked on the publication and her name appears in the back of the book. Jobs did not sign books with any frequency and this is the only such item we see offered for public sale. The only autograph items that have been available are the very rare contracts and other official documents (most notably the Apple founding document sold for over \$1 million in 2011). Jobs' biographer Walter Isaacson described him as the "creative entrepreneur whose passion for perfection and ferocious drive revolutionized six industries: personal computers, animated movies, music, phones, tablet computing, and digital publishing."

US\$5,000 - 8,000

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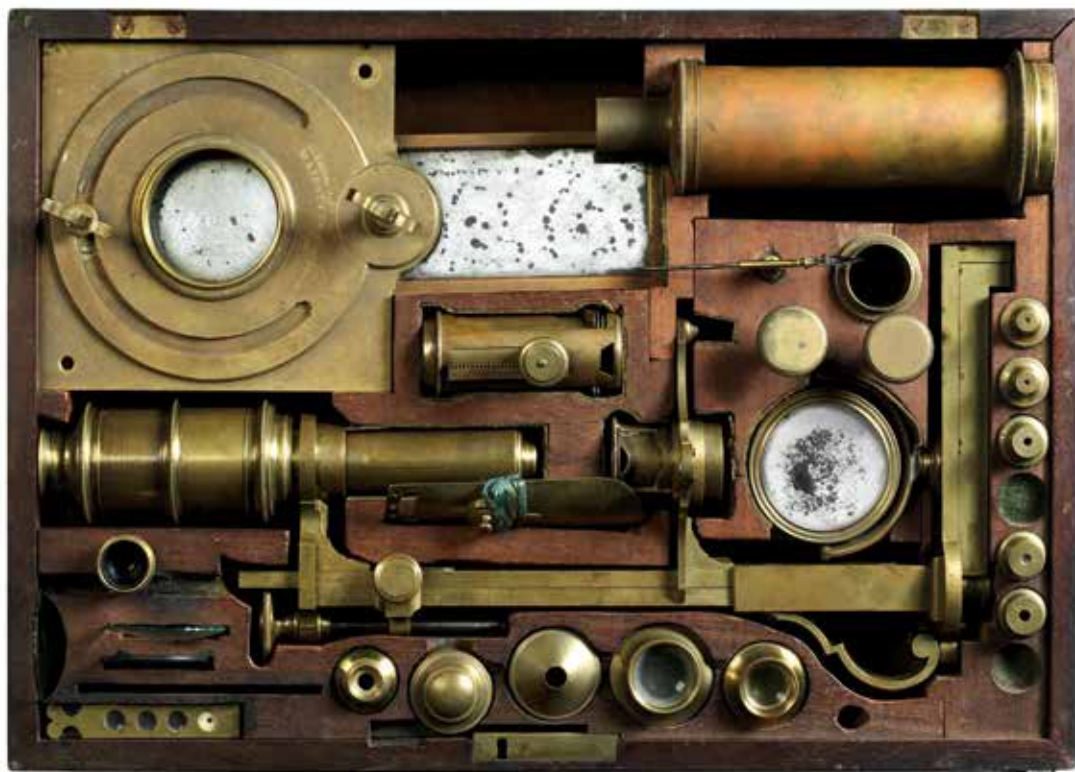
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AND CAMERAS**

Tuesday 4 April 2017
Knightsbridge, London

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BUYER’S GUIDE

BIDDING & BUYING AT AUCTION

Whether you are an experienced bidder or an enthusiastic novice, auctions provide a stimulating atmosphere unlike any other. Bonhams previews and sales are free and open to the public. As you will find in these directions, bidding and buying at auction is easy and exciting. Should you have any further questions, please visit our website at www.bonhams.com or call our Client Services Department at +1 (800) 223 2854 ext. 3550.

Catalogs

Before each auction we publish illustrated catalogs. Our catalogs provide descriptions and estimated values for each “lot.” A lot may refer to a single item or to a group of items auctioned together. The catalogs also include the dates and the times for the previews and auctions. We offer our catalogs by subscription or by single copy. For information on subscribing to our catalogs, you may refer to the subscription form in this catalog, call our Client Services Department, or visit our website at www.bonhams.com/us.

Previews

Auction previews are your chance to inspect each lot prior to the auction. We encourage you to look closely and examine each object on which you may want to bid so that you will know as much as possible about it. Except as expressly set forth in the Conditions of Sale, items are sold “as is” and with all faults; illustrations in our catalogs, website and other materials are provided for identification only. At the previews, our staff is always available to answer your questions and guide you through the auction process. Condition reports may be available upon request.

