

SHAPERO
RARE BOOKS

SCIENCE & MEDICINE



Les Périodes

paléontologiques



SCIENCE &
MEDICINE

SUBJECTS

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ITEM 2



EARLY TIMURID ZIJ'

1. [ASTRONOMY]. *Kitab'i Zij, a compendium of astrological tables*, *Timurid Persia*, possibly Herat, dated 841 AH (1462 AD). £15,000 [ref: 114847]

An early Timurid *Kitab'i Zij'*, being a concise astronomical volume that tabulates parameters used for astronomical calculations of the positions of the sun, moon, stars and planets.

This manuscript is most comparable to the *Zij'i Sultani*, a catalogue that was compiled under the patronage of Ulugh Beg in the Samarkand Observatory between 1438 and 1439. The work is thorough and updated many Ptolomaic calculations on stars, repositioning over 900 stars and offering updated calculations sun and moon's movements in particular.

For context, this manuscript precedes the publication of Copernicus' *De Revolutionibus Orbium Coelestium* (printed in 1543, on the revolutions of heavenly spheres) by 80 years, which is generally accepted to be the first work to offer an alternative model to the widely accepted geocentric systems of Ptolemy.

Single volume, decorated manuscript on buff paper, in Farsi, 68 leaves, in manuscript formed of tables throughout in red, with headings in large black naskh, smaller headings sometimes in red, some faint water-staining, some working rarely affecting text, leaves age-toned; housed in later leather over boards, ruled in blind, extremities and corners lightly rubbed. 245 x 185mm (9¾ x 7¼ inches).



LARGEST ENCYCLOPEDIA OF GALENIC MEDICINE IN PERSIAN

2. JURJANI, ZAYN AL-DIN. *Zakhire'ye Kharazamshahi*, *Timurid Persia*, dated 879 AH (1474 AD).

£30,000 [ref: 114731]

Zayn al-Din Jurjani (d. 1137) was a Persian physician who worked under the patronage of to Kharazamshahs during his lifetime: Qutb al-Din Khwarazm Shah Abu'l-Fath Muhammad ibn Yamin-al-Din (r.1097-1127 AD) and Atsiz ibn Muhammad (r.1127-56 AD). This text is his most comprehensive and influential work and it is dedicated to Qutb al-Din Khwarazm Shah, believed to have been authored around 1110.

The *Zakhire'ye Kharazamshahi* is considered the first medical encyclopaedia written in Persian, supplying information from all branches of medicine in the interest of saving a physician the time involved in consulting multiple sources during their practice. It is the largest encyclopaedia of Galenic medicine in the Persian language and an important text for the study of Persian medicine in for it's use of 'pure Persian' technical medical language and vocabulary.

This text contains 9 of the 'kitabs' (books) which are each subdivided into multiple *guftars* and *babs* (teachings and chapters), which are enumerated in the preface. The subjects of those respective chapters are as follows: (I) Definition and utility of medicine; composition, structure, and powers of the human body; (II) Health and disease; causes and symptoms of disease; accidents of the body; (III) Preservation of health; (IV) Diagnosis of diseases; crisis and prognosis; (V) Fevers, their various kinds, their symptoms and treatment; (VI) Local diseases and their treatment; (VII) Tumours and ulcers etc; (VIII) The care to be taken of the external parts of the body, hair, skin, nails etc; (IX) Poisons and antidotes.

Early manuscript copies of this text are scarce and often only contain 2 or 3 of the books, by comparison this copy is extensive and represents a scarce early example of the text, containing 9 of the 10 books, from the Timurid Period.

3 vols, containing 9 chapters (of 10), decorated manuscript on paper, in Farsi, circa 800 leaves, 9 some leaves in later manuscript facsimile to complete the text (3 at the beginning of vol. 1 and 6 at the end of vol. 3), each vol. 285 x 205 mm (11¼ x 8 inches); single column, 27 lines informal black naskh or nasta'liq, copied in a number of different hands, leaves foliated and with catch-words, headings and important words in red, some leaves with margins repaires, a few later ink inscriptions, some light finger soiling or smudging, a few early ink seal impressions, mostly to the ends of each 'kitab'; eighteenth-century boards, rebacked and edges repaired, lower boards of volumes 2 and 3 replaced with later leather-backed boards, edges rubbed.

3. [MATHEMATICS]. [Kitab fi Ilm al Jabr wa al-Hisab], on multiplication and division in algebra and arithmetic Western Safavid Persia, possibly Tabriz, dated 1086 (?) AH (c. 1675 AD).

£4,000 [ref: 114736]

An interesting treatise on mathematics with a particular focus on multiplication and division in algebra and arithmetic, likely adapted from Nasir al-Din Tusi's *Kitab ad-darb wa'l-qisma fi 'ilm al-jabr wa al-hisab* (compiled in the thirteenth century).

This codex was evidently copied in a few different hands and over a period of time with contemporary annotations to the margin; this suggests that the codex was intended for study in a 'madrasa' setting and used by piers for reference.

Furthermore, the combined Ottoman and Persian stylistic influences on the script suggest copying in Tabriz in the seventeenth-century, shortly after the area was recaptured by the Safavids after 18 years of Ottoman rule.

Single volume, decorated manuscript on paper, in Arabic, 180 leaves, single column, mostly 17 lines per page, informal naskh freehand sometimes verging on shekasteh script, important sections and headings in red, numerous tables, grids and diagrams throughout the text, some contemporary annotations to margins, catch-words, outer margins of first leaf replaced, overall clean and crisp internal condition, late eighteenth-century leather-backed marbled boards, edges a little rubbed. 172 x 100mm (6¾ x 4 inches).

4. [MEDICAL MANUSCRIPT]. A Medical Encyclopedia, featuring remedies for ailments and sickness. Mughal India (?), dated 1077 Hijri (1698 AD).

£4,000 [ref: 114738]

A medical manuscript featuring lists of sicknesses and remedies copied in an informal freehand likely copied for personal use by a medical practitioner. The paper, binding and overall aesthetic strongly suggest that the manuscript originates from Mughal India, which was under the rule of Mughal Emperor Aurangzeb during this period.

Single volume, decorated manuscript on paper, in Arabic and farsi, likely lacking a few leaves at the front, first page in manuscript facsimile, circa 150 leaves, single column, 21 lines informal freehand, verging on nasta'liq, important words and headings in red throughout, catch-words, some contemporary annotations to margins, some light staining mostly to outer margins; contemporary blind-stamped straight grain limp leather, rebaked and edges repaired, upper and lower edges torn and chipped with loss. Measurements; 230 x 160mm (9 x 6¼ inches).



PHARMACOPOEIA DEDICATED TO SHAH SULEYMAN

5. TUNAKABUNI, MUHAMMAD MU'MIN BIN MUHAMMAD ZAMAN HUSAINI. Tuhfat al-Mu'minin, a comprehensive pharmacopoeia of simple and compound medicines Safavid Persia, dated Ramadan 1115 AH (1736 AD).

£12,500 [ref: 114848]

Tunakabuni was a 17th-century physician originally from Mazandaran that spent most of his professional life being the royal physician to Safavid Kings in Isfahan. He was known to have an excellent understanding of medical vocabulary (a skill developed through an intricate understanding of Arabic and Indian medical texts), which he used as primary resources for this text, his most renowned work, the *Tuhfat al-Mu'minin* which is an extensive compendium of simple and compound remedies apparently compiled in 1679 AD and dedicated to the ruler at the time, Shah Suleyman (r. 1666-1694).

The text is divided into two main sections, the *tashkhisat* and a *dasturat*. The *tashkhisat* is subdivided into five subsections comprising:

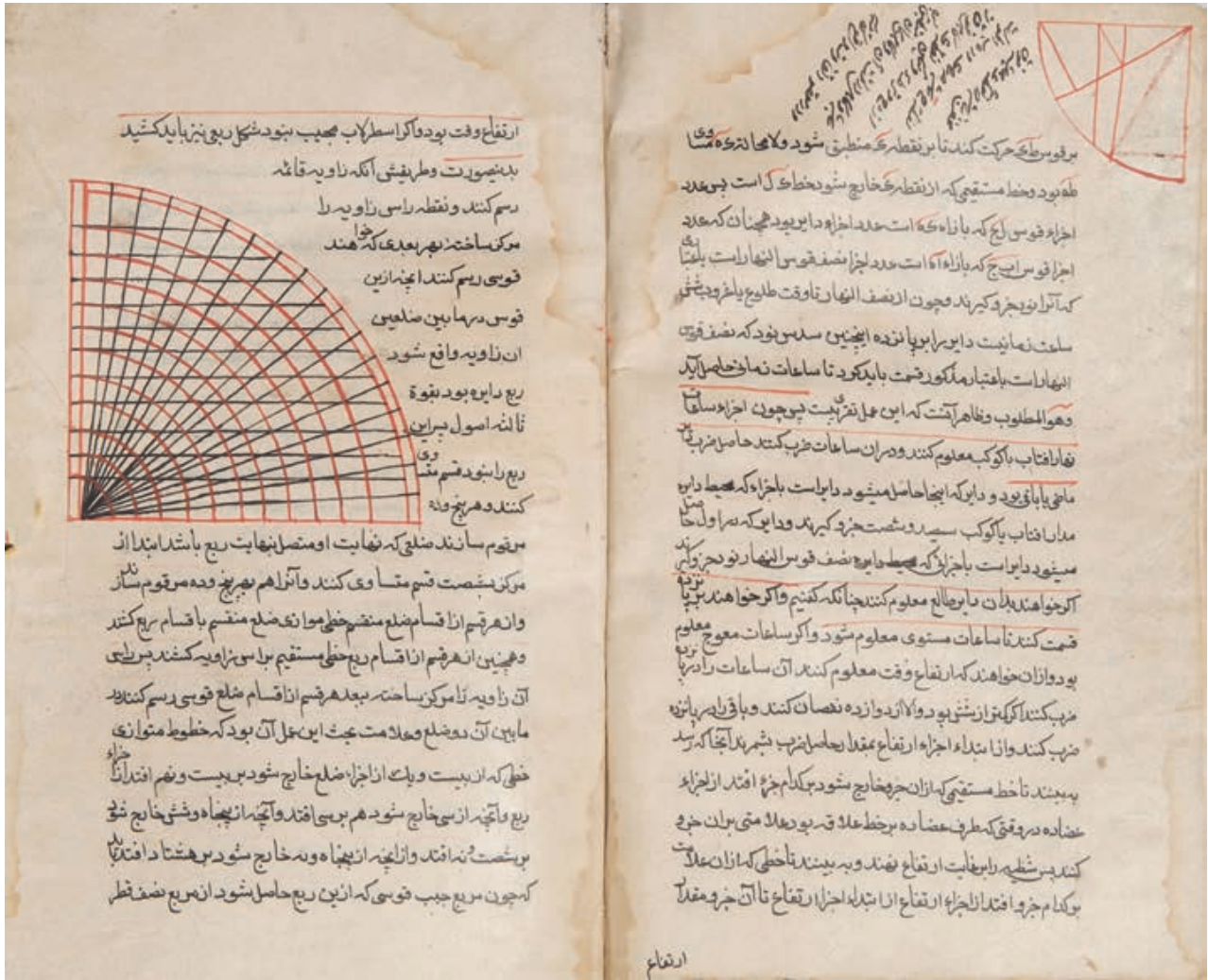
- (1) discussion on the differences of opinion amongst physicians regarding the nature and quantity of dosages;
- (2) the functions of simple and compound medicine;
- (3) the properties (khawass) and nature of simple and compound remedies, the longest of the chapters incorporating a detailed alphabetical list of medicaments and their synonyms in various languages [i.e., Indian dialects, Arabic, Turkish, and Persian];
- (4) the treatment of poisons;
- (5) weights and measures of dosages.



The *dasturat* is stated to consist of three *qisms* discussing:

- (1) the uses of simple drugs;
- (2) the uses of compound remedies;
- (3) the treatment of diseases.