Estimates

Bonhams catalogs include low and high value estimates for each lot, exclusive of the buyer’s premium and tax. The estimates are provided as an approximate guide to current market value based primarily on previous auction results for comparable pieces, and should not be interpreted as a representation or prediction of actual selling prices. They are determined well in advance of a sale and are subject to revision. Please contact us should you have any questions about value estimates.

Reserves

Unless indicated by the ρ symbol next to the lot number, which denotes no reserve, all lots in the catalog are subject to a reserve. The reserve is the minimum auction price that the consignor is willing to accept for a lot. This amount is confidential and does not exceed the low estimate value.

Auction House’s Interest in Property Offered at Auction

On occasion, Bonhams may offer property in which it has an ownership interest in whole or in part or otherwise has an economic interest. Such property, if any, is identified in the catalog with a \blacktriangle symbol next to the lot number(s).

Bonhams may also offer property for a consignor that has been guaranteed a minimum price for its property by Bonhams or jointly by Bonhams and a third party. Bonhams and any third parties providing a guarantee may benefit financially if the guaranteed property is sold successfully and may incur a financial loss if its sale is not successful. Such property, if any, is identified in the catalog with a \circ symbol next to the lot number(s).

Bidding at Auction

At Bonhams, you can bid in many ways: in person, via absentee bid, over the phone, or via Bonhams’ live online bidding facility. Absentee bids can be submitted in person, online, via fax or via email.

Valid Bonhams client accounts are required to participate in bidding activity. You can obtain registration information online, at the reception desk or by calling our Client Services Department.

By bidding at auction, whether in person or by agent, by absentee bid, telephone, online or other means, the buyer or bidder agrees to be bound by the Conditions of Sale.

Lots are auctioned in consecutive numerical order as they appear in the catalog. Bidding normally begins below the low estimate. The auctioneer will accept bids from interested parties present in the saleroom, from telephone bidders, and from absentee bidders who have left written bids in advance of the sale. The auctioneer may also execute bids on behalf of the consignor by placing responsive or consecutive bids for a lot up to the amount of the reserve, but never above it.

We assume no responsibility for failure to execute bids for any reason whatsoever.

In Person

If you are planning to bid at auction for the first time, you will need to register at the reception desk in order to receive a numbered bid card. To place a bid, hold up your card so that the auctioneer can clearly see it. Decide on the maximum auction price that you wish to pay, exclusive of buyer’s premium and tax, and continue bidding until your bid prevails or you reach your limit. If you are the successful bidder on a lot, the auctioneer will acknowledge your paddle number and bid amount.

Absentee Bids

As a service to those wishing to place bids, we may at our discretion accept bids without charge in advance of auction online or in writing on bidding forms available from us. “Buy” bids will not be accepted; all bids must state the highest bid price the bidder is willing to pay. Our auction staff will try to bid just as you would, with the goal of obtaining the item at the lowest bid price possible. In the event identical bids are submitted, the earliest bid submitted will take precedence. Absentee bids shall be executed in competition with other absentee bids, any applicable reserve, and bids from other auction participants. A friend or agent may place bids on your behalf, provided that we have received your written authorization prior to the sale. Absentee bid forms are available in our catalogs, online at www.bonhams.com/us, at offsite auction locations, and at our San Francisco, Los Angeles and New York galleries.

By Telephone

Under special circumstances, we can arrange for you to bid by telephone. To arrange for a telephone bid, please contact our Client Services Department a minimum of 24 hours prior to the sale.

Online

We offer live online bidding for most auctions and accept absentee bids online for all our auctions. Please visit www.bonhams.com/us for details.

Bid Increments

Bonhams generally uses the following increment multiples as bidding progresses:

\$50-200	by \$10s
\$200-500	by \$20/50/80s
\$500-1,000	by \$50s
\$1,000-2,000	by \$100s
\$2,000-5,000	by \$200/500/800s
\$5,000-10,000	by \$500s
\$10,000-20,000	by \$1,000s
\$20,000-50,000	by \$2,000/5,000/8,000s
\$50,000-100,000	by \$5,000s
\$100,000-200,000	by \$10,000s
above \$200,000	at auctioneer’s discretion

The auctioneer may split or reject any bid at any time at his or her discretion as outlined in the Conditions of Sale.

Currency Converter

Solely for the convenience of bidders, a currency converter may be provided at Bonhams’ auctions. The rates quoted for conversion of other currencies to U.S. Dollars are indications only and should not be relied upon by a bidder, and neither Bonhams nor its agents shall be responsible for any errors or omissions in the operation or accuracy of the currency converter.

Buyer’s Premium

A buyer’s premium is added to the winning bid price of each individual lot purchased, at the rates set forth in the Conditions of Sale. The winning bid price plus the premium constitute the purchase price for the lot. Applicable sales taxes are computed based on this figure, and the total becomes your final purchase price.

Unless specifically illustrated and noted, fine art frames are not included in the estimate or purchase price. Bonhams accepts no liability for damage or loss to frames during storage or shipment.

All sales are final and subject to the Conditions of Sale found in our catalogs, on our website, and available at the reception desk.

Payment

All buyers are asked to pay and pick up by 3pm on the business day following the auction. Payment may be made to Bonhams by cash, checks drawn on a U.S. bank, money order, wire transfer, or by Visa, MasterCard, American Express or Discover credit or charge card or debit card. All items must be paid for within 5 business days of the sale. Please note that payment by personal or business check may result in property not being released until purchase funds clear our bank. For payments sent by mail, please remit to Cashier Department, 220 San Bruno Avenue, San Francisco, CA 94103.

Sales Tax

Residents of states listed in Paragraph 1 of the Conditions of Sale must pay applicable sales tax. Other state or local taxes (or compensation use taxes) may apply. Sales tax will be automatically added to the invoice unless a valid resale number has been furnished or the property is shipped via common carrier to destinations outside the states listed in the Conditions of Sale. If you wish to use your resale license please contact Cashiers for our form.

Shipping & Removal

Bonhams can accommodate shipping for certain items. Please contact our Cashiers Department for more information or to obtain a quote. Carriers are not permitted to deliver to PO boxes.

International buyers are responsible for all import/export customs duties and taxes. An invoice stating the actual purchase price will accompany all international purchases.

Collection of Purchases

Please arrange for the packing and transport of your purchases prior to collection at our office. If you are sending a third party shipper, please request a release form from us and return it to +1 (212) 644 9009 prior to your scheduled pickup. To schedule collection of purchases, please call +1 (212) 644 9001.

Handling and Storage Charges

Please note that our offices have requirements for freight elevator usage. Please contact us to schedule an elevator appointment for pickup of any large or awkward items. Bonhams will hold all purchased lots in our gallery until Wednesday December 14 without penalty. After December 14 collection of lots will be by appointment only. Please call +1 (212) 644 9001 at least 24 hours in advance to make an appointment.

Storage charges of \$5 per lot, per day will begin accruing for any lots not collected by the 31st day after the auction. Bonhams reserves the right to remove uncollected sold lots to the warehouse of our choice at the buyer’s risk and expense. Handling and storage fees will apply.

Auction Results

To find out the final purchase price for any lot following the sale, please call our automated auction results line at +1 (800) 223 2854 ext. 3400. All you need is a touch-tone telephone and the lot number. Auction results are usually available on the next business day following the sale or online at www.bonhams.com/us.

CONDITIONS OF SALE

The following Conditions of Sale, as amended by any published or posted notices or verbal announcements during the sale, constitute the entire terms and conditions on which property listed in the catalog shall be offered for sale or sold by Bonhams & Butterfields Auctioneers Corp. and any consignor of such property for whom we act as agent. If live online bidding is available for the subject auction, additional terms and conditions of sale relating to online bidding will apply; see www.bonhams.com/WebTerms for the supplemental terms. As used herein, "Bonhams," "we" and "us" refer to Bonhams & Butterfields Auctioneers Corp.

1. As used herein, the term "bid price" means the price at which a lot is successfully knocked down to the purchaser. The term "purchase price" means the aggregate of (a) the bid price, (b) a PREMIUM retained by us and payable by the purchaser EQUAL TO 25% OF THE FIRST \$150,000 OF THE BID PRICE, 20% OF THE AMOUNT OF THE BID PRICE ABOVE \$150,000 UP TO AND INCLUDING \$3,000,000, AND 12% OF THE AMOUNT OF THE BID PRICE OVER \$3,000,000, and (c) unless the purchaser is exempt by law from the payment thereof, any Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois, Massachusetts, Nevada, New Jersey, New York, Pennsylvania, Texas, Virginia, Washington, D.C., Washington state, or other state or local sales tax (or compensating use tax) and other applicable taxes. With regard to New York sales tax, please refer to the "Sales and Use Tax" section of these Conditions of Sale.

2. On the fall of the auctioneer's hammer, the highest bidder shall have purchased the offered lot in accordance and subject to compliance with all of the conditions set forth herein and (a) assumes full risk and responsibility thereof, (b) if requested will sign a confirmation of purchase, and (c) will pay the purchase price in full or such part as we may require for all lots purchased. No lot may be transferred. Any person placing a bid as agent on behalf of another (whether or not such person has disclosed that fact or the identity of the principal) may be jointly and severally liable with the principal under any contract resulting from the acceptance of a bid.

Unless otherwise agreed, payment in good funds is due and payable within five (5) business days following the auction sale. Whenever the purchaser pays only a part of the total purchase price for one or more lots purchased, we may apply such payments, in our sole discretion, to the lot or lots we choose. Payment will not be deemed made in full until we have collected good funds for all amounts due.