Single volume, decorated manuscript on paper, in Farsi, 119 leaves, 280 x 190 mm; single column, 30 lines elegant black naskh, important words and headings in red, occasional contemporary marginalia, a few early seal impressions and ownership inscriptions to front and final leaves, mid-20th century ownership stamp from the private library of 'Muhandis Mustafa' to first and final leaves, some occasional smudges, a few early paper repairs; contemporary full calf over boards, covers with central medallions stamped in blind, lightly scuffed and rubbed, extremities worn.



WORKING MANUAL FOR THE ASTROLABE

6. [ASTROLABE]. Mu'arifat Fuwa'id Astrolabe, treatise on the knowledge and uses of the astrolabe, Safavid Persia or possibly India, dated 1118 AH (1739 AD) £10,000 [ref: 114852]

An interesting treatise dedicated entirely to the uses and functions of the astrolabe, divided into 20 chapters. As well as providing information on the instrument, this treatise also works as a manual for its use and includes a calendar to guide the user of the asrolabe. The manuscript is in a small paper format and includes many contemporary marginal annotations written in an informal hand, which strongly indicate that the manuscript was used by either a scholar or student working with an astrolabe and using this volume as a guide but also working manual on it's uses in the year 1739 AD.

Single volume, decorated manuscript on polished paper, in Farsi, 95 leaves plus a final free endpaper, 190 x 120mm; single column, 21 lines black naskh, important words, headings and overlining in red, diagrams and charts throughout, a few contemporary annotations to margins, catch-words, seal impressions to first and final leaves, 20th century ownership stamp from the private library of Jafar Ashraqi to first and final leaves (dated 1355 AH (1936 AD)), some light finger-soiling, later limp leather, rebacked, a little soiled and rubbed. 190 x 120mm (7½ x 4¾ inches).



IMPORTANT TIMURID ASTRONOMY

7. QUSHJI, ALI. Risala dar Ilm'i Heyat, a treatise on the science of astronomy. Central Asia (?), dated 1126 Hijri (1747 AD). £5,000 [ref: 114737]

Ali Qushji (d. 1474) was an important Timurid scholar best known for his development of astronomical physical independent form natural philosophy and for providing empirical evidence for the earth's rotation. He is also known to have improved on Nasir al-Din Tusi's planetary model and presented an alternative view of the planet Mercury.

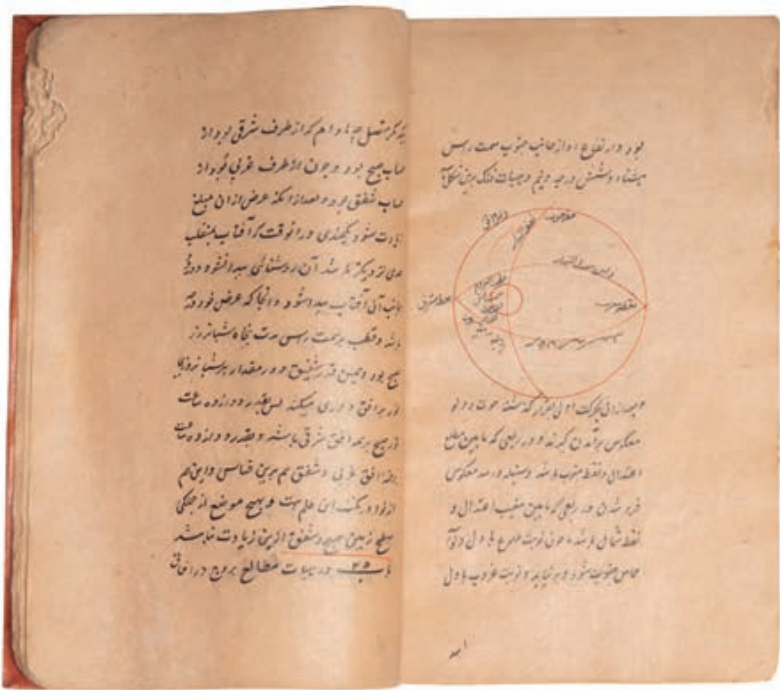
Ali Qushji was a very close disciple of Ulugh Beg and was assigned to work in the Ulugh Begh Observatory (Samarkand) for a period of time where he worked as a contributor on Ulugh Beg's famous Zij'i Sultan (an Astronomical table and star catalogue compiled between 1438 and 1439 AD by Qushji, working with the most prominent Timurid astronomers of the period).

8. [MULLA MUZAFFAR]. [Kitab Ilm al-Falak], an astronomical treatise, Zand Persia, probably Shiraz, dated 'Rabi I', circa 1780 AD.

£6,000 [ref: 114810]

A working copy of an astronomical treatise broken up into 19 chapters and containing many charts and diagrams of the planets and solar system. Numerous inscriptions indicate authorship by one 'Mulla Muzaffar' but no other records of this author's work have been located.

This manuscript includes gilt ruling to every leaf and was evidently copied at notable expense for the personal use of someone that used the margins for their own annotations; likely at the hand of a courtier under patronage. Furthermore, the binding strongly suggests the volume was produced in Shiraz and a contemporary seal impression dated '1196 AH' (1782 AD) places the manuscript in the Zand period of Persian history, when Shiraz was the capital under Karim Khan Zand.



Single volume, decorated manuscript on paper, in Farsi, 77 leaves, single 14 lines elegant black nasta'liq, diagrams of planets and cosmology throughout, many in red, catch-words, first leaf a little chipped and torn with slight loss, overall clean internal condition; later limp leather. 168 x 95mm (6½ x 3¾ inches).



Single volume, decorated manuscript on paper, in Farsi, 99 leaves plus a final free endpaper, single column, 17 lines cursive naskh script in black, important words and overlining in red, opening leaf with fihrist, contemporary foliation and catch-words throughout, contemporary annotations to margins, double-ruled in red & gilt, astronomical diagrams throughout the text, a few ink stains and smudges overall good internal condition; housed in contemporary leather, central gilt medallion cartouches to covers, rebacked, extremities lightly rubbed. 210 x 135mm (8¼ x 5¼ inches).



ITEM 9

SIR FRANCIS BACON

‘A LANDMARK IN THE ADVANCEMENT OF HUMAN THOUGHT’

9. BACON, SIR FRANCIS (VISCOUNT ST. ALBAN). *Instauratio Magna. Novum Organum et al. [BOUND AFTER] Operum Moralium et Civilium Tomus [containing De Augmentis Scientiarum]*. London, Apud Joannem Billium typographum regium; Exculum typis Edwardi Griffini, Prostant ad Insignia Regia in Coemeterio D. Pauli, apud Richardum Whitakerum, 1620; 1638.

£22,500 [ref: 113031]

THE FIRST EDITION, SECOND ISSUE OF THE *NOVUM ORGANUM*, BOUND WITH THE FIRST EDITION, FIRST ISSUE OF BACON'S COLLECTED WORKS IN LATIN. Together the texts cover all that was completed of Sir Francis Bacon's ambitious project, the *Instauratio Magna* ('the great renewal'), to reorganise the nature of philosophical inquiry, introducing in the process the modern scientific method.

In Bacon's own words, the *Instauratio Magna* was to be 'no more but a new logic, teaching to invent and judge by induction, (as finding syllogism incompetent for sciences of nature), and thereby to make philosophy and sciences both more true and more active' (Letter to King James, Bacon 1874, pp119–20). This ambition to bridge the old and new worlds is symbolised in the famous engraved title-page by Simon van der Passe showing a sailing ship passing through the Pillars of Hercules: 'Multi pertransibunt et augebitur scientia' ('Many will pass through and knowledge will be the greater').



The project was originally intended to form six parts, but only the *Novum Organum* ('a new logic'), the second part of Bacon's plan, was complete at the time of publication in 1620. The first part of the *Instauratio* was to be an expanded edition in Latin of his *Advancement of Learning*. This was published three years later in 1623 as *De Dignitate et Augmentis Scientiarum* (also known as 'Instaurations Magnae Pars Prima').

The text of *De Dignitate* was later included in the collected works of Bacon, published as *Operum Moralium et Civilium* in 1638, included here in the first issue. A second issue of the *Operum* appeared the same year, bound with unsold sheets from the *Novum Organum*, usually the a printed title substituted for the famous engraved title by van der Passe (see Gibson 197). The reissue has a revised general title stating 'Adjecti sunt, in Calce Operis, Libri duo Instaurations Magnae' ('appended here the second book of the *Instauratio Magna*').

Our copy with an interesting early manuscript note to the front free endpaper comparing the work to '[Francisci] patricii sensensi, Episcopi Caietani, de regno et regis institutione libri 9 8°' ('Francesco Patrizi of Siena, Bishop of Gaeta's treatise *On Kingship and the Rule of Kings*, 9 books, number 8'). Patrizi was amongst the first Western philosophers since antiquity to devote sustained attention to the reform of republican and monarchic governments.

Bacon 'saw clearly the limitations of Aristotelian and scholastic methods and the growing breach between the thinking of his time and that of the Middle Ages... As a philosopher Bacon's influence on Locke and through him on subsequent English schools of psychology and ethics was profound. Leibniz, Huygens and particularly Robert Boyle were deeply indebted to him, as were the *Encyclopédistes*, and Voltaire, who called him "le père de la philosophie expérimentale"' (PMM).

'The importance of the *Novum Organum* in the history of scientific thought can hardly be exaggerated... It fully explains Bacon's philosophic reasoning founded upon the new Inductive method and was prepared throughout with the utmost care. Later generations have recognized its importance and it is constantly referred to as a landmark in the advancement of human thought' (Pforzheimer). A 'monumental work on the philosophy of science' (Horblit).

Two works in one vol.; folio (30 x 20.5 cm); [*INSTAURATIO*] first edition, second issue; engraved title by Simon vander Passe, historiated woodcut initials, e3 cancel, e4^r unnumbered, with errata and without Norton's name in colophon, blank leaf bound after dedication, internally clean; [*OPERUM*] first edition, first issue; engraved portrait frontispiece bound after dedication to the *Historia*, woodcut device to title, woodcut initials, head and tailpieces, blank leaf bound after A3, occasional toning, 2H3 torn with minor loss to upper margin not affecting text, small hole to 304 with loss to a few letters, slight loss to margin of 4A1; text in Latin, shelf-mark in pen to front pastedown, partially excised MS note in pen to front free endpaper verso; contemporary polished calf, double gilt rules, gilt spine in 7 banded compartments, joints and spine caps expertly restored, edges sprinkled red, very good; collation: [16, including frontispiece], 176, 179-386, [16], 475, [1]; [12, including engraved title], 172, 181-360, 36, [2]pp. PMM 119; Gibson 103b & 196; ESTC S122428 & S106899; Grolier/Horblit 8b; cf.Pforzheimer App. 1.



ITEM 10

ANATOMY & MEDICINE



THE FIRST PRINTED BOOK WITH ANATOMICAL ILLUSTRATIONS, WITH THE RARE COLOUR-PRINTED PLATE

10. KETHAM, JOHANNES DE. [Fasciculus medicinae] Fascicolo di Medicina. Venice, Joannes & Gregorius de Gregoriis, February 5th, 1493.

£150,000 [ref: 115629]

First Italian language edition and second overall of the *Fasciculus medicinae*; the most desirable edition, being the first to include the 'strikingly beautiful' and modern suite of illustrations of the Bellini school (Norman, *One Hundred Books Famous in Medicine* 10). With the rare colour-printed 'Lesson in dissection' plate [see front cover] that is 'one of the first and finest representations of this operation to appear in any book and furthermore, is one of the first three known examples of colour printing' (Printing and the Mind of Man 36). This edition was also the first to include Mondino de' Luzzi's *Anatomia*, 'a fourteenth-century compendium by a professor of medicine at Bologna that included observations based on the dissection of human cadavers' (Norman). The new illustrations and focus on dissection make this a primary document in the shift away from classical knowledge and toward observation, experiment, and professionalised education and care. It has been described as 'the first modern medical book imbued with the humanist spirit' (PMM).