Payment for purchases may be made in or by (a) cash, (b) cashier's check or money order, (c) personal check with approved credit drawn on a U.S. bank, (d) wire transfer or other immediate bank transfer, or (e) Visa, MasterCard, American Express or Discover credit, charge or debit card. A processing fee will be assessed on any returned checks. Please note that the amount of cash notes and cash equivalents that can be accepted from a given purchaser may be limited.

The purchaser grants us a security interest in the property, and we may retain as collateral security for the purchaser's obligations to us, any property and all monies held or received by us for the account of the purchaser, in our possession. We retain all rights of a secured party under the California Commercial Code. If the foregoing conditions or any other applicable conditions herein are not complied with, in addition to other remedies available to us and the consignor by law, including without limitation, the right to hold the purchaser liable for the purchase price, we at our option may either (a) cancel the sale, retaining as liquidated damages all payments made by the purchaser or (b) resell the property, either publicly or privately, and in such event the purchaser shall be liable for the payment of any deficiency plus all costs and expenses

of both sales, our commission at our standard rates, all other charges due hereunder, attorneys' fees, expenses and incidental damages. In addition, where two or more amounts are owed in respect of different transactions by the purchaser to us, to Bonhams 1793 Limited and/or to any of our other affiliates, subsidiaries or parent companies worldwide within the Bonhams Group, we reserve the right to apply any monies paid in respect of a transaction to discharge any amount owed by the purchaser. If all fees, commissions, premiums, bid price and other sums due to us from the purchaser are not paid promptly as provided in these Conditions of Sale, we reserve the right to impose a finance charge equal to 1.5% per month on all amounts due to us beginning on the 31st day following the sale until payment is received, in addition to other remedies available to us by law.

3. We reserve the right to withdraw any property and to divide and combine lots at any time before such property's auction. Unless otherwise announced by the auctioneer at the time of sale, all bids are per lot as numbered in the catalog and no lots shall be divided or combined for sale.

4. We reserve the right to reject a bid from any bidder, to split any bidding increment, and to advance the bidding in any manner the auctioneer may decide. In the event of any dispute between bidders, or in the event the auctioneer doubts the validity of any bid, the auctioneer shall have sole and final discretion either to determine the successful bidder or to re-offer and resell the article in dispute. If any dispute arises after the sale, our sales records shall be conclusive in all respects.

5. If we are prevented by fire, theft or any other reason whatsoever from delivering any property to the purchaser or a sale otherwise cannot be completed, our liability shall be limited to the sum actually paid therefor by the purchaser and shall in no event include any compensatory, incidental or consequential damages.

6. If a lot is offered subject to a reserve, we may implement such reserve by bidding on behalf of the consignor, whether by opening bidding or continuing bidding in response to other bidders until reaching the reserve. If we have an interest in an offered lot and the proceeds therefrom other than our commissions, we may bid therefor to protect such interest. CONSIGNORS ARE NOT ALLOWED TO BID ON THEIR OWN ITEMS.

7. All statements contained in the catalog or in any bill of sale, condition report, invoice or elsewhere as to authorship, period, culture, source, origin, measurement, quality, rarity, provenance, importance, exhibition and literature of historical relevance, or physical condition ARE QUALIFIED STATEMENTS OF OPINION AND NOT REPRESENTATIONS OR WARRANTIES. No employee or agent of Bonhams is authorized to make on our behalf or on that of the consignor any representation or warranty, oral or written, with respect to any property.

8. All purchased property shall be removed from the premises at which the sale is conducted by the date(s) and time(s) set forth in the "Buyer's Guide" portion of the catalog. If not so removed, daily storage fees will be payable to us by the purchaser as set forth therein. We reserve the right to transfer property not so removed to an offsite warehouse at the purchaser's risk and expense, as set forth in more detail in the "Buyer's Guide." Accounts must be settled in full before property will be released. Packing and handling of purchased lots are the responsibility of the purchaser. Bonhams can provide packing and shipping services for certain items as noted in the "Buyer's Guide" section of the catalog.

9. The copyright in the text of the catalog and the photographs, digital images and illustrations of lots in the catalog belong to Bonhams or its licensors. You will not reproduce or permit anyone else to reproduce such text, photographs, digital images or illustrations without our prior written consent.

10. These Conditions of Sale shall bind the successors and assigns of all bidders and purchasers and inure to the benefit of our successors and assigns. No waiver, amendment or modification of the terms hereof (other than posted notices or oral announcements during the sale) shall bind us unless specifically stated in writing and signed by us. If any part of these Conditions of Sale is for any reason invalid or unenforceable, the rest shall remain valid and enforceable.