Originally a collection of medieval medical tracts that circulated in manuscript form, the *Fasciculus medicinae* became the first printed book with anatomical illustrations when it was published in 1491. But it was this second edition, translated into Italian by Sebastianus Manilius and published by the same Venetian printers, that reflected the changing medical landscape and profoundly influenced the anatomical illustration to come.

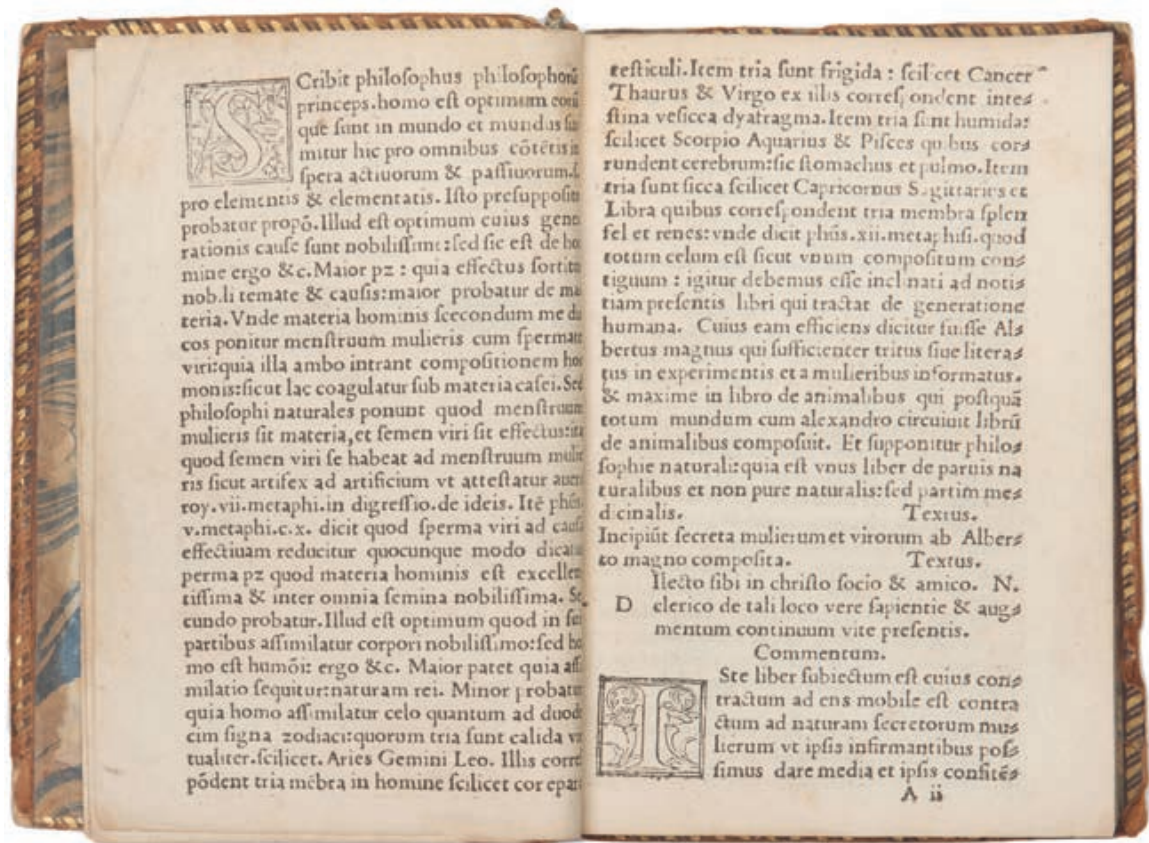
'The typography and artistic qualities of this edition of the *Fasciculus* make it of interest far beyond the world of medicine. It was the first printed medical book to be illustrated with a series of realistic figures' (Norman 10). 'For this Italian edition, all but one of the illustrations were redrawn and four new outline wood-engravings added, showing scenes of medical practice in fifteenth-century Venice. The dramatically improved and more realistic illustrations, which were reproduced in the numerous later editions' are 'evidence of the transition from medieval to modern anatomical illustration' (Jeremy Norman's *History of Information*).

The illustrations based on medieval precursors include a Zodiac man, bloodletting man, planet man, and a pregnant woman. The four new illustrations devised for this edition are: a doctor identified as 'Petrus de Montagnana' in his study (frontispiece); Petrus, his students, and an attendant with a flask of urine; a doctor's visit to a plague patient; and a lesson in dissection. Historian Arthur M. Hind 'states that "Lesson in dissection", which prefaces Mondino's *Anatomia*, is sometimes found "printed from three-colour blocks in red, green, and yellow, in addition to the outline in black", the colour probably applied by hand-held blocks rather than the printing press. Others, including Harvey Cushing, have speculated that the colouring in these examples may have been applied using a stencil. Colouring in the other plates, when it occurs, was added by hand' (Norman 10).

The texts that comprise the *Fasciculus* include sections on surgery, epidemiology, uroscopy, pregnancy and the diseases of women, herbal and other remedies, etc.' (PMM). 'The "Ketham" to whom the printers attributed the collection was probably Johann von Kircheim, a physician and professor of medicine in Vienna who is supposed to have assembled these practical texts and diagrams for educational purposes' (Norman 10).

Rare, with only two complete examples appearing in recent auction records, the present copy (Sotheby's 2006) and the Otto Schafer copy (Sotheby's 1994). WorldCat locates institutional examples at Yale and the Morgan Library, and there is also one at the Metropolitan Museum of Art that includes the colour printed plate.

First Italian language edition, second overall; chancery folio (310 x 206 mm); 52 leaves, 48 lines, roman letter, 6- and 8-line initial spaces with printed guides, woodcut illustrations (9 full-page), some with contemporary hand-colouring, that on f2v printed in 4 colours, first two leaves and a6 repaired with paper in margin, with loss of the top edge of the title image (most of the shelf of books above the lector's head), small hole in a2 affecting a few words, several leaves repaired in gutter, dampstain affecting the lower margin and gutter throughout, smaller and lighter dampstain affecting the upper gutter and portions of text, some contemporary annotations and pen trials and other scattered marks and staining; rembotage using later stiff pressed paper, binding rubbed with some small worn spots and short closed tears. PMM 36; cf. Garrison & Morton (*A Medical Bibliography*) 363 (first edition); Norman (*One Hundred Books Famous in Medicine*) 10; cf. Norman *Library of Science & Medicine* 1211 (third edition).



THE FOUNDATION OF WITCHCRAFT HYSTERIA

11. ALBERTUS MAGNUS (ATTRIBUTED). *Secreta Mulierum et Virorum: Ab Alberto magno composita nuperrime corecta et emendata.* [Paris], Antoine Bonnemère, 1539.

£2,500 [ref: 115184]

An early edition of the 'misogynist masterpiece' *The Secrets of Women*, an influential and widely disseminated work of natural philosophy that laid the intellectual foundations for early modern witch persecution (Cabre, review of *Women's Secrets*, ISIS, vol. 85, no. 3, 1994). The present edition exists in two issues, one with the imprint of Bonnemère, as here, and one with that of Pierre Sergeant. It is not listed in the Wellcome catalogue or Durling's bibliography of 15th century books in the National Library of Medicine.

Long attributed to Albertus Magnus, *Secreta Mulierum* was probably composed by one of his followers during the late 13th or early 14th century, and survives in around 83 manuscript copies, of which 50 were printed in the 15th century and over 70 in the 16th (Lemay, *Women's Secrets*, p. 1). Though the contents cover what would now be considered obstetrics and gynaecology, including menstruation, spermatogenesis, conception, foetal development, and infertility, the text is not a practical medical manual but a philosophical exploration of the human body and its relation to the cosmos. It was likely 'designed to be used within a religious community as a vehicle for instructing priests' and a 'strong subtext of the *Secrets* is the evil nature of women and the harm they can cause to their innocent victims: young children and their male consorts' (Lemay, p. 16).

Among the concepts popularised here were the idea that women's menstrual blood was poisonous, that post-menopausal women were more 'venomous' because they could no longer expel the toxins, and that women were inherently lascivious beings with a physiological need to absorb the heat and life force of men. 'It is these misogynistic ideas about women's sexuality that seeded their demonization in the years that followed, as the *Secrets* served as a direct source for the *Malleus maleficarum*' (McLemore, *Medieval Sexuality, 'Medical Misogyny, and the Makings of the Modern Witch'*, University of Notre Dame blog, October 20, 2020).

Early edition; 8vo (14 x 8.5 cm); woodcut initials, pencilled ownership signature to front blank, some spotting and toning of contents; 18th-century calf, spine gilt in compartments, red morocco label, gilt ribbon roll to boards, marbled endpapers, edges sprinkled red, binding worn with loss from the spine ends, headcap damaged, joints loose, good condition; 59 leaves. BPI 6_109140; USTC 186129.



TRANSLATION PRAISED BY ERASMUS

12. HIPPOCRATES; CORNARIUS, JANUS (TRANSLATOR). *Hippocrates coi Medicorum Omnium Longe Principis, Opera quae apud nos Extant Omnia.* Lugduni [Lyon], Antoine Vincent, 1562.

£1,250 [ref: 114141]

A lovely copy of the Janus Cornarius translation of the works of Hippocrates, originally published in 1545. This copy in handsome, early nineteenth-century calf with gilt-tooled spine.

Janus Cornarius (1500-1558) was a gifted humanist scholar who edited and translated classical medical works, particularly on pharmacology. Erasmus addressed him as 'ornatissime Cornari' ('oh-so-refined Cornarius') and extolled his translation of Hippocrates: 'The genius is there; the erudition is there, the vigorous body and vital spirit are there; in sum, nothing is missing that was required for this assignment, confronted happily, it would seem, despite its difficulty'.

Later Janus Cornarius edition; 8vo (16 x 10.5cm); woodcut initials, contemporary ownership signature to the title and a few small notes in the contents, light dampstain affecting the final 20 leaves of text, occasional light spotting to the rest of the contents; early 19th century calf, spine gilt in compartments with floral and star tools and roll with birds to the tail, triple gilt fillets, gilt roll to turn-ins, marbled endpapers, all edges dyed red, small worm hole to the spine, dampstain to upper board, a few other small scuffs and marks; very good condition; 542pp.



A LANDMARK IN THE SCIENCE OF DISEASE

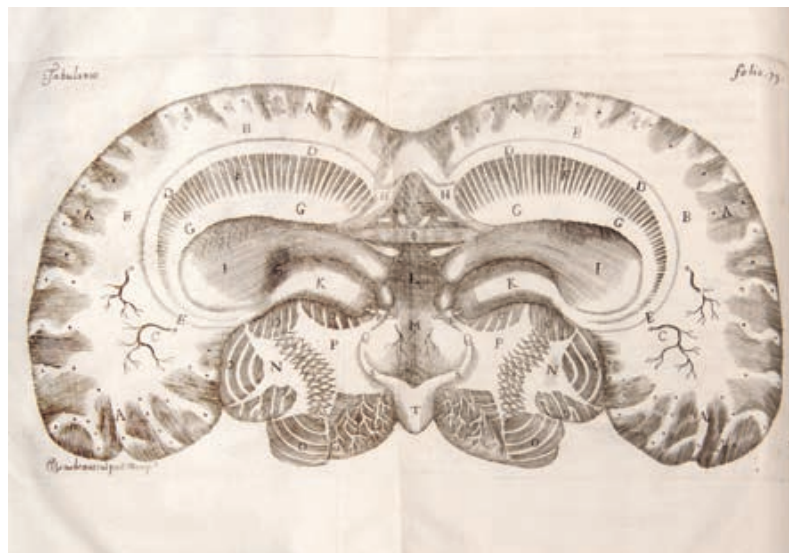
13. SYDENHAM, THOMAS. *Observationes Medicae circa Morborum Acutorum Historiam et Curationem.* London, Walter Kettlby, 1676.

£1,750 [ref: 113900]

First edition of the founding text of epidemiology. 'Although technically the third edition of his *Methodus curandi febres* (1666; 1668), *Observationes medicae* was so much revised and enlarged as to constitute a new work in its own right' (Hook & Norman, *The Norman Library of Science and Medicine* 2038).

'*Observationes medicae* drew on the extensive observations Sydenham was able to make during and subsequent to the Great Plague of 1666' and 'represents the first major effort to create a nosology of disease. Sydenham's insight was that diseases could be understood and organized like plants; that is, they could be individually identified and classified, with each species of disease having its own natural history. In this, Sydenham shared the broader taxonomic interest of seventeenth-century science and medicine, imposing on diseases the same rigorous, methodical analysis and description that others were applying to the natural world in general. He took disease seriously as a natural phenomenon, an event in nature, and described it accordingly' (Grolier, *One Hundred Books Famous in Medicine* 35).

First edition; 8vo (17 x 11.5 cm); engraved portrait frontispiece by Blooteling after Mary Beale, woodcut initials, contemporary inked title to the lower edge of the text block, remains of old adhesive and paper on the recto of the frontispiece, short closed tear in the gutter of the title not affecting the image, tears at the edges of Z7 and Z8, uneven spotting and toning throughout the text; 19th-century quarter roan, spine gilt in compartments, red morocco label, marbled boards, binding rubbed with a little wear at the extremities, very good condition. Morton (*A Medical Bibliography*), 2198; Hook & Norman (*The Norman Library of Science & Medicine*), 2038; Grolier Club (*One Hundred Books Famous in Medicine*), 35; Wing S6314.



THE FIRST DETAILED ANATOMY OF THE NERVOUS SYSTEM

14. VIEUSSENS, RAYMOND. *Neurographia universalis: Hoc est, omnium corporis humani nervorum, simul & cerebri, medullæque spinalis descriptio anatomica.* Lyon, Jean Certe, 1685.

£8,500 [ref: 115415]

First edition of the first detailed anatomy of the brain and nervous system, title in the second state. A beautiful copy in elegant contemporary vellum.

'After ten years of study, during which he dissected 500 cadavers, Vieussens published his *Neurographia universalis*, the best-illustrated neurological monograph of the seventeenth century, Vieussens was the first to make good use of Stensen's suggestions that the intracerebral white matter should be studied by tracing the paths of its fibers, and the first to describe the olivary nucleus, the centrum semiovale ("ovale of Vieussens"), the pyramids and the semilunar ganglion. He showed the spinal cord to be an independent structure, and his elucidation of the fine structure of the cerebellum (including the discovery of the dentate nuclei) surpassed all previous descriptions. He also went into great detail in his description of the paths of the peripheral nerves, which forms the most original part of his work' (*Norman Library of Science and Medicine* 2153).

There are two states of the title-page for this work, one dated 1684 and the other 1685. The latter is not a cancel title but an on-press change of date with the typography otherwise unchanged except slight shifts in lockup, and the sheet is continuous with its conjugate a3. This probably reflects a publishing decision to have copies available with the approaching current year date.

First edition, title in the second state; folio (334 x 225mm); title printed in red and black with engraved vignette, engraved author portrait by Martin Boulanger, engraved armorial of the dedicatee Pierre de Bonsy, 22 engraved plates, of which 16 are folding, engravings in the text, errata leaf at rear, a little toning to some leaves and occasional small spots; contemporary Dutch blindstamped vellum with central cartouche, manuscript title to spine, edges of the text block sprinkled red, a little dulling and some spots to the vellum, turn-ins professionally relaid, an excellent copy; 252pp. *Norman Library of Science and Medicine* 2153; *Heirs of Hippocrates* 641; *Garrison-Morton Medical Bibliography* 1379.

THE MAJOR MEDICAL BOOK OF THE 17TH-CENTURY, TRANSLATED FOR THE GENERAL PUBLIC

15. SALMON, WILLIAM. *Pharmacopoeia Londinensis. Or, the New London Dispensatory.* In VI books. Translated into English for the publik good and fitted to the whole art of healing. Illustrated. With the preparations, virtues and uses of simple medicaments... As also the Praxis of Chymistry, as it's now exercised, fitted to the meanest capacity. London, J. Dawks, 1702.

£750 [ref: 113304]

The sixth edition of William Salmon's popular English translation of this important medical text, originally published by the Royal College of Physicians in Latin in 1618. In a handsome, 19th-century vellum binding.

Backed by a Royal Proclamation of King James I, the *Pharmacopoeia Londinensis* was 'an officially sanctioned list of all known medical drugs, their effects and directions on their use. No one was allowed to concoct any medicine or sell any substance if it did not appear in the *Pharmacopoeia Londinensis*'. This publication centralised English medical power within the College, clawing back some of that lost when the Worshipful Society of Apothecaries was created the year before. ('A Weapon Dressed as a Book', Royal College of Physicians website). The first English translation, by Nicholas Culpeper, appeared in 1649, and Salmon's translation, with additional commentary and material on chemical theories of medicine, was first published in 1678. Proving popular with the general public, it went through seven editions up to 1716. The book's practical, domestic focus is certainly reflected in the well-used nature of this copy.

The translator William Salmon (1644-1713) was an interesting figure operating at the intersection of local, domestic medicine and the professionalised world of gentlemen physicians.

Born in 1644, he was apprenticed to a 'mountebank' or snake-oil salesman. By 1641 he had 'established a practice in London near the Smithfield gate of St Bartholomew's Hospital where, as was common among irregular types of practitioners, he offered his services to people denied admission to hospital' (*Oxford Dictionary of National Biography*). Salmon published a large number of his own books, mainly based on material from his extensive library, including not only medical advice but anatomy and physiology, religion, and alchemy and metaphysics.

'In 1699 Salmon joined in the controversy over the role of the Royal College of Physicians. The college leadership came under attack as it attempted to implement its own internal disciplinary actions against certain members, to prosecute impostors practising outside the bounds of the college, and to maintain control over the Society of Apothecaries through establishing a dispensary... Salmon's *Rebuke to the Authors of a Blew-Book, Call'd The State of Physick in London* (1699) warned against the college's continuing monopolization of the profession' (ODNB). It is therefore no surprise that he chose to translate the *Pharmacopia*, making professional medical knowledge available to a wider public than those who could read Latin.

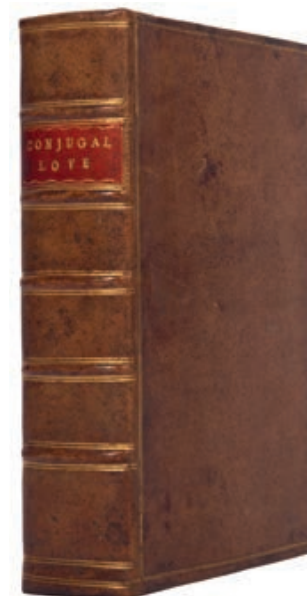
Provenance: Lawrence Malcolm (bookplate).

Sixth edition; 8vo (17 x 10 cm); a few contemporary and 19th-century ownership inscriptions and notes, title stained and torn with some loss of text and mounted on linen, linen repair to A2 slightly affecting the text, and to the final leaf slightly affecting the text, old tape repairs to B1 and B2, a few smaller repairs, contents tanned and damp-stained; 19th-century vellum, red morocco label, gilt floral roll to tail of spine, marbled endpapers, red speckled edges, bookplate, binding a little rubbed and dulled, small black spot to the tail of the spine; a good copy.

THE FIRST EUROPEAN SEX MANUAL

16. VENETTE, NICHOLAS. *The Mysteries of Conjugal Love Reveal'd.* Containing an account of the parts ministering to generation in both sexes, with whatever incident to them. Also, a new hypothesis of the place of conception, with some nice thoughts of the formation of the fetus, and a discourse of hermaphrodites, incubus's and succubus's... Translated from the 7th edition of the French. London & Westminster, sold by John Chomley, 1703.

£7,500 [ref: 115391]



The rare first English language edition of the first European sex manual, originally published anonymously in French under the title *La génération de l'homme, ou Tableau de l'amour conjugal* in 1675. It was, alongside Aristotle's *Masterpiece* (first published in 1784), one of the most notorious and widely read sex guides of the early modern period and was repeatedly reprinted, translated, and abridged up through the nineteenth century. Copies of the first edition, however, are rare. Only two others appear in auction records over the last few decades, one of them defective, and no institutional copies are listed by WorldCat. Individual catalogue searches of the British Library, Wellcome Collection, Royal College of Physicians, Oxford, Trinity College Dublin, the Library of Congress, Huntington, Yale, and Harvard reveal no examples of the first edition, only those of the second of 1707 and third of 1712. ESTC cites only a 'second edition' of 1703 at the Royal College of Physicians in Dublin (N60577), but a catalogue check reveals this to be a copy of the 1712 edition with 'done into English by a gentleman' as part of the title.

'Arranged in four main parts, [*The Mysteries of Conjugal Love Reveal'd*] is subdivided with an air of scholastic analytical seriousness into chapters and "articles". Typical articles treat such subjects as "of the external genital parts of Man", "What hour of the day one ought to kiss ones Wife", "Of the Menstruous Blood". The book's enormous popularity is partly attributable to its explicit treatment of titillating subject matter, and partly also to its challengingly liberal tone. Venette declines to accept, for example, the church's negative view of copulation *retro*, while his comments on the appropriate frequency of married intercourse are not only liberal but set out in a tone of dead-pan bravado that is plainly intended to startle.' (Hart, *Heaven and the Flesh*, p. 34)

First English language edition; 8vo (18 x 11.5 cm); ownership signature to the preface and inscription to the verso of the title, occasional pencilled marks to contents, some spotting and finger soiling; 18th-century sprinkled calf handsomely rebaked to style, endpapers renewed, spine gilt in compartments, red morocco label, some mild scuffing to boards, very good condition; 496pp.

EARLY MANUSCRIPT NOTE REFERENCING MENSTRUAL HEALTH

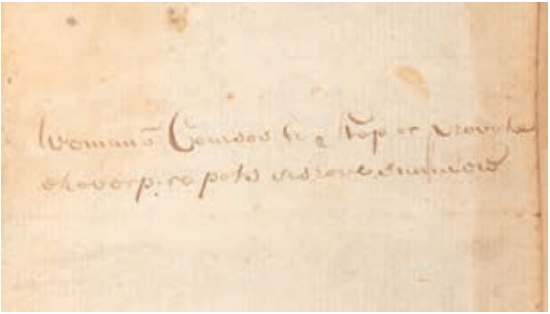
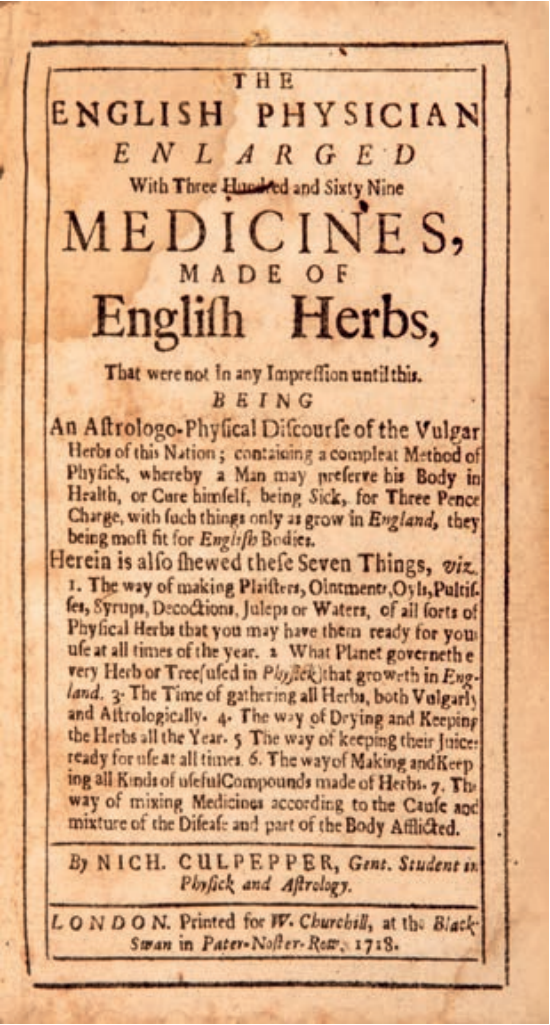
17. CULPEPER, NICHOLAS. The English Physician Enlarged with three hundred and sixty nine medicines, made of English herbs... London, for W. Churchill, at the Black Swan in Pater-Noster-Row, 1718. £1,750 [ref: 113396]

A scarce early edition of Culpeper's herbal with an unusual manuscript note repeated in mirror-writing on the rear endpaper that reads: 'woman's courses to stop or provoke, ekovorp ro pots sesrouc snamow', and with dog-eared pages corresponding to menstrual-related portions of the printed text. Scarce. ESTC records only 6 copies in institutional collections, 5 in the British Isles (BL, Royal College of Physicians of Edinburgh, Wellcome Institute, Bodleian Library, and Reading University) and in North America at the Yale School of Medicine.