11. These Conditions of Sale and the purchaser's and our respective rights and obligations hereunder are governed by the laws of the State of California. By bidding at an auction, each purchaser and bidder agrees to be bound by these Conditions of Sale. Any dispute, controversy or claim arising out of or relating to this agreement, or the breach, termination or validity thereof, brought by or against Bonhams (but not including claims brought against the consignor by the purchaser of lots consigned hereunder) shall be resolved by the procedures set forth below.

SALES AND USE TAX

New York sales tax is charged on the hammer price, buyer's premium and any other applicable charges on any property collected or delivered in New York State, regardless of the state or country in which the purchaser resides or does business. Purchasers who make direct arrangements for collection by a shipper who is considered a "private" or "contract" carrier by the New York Department of Taxation and Finance will be charged New York sales tax, regardless of the destination of the property. Property collected for delivery to a destination outside of New York by a shipper who is considered a "common carrier" by the New York Department of Taxation and Finance (e.g. United States Postal Service, United Parcel Service, and FedEx) is not subject to New York sales tax, but if it is delivered into any state in which Bonhams is registered or otherwise conducts business sufficient to establish a nexus, Bonhams may be required by law to collect and remit the appropriate sales tax in effect in such state. Property collected for delivery outside of the United States by a freight-forwarder who is registered with the Transportation Security Administration ("TSA") is not subject to New York sales tax.

MEDIATION AND ARBITRATION PROCEDURES

(a) Within 30 days of written notice that there is a dispute, the parties or their authorized and empowered representatives shall meet by telephone and/or in person to mediate their differences. If the parties agree, a mutually acceptable mediator shall be selected and the parties will equally share such mediator's fees. The mediator shall be a retired judge or an attorney familiar with commercial law and trained in or qualified by experience in handling mediations. Any communications made during the mediation process shall not be admissible in any subsequent arbitration, mediation or judicial proceeding. All proceedings and any resolutions thereof shall be confidential, and the terms governing arbitration set forth in paragraph (c) below shall govern.

(b) If mediation does not resolve all disputes between the parties, or in any event no longer than 60 days after receipt of the written notice of dispute referred to above, the parties shall submit the dispute for binding arbitration before a single neutral arbitrator. Such arbitrator shall be a retired judge or an attorney familiar with commercial law and trained in or qualified by experience in handling arbitrations. Such arbitrator shall make all appropriate disclosures required by law. The arbitrator shall be drawn from a panel of a national arbitration service agreed to by the parties, and shall be selected as follows: (i) If the national arbitration service has specific rules or procedures, those rules or procedures shall be followed; (ii) If the national arbitration service does not have rules or procedures for the selection of an arbitrator, the

arbitrator shall be an individual jointly agreed to by the parties. If the parties cannot agree on a national arbitration service, the arbitration shall be conducted by the American Arbitration Association, and the arbitrator shall be selected in accordance with the Rules of the American Arbitration Association. The arbitrator's award shall be in writing and shall set forth findings of fact and legal conclusions.

(c) Unless otherwise agreed to by the parties or provided by the published rules of the national arbitration service:

(i) the arbitration shall occur within 60 days following the selection of the arbitrator;

(ii) the arbitration shall be conducted in the designated location, as follows: (A) in any case in which the subject auction by Bonhams took place or was scheduled to take place in the State of New York or Connecticut or the Commonwealth of Massachusetts, the arbitration shall take place in New York City, New York; (B) in all other cases, the arbitration shall take place in the city of San Francisco, California; and

(iii) discovery and the procedure for the arbitration shall be as follows:

(A) All arbitration proceedings shall be confidential;

(B) The parties shall submit written briefs to the arbitrator no later than 15 days before the arbitration commences;

(C) Discovery, if any, shall be limited as follows: (I) Requests for no more than 10 categories of documents, to be provided to the requesting party within 14 days of written request therefor; (II) No more than two (2) depositions per party, provided however, the deposition(s) are to be completed within one (1) day; (III) Compliance with the above shall be enforced by the arbitrator in accordance with California law;

(D) Each party shall have no longer than eight (8) hours to present its position. The entire hearing before the arbitrator shall not take longer than three (3) consecutive days;

(E) The award shall be made in writing no more than 30 days following the end of the proceeding. Judgment upon the award rendered by the arbitrator may be entered by any court having jurisdiction thereof.

To the fullest extent permitted by law, and except as required by applicable arbitration rules, each party shall

bear its own attorneys' fees and costs in connection with the proceedings and shall share equally the fees and expenses of the arbitrator.