In the Galenic paradigm that dominated medical thought during the medieval and early modern period, ailments were caused by imbalances of the four humours. It was thought that the uterus could become 'strangled' or 'suffocated', a condition in which excess humours were not dispelled through menstruation, and which could affect both fertility and the woman's overall health. Hundreds of substances were believed to provoke menstruation, and some could also be taken to expel the placenta or a dead fetus, or to cause an abortion, though this was generally discussed as a contraindication by male medical authors. Other substances could be used to stop the menses in cases of long or heavy periods (van de Walle, 'Flowers and Fruits: Two Thousand Years of Menstrual Regulation', *Journal of Interdisciplinary History*, autumn 1997).

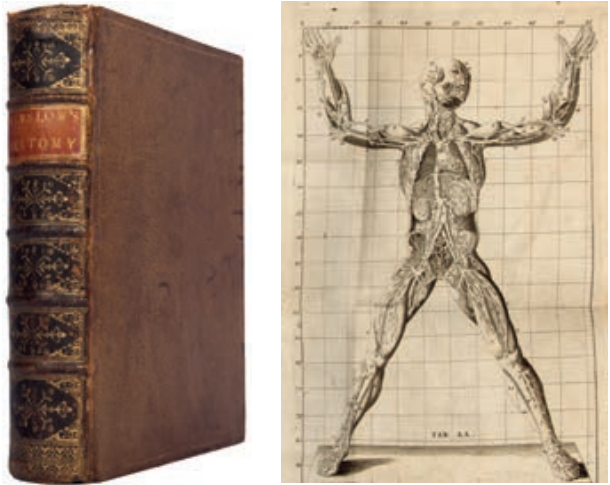
There was certainly great interest in regulating menstruation and reproductive health among both women and male physicians, as indicated by the use of this copy. The manuscript line on women's courses on the rear endpaper precisely matches a line from the index on the facing page, which directs the reader to a list of 26 pages relevant to 'stopping the terms' and 29 for 'provoking' them. A number of leaves of the text have been dog-eared, some corresponding to information on menstrual afflictions. For instance, the marked page on nettle describes a decoction of the leaves in wine as 'singular good to provoke Women's courses, and settle the Suffocation, strangling of the Mother; and all other Diseases thereof; as also applied outwardly with a little Myrrh' (p. 231). Darnel (a toxic mimic of wheat) 'stayeth... women's bodily issues' and mustard 'is of good effect to bring down women's courses'. Hops 'bringeth down women's courses', and horehound on the following page 'is given to women to bring down their courses' (these marked by an extra-large flap, perhaps to indicate multiple relevant pages). Some leaves that show evidence of old folds are also connected to women's health: alkanet (a type of borage) 'draws forth the dead child'.

While a former owner clearly saw this as a significant, practical medical topic, the purpose of the mirror-writing is still unclear. Was it simply an activity to while away a few moments, or did it have deeper, perhaps spiritual or esoteric, meaning for someone struggling with their health or that of a loved one?



Provenance: Buller: Jas. (inscription).

12mo (17 x 10.5 cm); ownership inscription in pen to the front pastedown, manuscript note in pen to rear free endpaper recto, a few manuscript annotations in pen to the last few leaves of text, page folds, slight dampstaining to upper gutter margin of title and prelims, lacking front free endpaper; contemporary sheep, ruled in blind, rubbed with loss of leather from portions of the spine and edges; [16], 386, [10]pp. ESTC T136622.



LEADING 18TH CENTURY ANATOMY

18. WINSLOW, JAMES BENIGNUS [JACQUES-BÉNIGNE]; DOUGLAS, G. (TRANSLATOR). An Anatomical Exposition of the Structure of the Human Body. Translated from the French original. London, for A. Bettesworth and C. Hitch, J. Osborn and T. Longman, R. Ware, S. Birt, C. Davis and T. Astley, 1734.

£1,750 [ref: 114395]

Reissue of the 1733 first English language edition with cancel title dated 1734, originally published in French as *Exposition anatomique de la structure du corps humain* in 1732. Illustrated with four attractive folding plates based on the works of Eustachius.

Jacques-Bénigne Winslow (1669-1760), 'one of the most brilliant anatomists of the eighteenth century', was born in Denmark but spent his career in France, serving as a professor of anatomy at the Jardin du Roi between 1742 and 1758. 'Among his numerous contributions in the field of human anatomy, the *Exposition anatomique de la structure du corps humain* (1732) had a great influence on anatomical literature for over a century' (Olry, 'Winslow's contribution...', *Journal of the History of Neuroscience*, August 1996). A copy of the 1756 London edition was one of the books sold by Thomas Jefferson to the Library of Congress in 1815.

Provenance: John Wilkes (signature).

Reissue of the 1733 first edition with cancel title dated 1734; 2 vols in 1 plus appendix, 4to, (24.5 x 19.5 cm); 4 engraved folding plates, second title printed in red and black, single leaf bookseller's ad at end of vol. I; contemporary ownership signature to the front pastedown, faint spotting to the title and early leaves, light partial offsetting to late leaves from turn-in, overall contents fresh; contemporary speckled calf, spine elaborately gilt in compartments with floral tools, red morocco label, double gilt fillets, red speckled edges, some rubbing and scuffing of the calf, upper joint worn but firm, very good condition; 182, 210, & 145pp.



19. [GIBSON, THOMAS] M.N. Anatomy Epitomized and Illustrated. London, for John Noon, 1737.

£3,500 [ref: 114210]

A later printing of this unusual and attractively illustrated anatomical work, originally published in 1682 by Thomas Gibson (1648/49-1722), physician-general to the Army. Copies of any edition are rare in the trade.

Gibson's most famous work is a heavily revised and expanded update of Alexander Read's *The Manuall of the Anatomy of the Body of Man*. Though reportedly hesitant to undertake the project, Gibson's version became a bestseller, running to at least six editions by 1703, with successive enlargements. (cf. Evans, 'Thomas Gibson's Life and Times', *Early Modern Medicine* blog, 2017).

Later edition; 4to (19.5 x 12.5); 17 engraved folding plates, contemporary ownership signature on the front free endpaper and initials on the title, a little toning of the margins and occasional spotting, some creasing and closed tears to the plates; contemporary calf, manuscript title label to spine, raised bands, calf dulled and rubbed with some small marks, including an old wax mark on the title which has been written over, corners bumped, very good condition; 182pp.

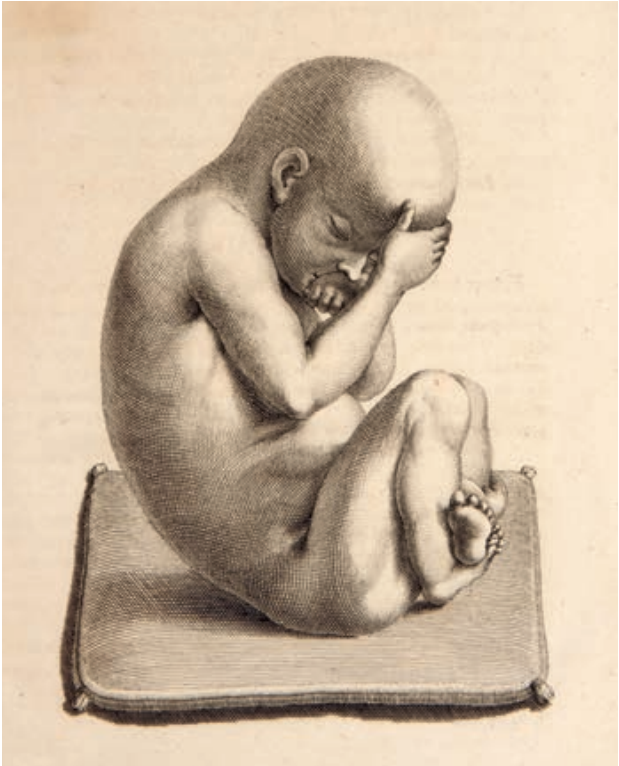
ILLUSTRATED BY JAN WANDELAAR

20. NOORTWYK, WILHELMUS. *Uteri Humani Gravidi Anatome et Historia. Lugduni Batavorum [Leiden], Joan. & Herm. Verbeek, 1743.*

£2,750 [ref: 115180]

First edition of this significant and uncommon obstetrical work illustrated with four superb engravings after Jan Wandelaar. Not in the Garrison-Morton Medical Bibliography or the Norman Library of Science and Medicine.

Wilhelmus Noortwyk (c. 173-1777) trained under the famed anatomist Bernhard Siegfried Albinus and became known for his impressive anatomical preparations. The present volume reports his 'investigations on the corpse of a young woman who died at six months gestation. Noortwyk obtained permission of the husband to excise the pregnant uterus from the corpse, and took it home for dissection... In this description, Noortwyk asserted correctly that the maternal and fetal circulations were separate'. He was 'apparently the first to inject the uterine vessels of a young woman who had died near term' (Logo & Reynolds, *Wombs with a View*, p. 124).



The illustrator of this volume, Jan Wandelaar (1690-1759) was the leading anatomical illustrator and engraver of the period. He had worked for Frederik Ruysch and was responsible for the monumental illustrations for Albinus's *Tabulae sceleti et musculorum corporis humani* (1747).

First edition; 4to (25 x 19.5 cm); 4 engraved plates and small engraving to the title, text of title printed in red and black, head and tail-pieces, errata list on the verso of the final leaf of text, contemporary inscription to the verso of the title, spotting and offsetting to contents; contemporary calf rebaked to style, red morocco label, marbled endpapers, ticket of the Bibliotheque Charpentier to the front pastedown, boards rubbed and cracked with wear at the corners and some spots along the edges, a very good copy; 217pp.

THE INVENTION OF CONTACT TRACING

21. HAYGARTH, JOHN. *An Inquiry How to Prevent the Small-Pox. And proceedings of a Society for promoting general inoculation at stated periods, and preventing the natural small-pox, in Chester. London, printed by J. Monk for J. Johnson and P. Broster, 1784. [Bound following] FALCONER, William. A Dissertation on the Influence of the Passions upon Disorders of the Body. Being the essay to which the Fothergillian Medal was adjudged. London, for C. Dilly and J. Phillips, 1788.*

£3,000 [ref: 114907]

First edition of this key work in the history of epidemiology by 'one of the outstanding medical practitioners of his time', who introduced contact tracing and isolation wards to British medicine and was an early proponent of inoculation (Oxford Dictionary of National Biography). Rare, not in Garrison-Morton and with only one copy listed in auction records since 1979. Bound together with a work by a fellow Edinburgh student and colleague at the Chester Infirmary.

Haygarth was educated at St. John's College Cambridge, Edinburgh, Paris, and Leiden, and was tutored in mathematics by the surgeon John Dawson (1734-1820), who later provided much of the statistical data for his medical publications. He was appointed to Chester Infirmary in 1766 and spent the rest of his career there, establishing a wide network of contacts that included many philanthropists and dissenting intellectuals.



'In 1774 he conducted a population census in Chester which included questions about typhus fever and smallpox. In his subsequent paper, *Observations on the Population and Diseases of Chester* in 1774, he advocated removing poor fever patients to separate fever wards. He also ascertained that out of a population of 14,713 in 1774, only 1060 had never contracted smallpox. The high mortality rate arising from smallpox in Chester led him to concentrate on investigating how to prevent the disease. The Smallpox Society founded in Chester in 1778 (largely as a result of Haygarth's initiative) was formed to promote inoculation and to prevent casual contraction of the disease. Haygarth used the term "casual smallpox", reflecting his belief that it was a preventable casualty rather than a "natural" disease. By 1782 the number of local deaths from casual smallpox had reduced by nearly half, and Leeds and Liverpool were to follow Chester's example. In recognition of his work Haygarth was elected to the Royal Society on 8 February 1781. In 1784 Haygarth's *Inquiry how to Prevent the Small Pox* was published. This attracted wide interest and approval and its translation into French and German helped to establish Haygarth's international reputation.' (Oxford Dictionary of National Biography)

First edition; 8vo (9.5 x 12 cm); both texts complete with half-titles, the Haygarth with folding table and errata on the verso of the final leaf of text and the Falconer with three-page integral publisher's ads at rear, contemporary ownership signature to each title, very light dampstain affecting the preliminaries of the Falconer, and just a little faint spotting but overall contents clean; contemporary tree calf, spine gilt in compartments with pomegranate tools, red morocco labels; remnants of bookplate, calf a little rubbed and marked with some minor old repairs, a very good, unsophisticated copy; 223pp, 105pp.

A PROFESSIONAL MEDICAL SAMMELBAND

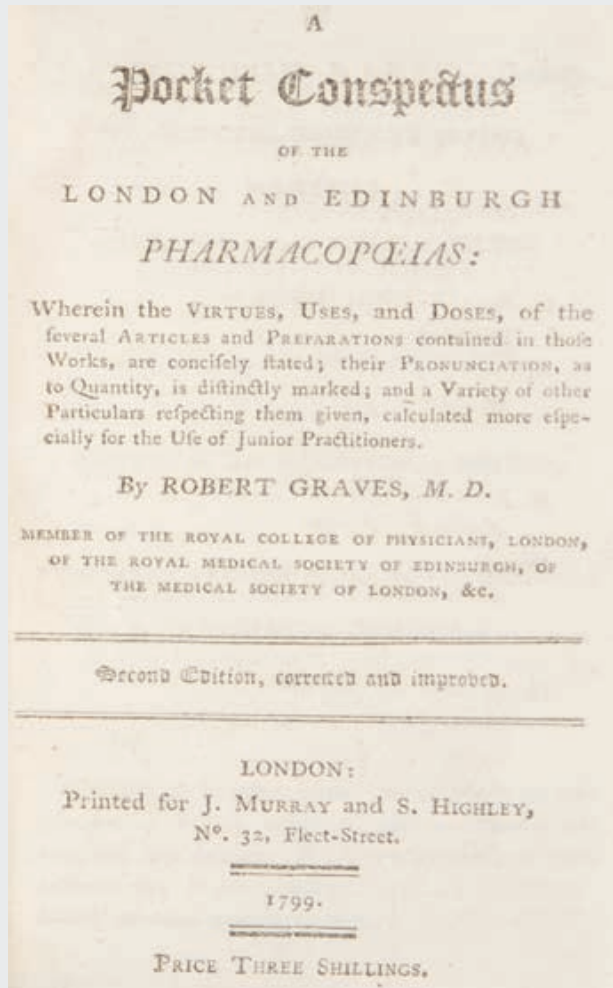
22. CLARKE, E[DWARD] G[OODMAN]. *Medicinæ Praxeos Compendium, symptomata, causas, diagnosin, prognosin, et medendi rationem, exhibens. Editio secunda, plurimum aucta et emendata. London, J. Johnson, et al, 1800; 224pp. [BOUND WITH] Royal College of Physicians. Pharmacopoeia. London, Joseph Johnson, [c. 1788]; 166pp. [AND] GRAVES, Robert. Pocket Conspectus of the London and Edinburgh Pharmacopoeias... Second edition, corrected and improved. London, J. Murray and S. Highley, 1799; 116pp. [And] Guy's Hospital. Pharmacopoeia, in usum valetudinarii... recensitae editionis. London, G. Phillips, 1803; 123pp. [And] St. Thomas' Hospital, Pharmacopoeia in usum noscomii Londinensis. London, T. Bensley, 1800; 59pp. [And] General Rules to be Observed in Raising and Continuing a Salivation: With the method of cure, and treatment of such dangerous symptoms, as may accidentally occur. London, 1775; 17pp.*

£1,250 [ref: 114783]

A very nice, pocket-sized sammelband containing six medical works dating from the turn of the nineteenth century, of which three are the official pharmacopoeias published by the Royal College of Physicians and Guy's and St. Thomas's Hospitals, and one an overview of the contents of the London and Edinburgh pharmacopoeias by an Irish physician.

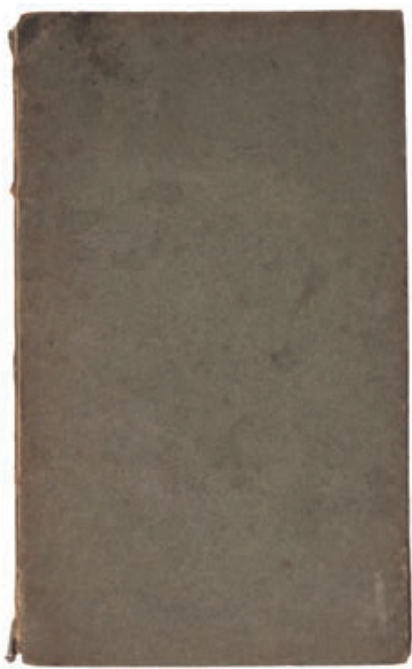
It is likely the the original compiler or an early owner had medical knowledge, as they have written an informed note on the front free endpaper pointing out that, 'Dr. Clarke has followed Cullen chiefly with some additions; he has also extracted from Webster's *Thesarus*'.

Pharmacopoeias (lists of medical substances and their uses) had long been a popular genre, but they gained importance during the 17th century as medicine was increasingly professionalised and official publications could be used to centralise power within the physicians' societies and larger hospitals. For instance, the Royal College of Physicians' *Pharmacopoeia Londinensis* (text number two in this compilation), backed by a proclamation of King James, was 'an officially sanctioned list of all known medical drugs, their effects and directions on their use. No one was allowed to concoct any medicine or sell any substance if it did not appear in the *Pharmacopoeia Londinensis*'. Pharmacopoeias also proved popular with the educated general public, especially in English translations that began appearing around the middle of the century.



Aside from the official pharmacopoeias, text number one, by the London doctor Edward Goodman Clarke (d. 1811), is a list of diseases, their symptoms, and cures that was described by a contemporary as ‘a very pretty view of the practice of medicine in excellent Latin’ (Oxford Dictionary of National Biography). Text number three, a pocket compendium of the London and Edinburgh pharmacopoeias in English, was edited by the prominent Irish physician Robert James Graves (1796-1853), who ‘brought international renown’ to the Meath Hospital in Dublin (Oxford Dictionary of National Biography). The final text, the work of an unknown author, describes in English the method of using mercury to treat venereal disease by ‘raising a salivation’ over the course of several weeks.

12mo (13 x 7.5 cm); contemporary manuscript notes on the front endpaper and verso of the title to the first text, rust marks and associated paper loss affecting early and late leaves, primarily blanks and endpapers; contemporary calf, double gilt fillets to spine panels, lacking the metal clasps, calf rubbed, headband slightly loose, very good condition.



IN THE PUBLISHER'S BOARDS

23. BELL, CHARLES. An Essay on the Forces which Circulate the Blood; being an examination of the difference of the motions of fluids in living and dead vessels. London, for Longman & Co.; and Burgess & Hill, 1819.

£950 [ref: 113533]

First and only edition of this uncommon short work by the prominent surgeon and anatomist Charles Bell (1774-1842), in the publisher's boards.

Bell undertook his surgical training in Edinburgh during the 1890s and at the same time studied art with the painter David Allen, publishing his *System of Dissections*, a guide for anatomy students, while himself still a student in 1798. He worked as a surgeon in Edinburgh before moving to London, where he purchased a share in the Hunterian School of Medicine and became a member of the Royal College of Surgeons. He published a number of significant anatomical works, many illustrated with his own drawings, and taught anatomy to artists as well as surgeons. By 1807 he had ‘developed an ambition to make a grand discovery comparable to William Harvey’s demonstration of the circulation of the blood’, though focused most of his energy on the nervous system.

First edition; 12mo; 12 page publisher’s ads at rear, contents spotted, particularly the early and late leaves; publisher’s blue boards, printed paper spine label, bookplate of John Mount, Ulverston, boards worn and marked, joints cracked, some loss from the ends of spine and the paper label, a very good copy; 83pp.



RARE POPULAR ANATOMY BY THE NEUROLOGIST WHO IDENTIFIED BELL'S PALSY

24. BELL, CHARLES. The Organs of the Senses Familiarly Described, being an account of the conformation and functions of the eye, ear, nose, tongue, and skin. Illustrated by twenty coloured plates. London, Harvey and Co., [c. 1830].

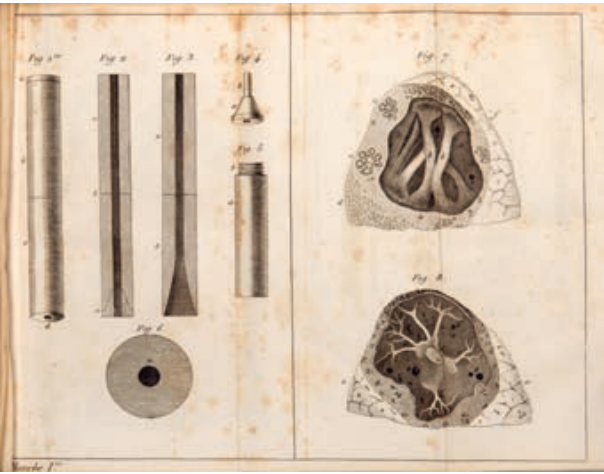
£2,750 [ref: 113160]

First and only edition of this rare popular work by the anatomist, neurologist and artist Charles Bell (1774-1842), with simple but attractive hand-coloured lithographs, likely by the author. WorldCat locates only eighteen copies, and it is not listed in auction records or in the Garrison-Morton *Medical Bibliography*.

As a surgeon in London after 1804 Bell developed his special interest in the nervous system, and set out to show that the brain was not an undifferentiated mass, but that its parts had separate functions. The results were published in 1811 in *Idea of a New Anatomy of the Brain*, though priority for the more sophisticated and correct version of the discovery is usually awarded to the French physiologist François Magendie.

The plates in this volume focus primarily on the eyes, including the lens’s effect on light passing through it and the facial muscles and bones of the skull around them, and there are also plates on the ear and tongue.

First edition; 8vo; 20 hand-coloured lithographic plates, contents tanned and foxed, stab holes to fore-edges of plates, final leaf and rear blank opened clumsily leaving a portion of the latter attached to the former; original green cloth blocked in blind, rebaked in green cloth with gilt title in 20th-century typeface, corners worn, cloth rubbed and darkened with a few small marks, hinges repaired, very good condition; 85pp. Jeffrey (Sir Charles Bell) 23, p217.