LIMITED RIGHT OF RESCISSION

If within one (1) year from the date of sale, the original purchaser (a) gives written notice to us alleging that the identification of Authorship (as defined below) of such lot as set forth in the **BOLD TYPE** heading of the catalog description of such lot (as amended by any saleroom notices or verbal announcements during the sale) is not substantially correct based on a fair reading of the catalog (including the terms of any glossary contained therein), and (b) within 10 days after such notice returns the lot to us in the same condition as at the time of sale, and (c) establishes the allegation in the notice to our satisfaction (including by providing one or more written opinions by recognized experts in the field, as we may reasonably require), then the sale of such lot will be rescinded and, unless we have already paid to the consignor monies owed him in connection with the sale, the original purchase price will be refunded.

If, prior to receiving such notice from the original purchaser alleging such defect, we have paid the consignor monies owed him in connection with the sale, we shall pay the original purchaser the amount of our commissions, any other sale proceeds to which we are entitled and applicable taxes received from the purchaser on the sale and make demand on the consignor to pay the balance of the original purchase price to the original purchaser. Should the consignor fail to pay such amount promptly, we may disclose the identity of the consignor and assign to the original purchaser our rights against the consignor with respect to the lot the sale of which is sought to be rescinded. Upon such disclosure and assignment, any liability of Bonhams as consignor's agent with respect to said lot shall automatically terminate.

The foregoing limited right of rescission is available to the original purchaser only and may not be assigned to or relied upon by any subsequent transferee of the property sold. The purchaser hereby accepts the benefit of the consignor's warranty of title and other representations and warranties made by the consignor for the purchaser's benefit. Nothing in this section shall be construed as an admission by us of any representation of fact, express or implied, obligation or responsibility with respect to any lot. THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY AGAINST BONHAMS FOR ANY

REASON WHATSOEVER IS THE LIMITED RIGHT OF RESCISSION DESCRIBED IN THIS SECTION.

"Authorship" means only the identity of the creator, the period, culture and source or origin of the lot, as the case may be, as set forth in the **BOLD TYPE** heading of the print catalog entry. The right of rescission does not extend to: (a) works of art executed before 1870 (unless these works are determined to be counterfeits created since 1870), as this is a matter of current scholarly opinion which can change; (b) titles, descriptions, or other identification of offered lots, which information normally appears in lower case type below the **BOLD TYPE** heading identifying the Authorship; (c) Authorship of any lot where it was specifically mentioned that there exists a conflict of specialist or scholarly opinion regarding the Authorship of the lot at the time of sale; (d) Authorship of any lot which as of the date of sale was in accordance with the then generally-accepted opinion of scholars and specialists regarding the same; or (e) the identification of periods or dates of creation in catalog descriptions which may be proven inaccurate by means of scientific processes that are not generally accepted for use until after publication of the catalog in which the property is offered or that were unreasonably expensive or impractical to use at the time of such publication.

LIMITATION OF LIABILITY

EXCEPT AS EXPRESSLY PROVIDED ABOVE, ALL PROPERTY IS SOLD "AS IS." NEITHER BONHAMS NOR THE CONSIGNOR MAKES ANY REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, AS TO THE MERCHANTABILITY, FITNESS OR CONDITION OF THE PROPERTY OR AS TO THE CORRECTNESS OF DESCRIPTION, GENUINENESS, ATTRIBUTION, PROVENANCE OR PERIOD OF THE PROPERTY OR AS TO WHETHER THE PURCHASER ACQUIRES ANY COPYRIGHTS OR OTHER INTELLECTUAL PROPERTY RIGHTS IN LOTS SOLD OR AS TO WHETHER A WORK OF ART IS SUBJECT TO THE ARTIST'S MORAL RIGHTS OR OTHER RESIDUAL RIGHTS OF THE ARTIST. THE PURCHASER EXPRESSLY ACKNOWLEDGES AND AGREES THAT IN NO EVENT SHALL BONHAMS BE LIABLE FOR ANY DAMAGES INCLUDING, WITHOUT LIMITATION, ANY COMPENSATORY, INCIDENTAL OR CONSEQUENTIAL DAMAGES.

SELLER'S GUIDE

SELLING AT AUCTION

Bonhams can help you every step of the way when you are ready to sell art, antiques and collectible items at auction. Our regional offices and representatives throughout the US are available to service all of your needs. Should you have any further questions, please visit our website at www.bonhams.com/us for more information or call our Client Services Department at +1 (800) 223 2854 ext. 23550.

AUCTION ESTIMATES

The first step in the auction process is to determine the auction value of your property. Bonhams' world-renowned specialists will evaluate your special items at no charge and in complete confidence. You can obtain an auction estimate in many ways:

- Attend one of our Auction Appraisal Events held regularly at our galleries and in other major metropolitan areas. The updated schedule for Bonhams Auction Appraisal Events is available at www.bonhams.com/us.
- Call our Client Services Department to schedule a private appointment at one of our galleries. If you have a large collection, our specialists can travel, by appointment, to evaluate your property on site.
- Send clear photographs to us of each individual item, including item dimensions and other pertinent information with each picture. Photos should be sent to Bonhams' address in envelopes marked

as "photo auction estimate". Alternatively, you can submit your request using our online form at www.bonhams.com/us. Digital images may be attached to the form. Please limit your images to no more than five (5) per item.