THE INVENTION OF THE STETHOSCOPE

25. LAENNEC, R.T.H. De l'Auscultation Médiate ou traité du diagnostic des maladies des poumons et du coeur... Paris, J.A. Brosson & J.S. Chaudé, 1819.

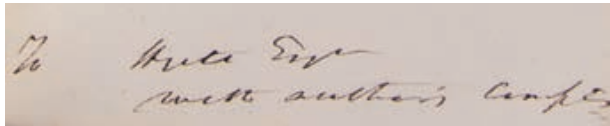
£1,850 [ref: 115092]

First edition of the announcement of the stethoscope’s invention, ‘the greatest advance in physical diagnosis between Auenbrugger [inventor of the percussive technique] and the discovery of X-rays’ (*Printing and the Mind of Man* 280). With the original leaf a*2 rather than the cancel (matches the points given in Norman save for ‘constat,’ on the verso which has been corrected to ‘constat’).

Réné Théophile Hyacinthe Laennec (1781-1826) studied under Napoleon’s physician, Corvisart, and was particularly interested in finding new methods of diagnosis. He was aware of Auenbrugger’s discovery that percussing the thorax could indicate whether organs were diseased, and was further inspired when he saw children tapping a hollow log and listening at the other end. His first model was a simple tube of stiff paper, but he soon constructed a device of cedar wood which is illustrated in plate 1.

‘Remarkable as his invention was, what he did with it was even more important. While listening to the movements of the heart and lungs, he learned to understand the significance of the various sounds for which he created a terminology.. He virtually created the modern science of the respiratory organs and their diseases’ (PMM 280).

First edition; 2 volumes, 8vo (20 x 12 cm); 4 folding plates in vol. I, small ink stain affecting early leaves of volume I, page 351/352 torn with loss of the edge of the text, a little light spotting and toning, particularly to plates; contemporary marbled boards, sheep backstrips, spines gilt, morocco labels, ink stain to the edge of the upper board of vol. I, bindings rubbed with some wear at the ends of the spines; 456 & 472pp. PMM 28; Garrison-Morton *Medical Bibliography* 2673; Norman Library of Science & Medicine 1253.



EARLY ACCOUNT IN ENGLISH OF THE
STETHOSCOPE, PRESENTATION COPY

26. [LAENNEC, R.-T.-H.]; CLARK, JAMES. Medical notes on climate, diseases, hospitals, and medical schools, in France, Italy, and Switzerland; comprising an inquiry into the effects of a residence in the South of Europe, in cases of pulmonary consumption, and illustrating the present state of medicine in those countries. London, Underwood, 1820.

£2,500 [ref: 103721]

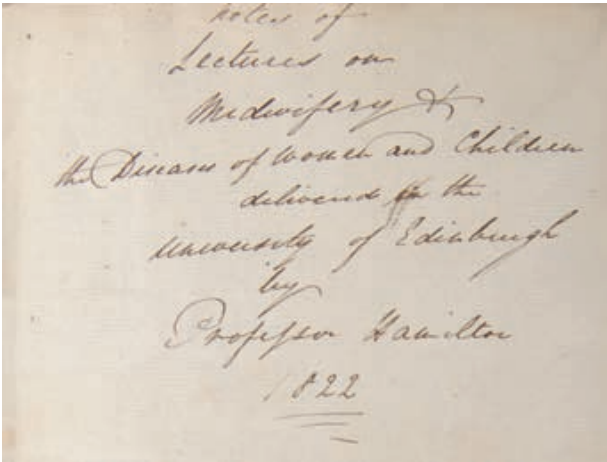
First edition of one of the earliest accounts of the stethoscope in English, presentation copy inscribed by the author at the foot of the title, 'To Hyett Esq, with author's compliments'.

James Clark (1788-1870) trained at the Royal College of Surgeons in Edinburgh and then joined the Royal Navy as a ship's surgeon. At the end of the Napoleonic Wars he studied for an MD in Edinburgh. 'After graduating at Edinburgh, Clark commenced his observations on the influence of climate on disease, particularly tuberculosis (TB), which was at that time pandemic. In 1818 he accompanied a patient suffering from TB to the south of France, Lausanne, and Florence. A visit to the Necker Hospital in Paris introduced Clark to the use of the stethoscope [invented there by René-Théophile-Hyacinthe Laennec in 1816], which he introduced into his own clinical practice. Clark's continental experience inspired his first publication, which he dedicated to his 'affectionate friend' John Forbes. *Medical notes on climate* appeared in 1820. An extended version, *The influence of climate in the prevention and cure of chronic disease*, was published in 1829; it had the merit of giving advice on a subject about which very little information was then known; this ran to a third edition in 1841' (Oxford Dictionary of National Biography).

The recipient of this copy, William Henry Hyett of Painswick House (1795-1877), was a Liberal member of Parliament who lived in Gloucestershire and established that county's first mental health hospital. He went on the Grand Tour and possibly met Clark during his travels.

Provenance: William Henry Hyett, Painswick House (presentation inscription).

First edition, PRESENTATION COPY INSCRIBED BY THE AUTHOR ON THE TITLE; 8vo (21.5 x 13 cm); 2 folding charts at rear, a few small pencil marks in the margins, short tear to AA2, contents spotted; contemporary half calf, spine gilt in compartments, brown endpapers, marbled sides and edges of text block, spine partially rebacked with some loss, including from the title label, corners and ends of spine worn, very good condition; 249pp.



THE DOCTOR WHO MADE MIDWIFERY COMPULSORY AT EDINBURGH

27. HAMILTON, JAMES. Notes of Lectures on Midwifery & the Diseases of Women and Children, delivered at the University of Edinburgh, 1822 [and] Remarks on Vaccination by Dr. Howison, vaccinator to the Royal Dispensary of Edinburgh. Edinburgh, 1822.

£1,250 [ref: 114428]

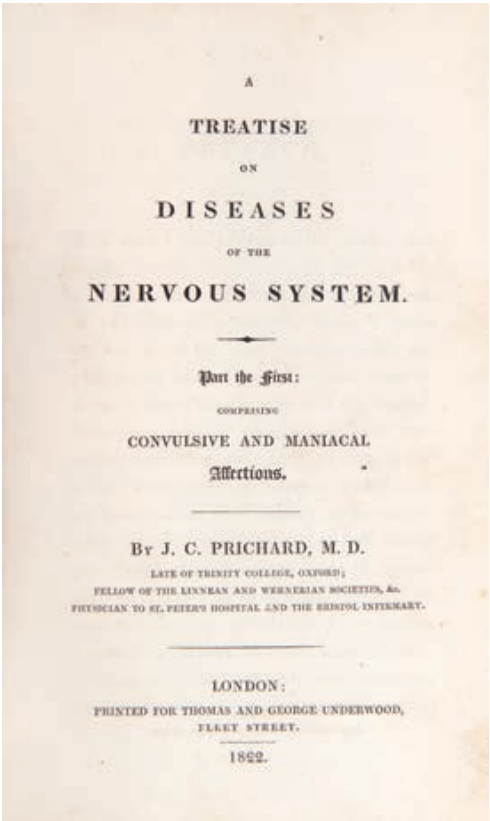
A neat and substantial set of manuscript lecture notes on obstetrics made by a student of the prominent physician James Hamilton (1767-1839) at the University of Edinburgh in 1822, during the period when obstetrics and gynaecology were being professionalised and brought under the control of male physicians.

Hamilton was the son of Edinburgh obstetrician Alexander Hamilton. He studied at Edinburgh, Paris, Leiden, and the University of St. Andrews; joined his father's practice at age twenty-one; and succeeded him as chair of midwifery at Edinburgh in 1800. Beginning in 1815 he attempted to have midwifery made compulsory for medical students, and only succeeded in 1830 after a protracted legal battle.

As explained at the beginning of the notes, Hamilton's lectures cover the anatomy and physiology of the uterine system, the act of child bearing, the diseases of women (unimpregnated, pregnant, and after delivery), and the diseases of children. We cannot locate the note-taker, Thomas Beaumont, in the historical record.

Though the majority of this manuscript comprises the notes on obstetrics, there are five and a half pages on vaccination at the rear, copied from William Howison's 'Remarks on Vaccination' published in The Lancet in 1831.

Notebook containing 95 leaves of manuscript text (primarily rectos) and 83 blank pages, a little faint toning to contents; contemporary green half roan, marbled sides, new morocco label, binding worn with loss from the corners and spine ends, joints starting, very good condition.



IMPORTANT EARLY ACCOUNT OF EPILEPSY

28. PRICHARD, J.C. A Treatise on Diseases of the Nervous System. Part the first: Comprising convulsive and maniacal affections. London, for Thomas and George Underwood, 1822.

£1,750 [ref: 113172]

First edition of this volume on mental illness that contains 'the best early account of epilepsy after [Thomas] Willis [1667]' (Garrison-Morton, *A Medical Bibliography* 4809).

It 'contained detailed accounts of the clinical features of the epilepsies including "epileptic delirium" and the first mention of status epilepticus as well as of the post-ictal plegias... It was based on the casebooks and his own patients at the Bristol Infirmary and at St. Peter's Hospital where the other lunatic poor of Bristol, officially called "frenzy patients", had been housed since 1699' (Hunter & Macalpine, *Diseases of the Nervous System*, pp 838-39).

First edition; 8vo (208 x 126 mm); just a little spotting at the beginning of chapter 1, some tan streaks to pages 252 and 253 from the silk bookmark also slightly affecting surrounding leaves, small abrasion in the front blank; recently rebound to style in quarter brown morocco, spine gilt in compartments, red morocco label, marbled boards and edges, spine faded and just a little rubbed at the ends, an excellent copy; 425pp. Garrison-Morton (*A Medical Bibliography*), 4809.



AN EARLY AND INFLUENTIAL MATERIALIST
EXPLANATION OF GHOST SIGHTINGS

29. HIBBERT, SAMUEL. Sketches of the Philosophy of Apparitions; or, an attempt to trace such illusions to their physical causes. Edinburgh & London, Oliver & Boyd & G. & W.B. Whittaker, 1824.

£2,750 [ref: 113162]

First edition of a key work attributing ghost sightings to the human mind, an early examination of the unconscious. Rare in commerce, with no copies in recent auction records.

'Two of the most influential studies upon the nature and origin of hallucinations in the early nineteenth century centred their examination upon the supposed sighting of apparitions and phantoms of the dead. In these works, John Ferriar and Samuel Hibbert — both medical physicians — outlined the theory of spectral illusions — the argument that apparitions were to be traced to disorders and diseases of the bodily apparatus, rather than to insanity, revelation, or post-mortem haunting... Hibbert enlarged upon Ferriar's writings and outlined the similar thesis that "apparitions are nothing more than ideas, or the recollected images of the mind, which have been rendered as vivid as actual impressions".' (McCorristine, *Spectres of the Self*, pp45-46).

Provenance: William Schroeder (signature & ink stamp).

First edition; 8vo (17.5 x 10 cm); folding chart and tables within the text, offsetting and a little scattered spotting to the contents, ownership signature and ink stamp to front free endpaper, tiny catalogue note tipped-in on the rear free endpaper; contemporary calf rebacked to style, gilt titles, raised bands, blind stamps to compartments, top edge dyed red, binding rubbed and scuffed, very good condition; 459pp.



EARLY COLOUR MICROSCOPY

30. BLEULAND, JAN. *Icones Anatomico-Physiologicae Partium, ad anatomiam animalium pertinentium, quae in descriptione musei Academiae Rheno-Trajectinae inveniuntur.* Utrecht, Johaan Altheer, 1826.