CONSIGNING YOUR PROPERTY

After you receive an estimate, you may consign your property to us for sale in the next appropriate auction. Our staff assists you throughout the process, arranging transportation of your items to our galleries (at the consignor's expense), providing a detailed inventory of your consignment, and reporting the prices realized for each lot. We provide secure storage for your property in our warehouses and all items are insured throughout the auction process. You will receive payment for your property approximately 35 days after completion of sale.

Sales commissions vary with the potential auction value of the property and the particular auction in which the property is offered. Please call us for commission rates.

PROFESSIONAL APPRAISAL SERVICES

Bonhams' specialists conduct insurance and fair market value appraisals for private collectors, corporations, museums, fiduciaries and government entities on a daily basis. Insurance appraisals, used for insurance purposes, reflect the cost of replacing property in today's retail market. Fair market value appraisals are used for estate,

tax and family division purposes and reflect prices paid by a willing buyer to a willing seller.

When we conduct a private appraisal, our specialists will prepare a thorough inventory listing of all your appraised property by category. Valuations, complete descriptions and locations of items are included in the documentation.

Appraisal fees vary according to the nature of the collection, the amount of work involved, the travel distance, and whether the property is subsequently consigned for auction.

Our appraisers are available to help you anywhere and at any time. Please call our Client Services Department to schedule an appraisal.

ESTATE SERVICES

Since 1865, Bonhams has been serving the needs of fiduciaries – lawyers, trust officers, accountants and executors – in the disposition of large and small estates. Our services are specially designed to aid in the efficient appraisal and disposition of fine art, antiques, jewelry, and collectibles. We offer a full range of estate services, ranging from flexible financial terms to tailored accounting for heirs and their agents to world-class marketing and sales support.

For more information or to obtain a detailed Trust and Estates package, please visit our website at www.bonhams.com/us or contact our Client Services Department.

Auction Registration Form

(Attendee / Absentee / Online / Telephone Bidding)

Please circle your bidding method above.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Paddle number (for office use only)

General Notice: This sale will be conducted in accordance with Bonhams Conditions of Sale, and your bidding and buying at the sale will be governed by such terms and conditions. Please read the Conditions of Sale in conjunction with the Buyer's Guide relating to this sale and other published notices and terms relating to bidding. Payment by personal or business check may result in your property not being released until purchase funds clear our bank. Checks must be drawn on a U.S. bank.

Notice to Absentee Bidders: In the table below, please provide details of the lots on which you wish to place bids at least 24 hours prior to the sale. Bids will be rounded down to the nearest increment. Please refer to the Buyer's Guide in the catalog for further information relating to instructions to Bonhams to execute absentee bids on your behalf. Bonhams will endeavor to execute bids on your behalf but will not be liable for any errors or non-executed bids.

Notice to First Time Bidders: New clients are requested to provide photographic proof of ID - passport, driving license, ID card, together with proof of address - utility bill, bank or credit card statement etc. Corporate clients should also provide a copy of their articles of association / company registration documents, together with a letter authorizing the individual to bid on the company's behalf. Failure to provide this may result in your bids not being processed. For higher value lots you may also be asked to provide a bankers reference.

Notice to online bidders: If you have forgotten your username and password for www.bonhams.com, please contact Client Services.

If successful

I will collect the purchases myself ☐
Please contact me with a shipping quote (if applicable) ☐
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580 Madison Avenue
New York, New York 10022
Tel +1 (212) 644 9001
Fax +1 (212) 644 9009
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Tel +1 (415) 503 3410

Bonhams

Sale title: History of Science and Technology	Sale date: December 7, 2016
Sale no. 23259	Sale venue: New York
General Bid Increments: \$10 - 200by 10s \$200 - 500by 20 / 50 / 80s \$500 - 1,000by 50s \$1,000 - 2,000by 100s \$2,000 - 5,000by 200 / 500 / 800s \$5,000 - 10,000by 500s \$10,000 - 20,000by 1,000s \$20,000 - 50,000by 2,000 / 5,000 / 8,000s \$50,000 - 100,000by 5,000s \$100,000 - 200,000by 10,000s above \$200,000at the auctioneer's discretion The auctioneer has discretion to split any bid at any time.	
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E-mail (in capitals) _____ By providing your email address above, you authorize Bonhams to send you marketing materials and news concerning Bonhams and partner organizations. Bonhams does not sell or trade email addresses.	
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You instruct us to execute each absentee bid up to the corresponding bid amount indicated above.

* Emergency Bid: A maximum bid (exclusive of Buyer's Premium and tax) to be executed by Bonhams only if we are unable to contact you by telephone or should the connection be lost during bidding.

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Your signature:

Date:

From what you say I
presume to reply certainly
will not be given this
year to any branch of
the Natural Sciences,
but as you are
permanently attached to
the Society, I may take
this opportunity of
expressing my strong
opinion on the claims
of Lyell for the Copley

Medal: I am aware
that he has many
years ago a Royal
Medal for his Essay,
but I think the
amount of value of his
various works is most
amply justified the Copley.
It is by deliberate choice
a victim that the future
distinction of the Natural
Sciences, will reach Lyell's

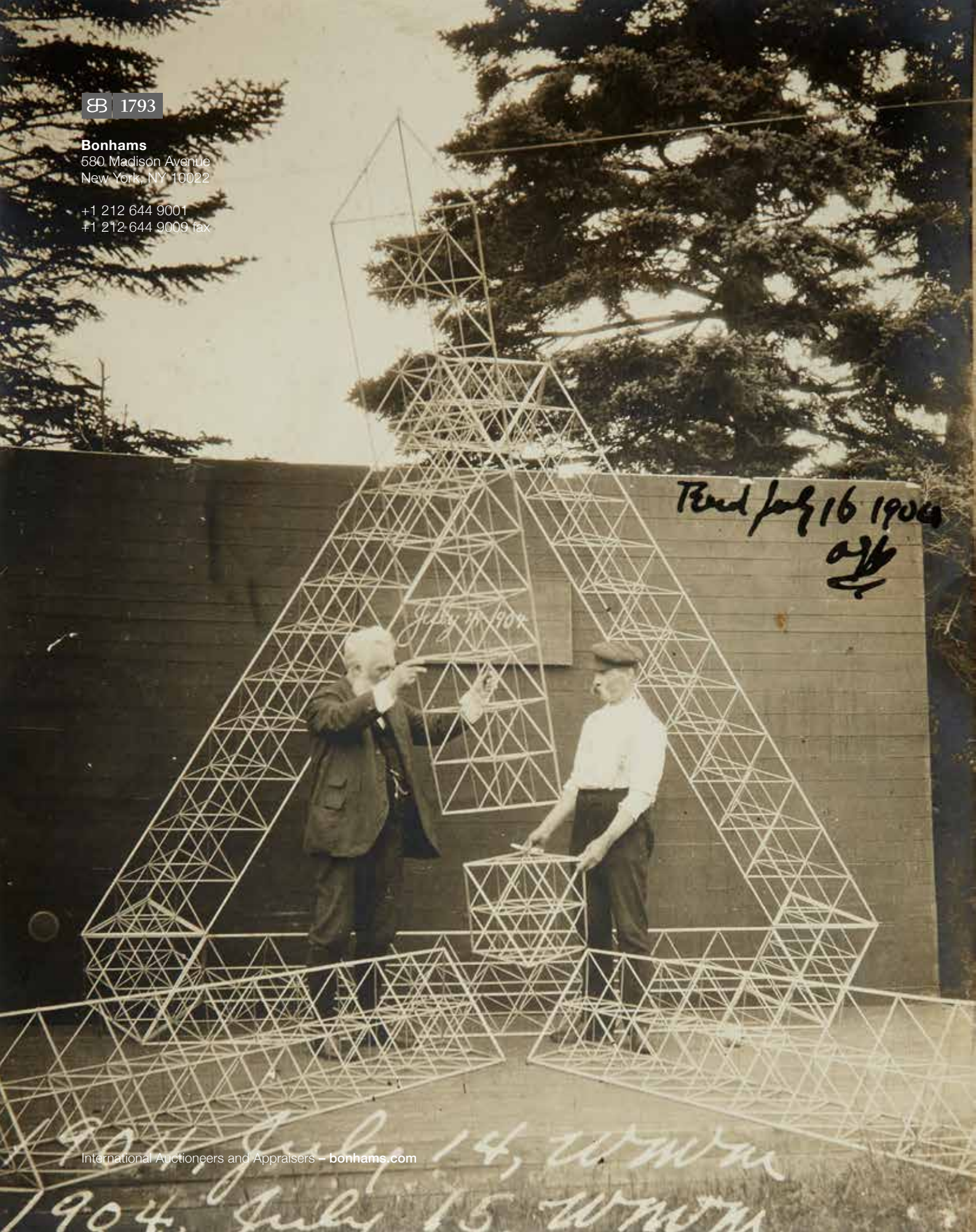
B 1793

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July 14 1904

1904, July 14, WTHW
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