£7,500 [ref: 114175]

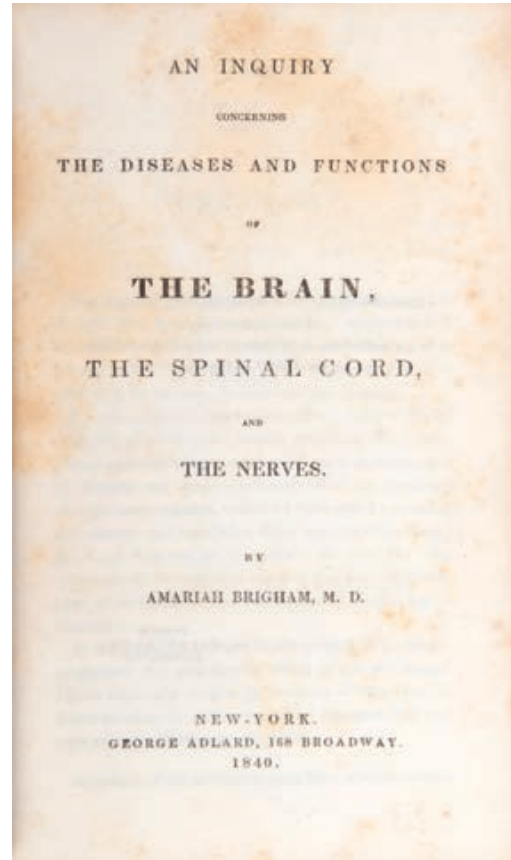
First edition of one of the earliest works on the anatomy of tissues rather than organs or organ systems, and one of the earliest microscopical works printed in colour. A never bound, unopened copy complete with all thirty plates and the original blue paper covers. Rare; only three copies have appeared at auction since 1992, one of which was incomplete, and WorldCat locates no institutional copies.

Jan Bleuland (1756-1838) attended the University of Leiden and then taught and practised medicine at Hardewijk and Utrecht.

'During his career Bleuland published a number of illustrated anatomical works printed in colour, showing a special interest in the fine structure of healthy and diseased states of the organs and tunics of the digestive tract. (Meli, 'The Rise of Pathological Illustrations: Baillie, Bleuland, and Their Collections', *Bulletin of the History of Medicine*, volume 89, number 2, pp. 234-235). He took advantage of a variety of new printing techniques, including copperplate engraving, aquatint, and lithography, to create different visual effects, even for different illustrations within the same work.

Bleuland's works 'occupy a significant role in the history of medicine: they reflected crucial transformation in the notion of disease, and, at the same time, played a key cognitive and heuristic role in those transformations by focusing on local lesions and structural changes' (p. 210).

First edition; complete with 30 colour engravings with some colours applied by hand, contents clean; 5 unopened text fascicles with original unattached blue paper cover sheets printed in black, one cover with a portion of a contemporary library ticket attached, the covers creased and chipped along the edges and a little dulled, the whole never bound and housed in a custom cloth folding case by Bainbridge Conservation, very good condition; 93pp.



THE RARE FIRST AMERICAN BOOK ON NEUROLOGY

31. BRIGHAM, AMARIAH. *An Inquiry Concerning the Diseases and Functions of the Brain, the Spinal Cord, and the Nerves.* New York, George Adelard, 1840

£1,750 [ref: 113169]

The rare first edition of the first American neurology book.

Psychiatrist Amariah Brigham (1798-1849) was the first director of the Utica Psychiatric Center, a founding member of what would become the American Psychiatric Association, and editor of the organisation's journal, now titled the *American Journal of Psychiatry*.

In this volume he 'discussed the structure and function of the brain, medulla, spinal cord, and cranial nerves. Although most of the clinical portions of the book deal with mental diseases, he did discuss inflammation of the brain, apoplexy, epilepsy, tinnitus, chorea, delirium tremens, and tic douloureux' (DeJong, *History of American Neurology*, p. 8)

First edition; foxing and uneven tanning to contents; original green cloth blocked in blind, title to spine gilt, yellow endpapers, worm hole through the hinge and joint, two pieces of the spine laid back down, wear at the head and tail, corners worn, cloth rubbed and marked, a very good copy; 327pp.



THE BASIS OF PUBLIC HEALTH AS WE KNOW IT

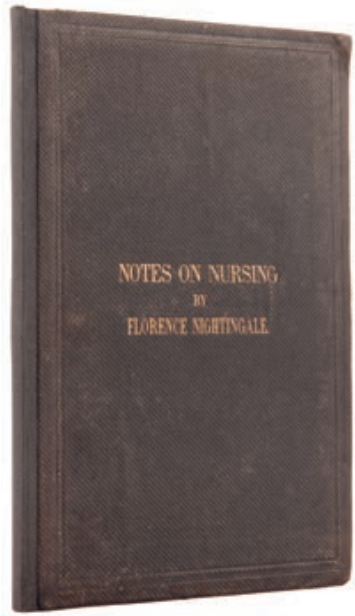
32. [CHADWICK, EDWIN]. *Poor Law Commissioners. Report to Her Majesty's Principal Secretary of State for the Home Department, from the Poor Law Commissioners, on An Inquiry into the Sanitary Condition of the Labouring Population of Great Britain; with Appendices.* London, W. Clowes and Sons for Her Majesty's Stationery Office, 1842.

£850 [ref: 115042]

First edition of 'one of the most important documents of the first half of the nineteenth century', the groundbreaking report that established both the statistical science of public health and the role of government in addressing it (PMM).

'In 1838 a serious outbreak of disease in Whitechapel prompted Chadwick, as Secretary of the Poor Law Commissioners, to appoint Dr. Southwood Smith and two other medical men to report on it. What they found so shocked the country that similar reports were called for from other industrial centres. The sequel was the issue of the [present] staggering document... Its recommendations included for the first time national responsibility for drainage, cleaning of streets, paving, light and water supply, and a national health and burial service. The Health Board of 1848, the Local Government Board of 1871 and today's Ministry of Health (1919) [now the Department of Health and Social Care]' (PMM). Historian G.M. Young pointed out that Chadwick's influence was responsible for 'the introduction into the British constitution of "the Benthamite formula — inquiry, legislation, execution, inspection and report"' (PMM).

First edition; 3 lithographic folding maps and charts, 16 lithographic plates of which 5 are double page, engravings within the text, bookplate of John V. Stewart, occasional light spots but overall contents fresh; original purple cloth, titles to spine gilt, spine and edges of boards faded, lower corner knocked, cloth lightly rubbed with a few shallow scuffs, very good condition; 457pp. PMM 313; Garrison-Morton 1608; Norman, 100 Books Famous in Medicine 63; Norman Library of Science & Medicine 434.



THE ORIGIN OF MODERN NURSING

33. NIGHTINGALE, FLORENCE. *Notes on Nursing: What It Is, and What It Is Not.* London, Harrison, [1860].
£750 [ref: 113168]

First edition, early issue (probably the third or fourth), with advertisements on the endpapers and 'the right of translation is reserved' on the title.

On her return from the Crimean War a public subscription was raised to found a school of nursing. *Notes on Nursing* was published six months before the school opened and was intended, 'not as a textbook, but as a book of hints for those nursing in the hospital ward and in the domestic sick room. The principles of hygiene and sanitation which Nightingale had applied with such success in the military hospital at Scutari, in the Crimea, were fundamental... *Notes on Nursing* described in great practical detail the nurse's duties in supplying her patient's needs, and it indicated a new and more responsible role for nurses, one that required proper training and medical knowledge. *Notes on Nursing* was the first major work on it subject and remained influential for many years' (Grolier, *One Hundred Book Famous in Medicine* 71).

Provenance: Dr. L. Ward Kay (bookplate).

First edition, early issue; 8vo; chart within the text; original brown pebble-grain cloth rebaked to style, title to upper board gilt, yellow endpapers printed with publisher's ads, contemporary stationer's blind stamp to the front free endpaper, 1 contemporary and 2 later ownership signatures to front pastedown, cloth a little bubbled primarily on the lower board, corners bumped, very good condition; 79pp. Grolier (*One Hundred Books Famous in Medicine*), 71; Hook & Norman (*The Norman Library of Science and Medicine*), 1600-1602.

FROM THE LIBRARY OF OLIVER SACKS

34. HELMHOLTZ, HERMANN L.F. *Sensations of Tone as a Physiological Basis for the Theory of Music.* Translated with the author's sanction from the third German edition, with additional notes and an additional appendix. London, Longmans, Green, and Co., 1875.

£1,500 [ref: 113175]



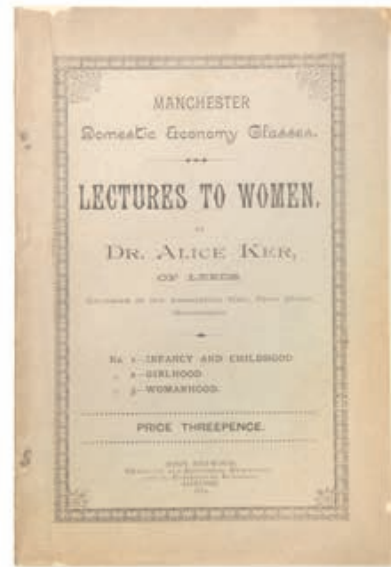
First English language edition, from the library of neurologist Oliver Sacks, with his octopus bookplate.

This edition was based on the text of the third edition of Helmholtz's *Die Lehre von den Tonempfindungen als Physiologische Grundlage für die Theorie von Musik*, published in 1863. It 'laid the groundwork for all subsequent research in the field of audition. It contains Helmholtz's resonance theory of hearing, the first elaborate theory of the mechanism of the ear, which originally posited that the ear detects differences in pitch through the microscopic rods of Corti, strung out in gradually increasing size through the cochlea. Helmholtz likened these rods to progressively smaller tuned resonators, each of which responded to a sound wave of progressively higher pitch, exciting adjacent nerve endings when then carried the impulse to the brain. Helmholtz later altered his theory to state that the cochlea's resonators were the transverse fibers of the basilar membrane instead of the rods of Corti; with this single modification, his resonance theory remained unchallenged for over two decades.

The previous owner of this copy, Oliver Sacks (1933- 2015), was a prominent neurologist whose work with patients of encephalitis lethargica in the 1960s was the basis for his best-selling book *Awakenings*, which was made into an Academy Award-winning film starring Robert De Niro and Robin Williams. Sacks then wrote a succession of best-sellers on neurology and the history of medicine and science, including *The Man Who Mistook His Wife for a Hat* (1985), which was based on his own case studies.

Provenance: Oliver Sacks (bookplate).

First English language edition, from the library of Oliver Sacks with his bookplate; 8vo; numerous illustrations and charts within the text, 44-page publisher's ads dated April 1875 at rear, pencilled notes in the margins of a few pages, not in Sachs's hand, just a little light spotting to the early and late leaves; original red cloth, titles to spine gilt, boards blocked in blind, brown coated endpapers, cloth rubbed with wear at the extremities, contents a bit shaken, very good condition; 824pp. Hook & Norman (*The Norman Library of Science & Medicine*), 1044.



DOCTOR & SUFFRAGETTE

35. KER, ALICE. *Lectures to Women. Delivered at the Association Hall, Peter Street, Manchester. 1. Infancy and Childhood. 2. Girlhood. 3. Womanhood.* London, John Heywood, 1884.

£3,750 [ref: 113958]

A rare first edition of the first book by early woman doctor and suffragette Alice Ker (1853–1943), offering concise medical advice for girls and young women navigating puberty, based on lectures she gave in Manchester. Ker came from a politically active Edinburgh family, whose home served as a hub for early women's suffrage efforts, and she was encouraged to pursue a professional career. She became involved in Sophia Jex-Blake's campaign to gain medical qualifications from Edinburgh University; when that effort failed, Ker trained at the London School of Medicine and qualified through the King and Queen's College of Physicians in Ireland. Further study in the US and Switzerland followed, and she became the thirteenth woman admitted to the medical register in 1879. Although little is recorded about her early career, she worked at Birmingham Children's Hospital, rising to senior medical officer by 1881, and published *Lectures to Women nos. 1–3* (1883), which provided sensible, accessible medical advice.

Ker later established a thriving general practice in Birkenhead while raising a family and remaining active in social causes. In 1909, she joined the Women's Social and Political Union and took part in direct action, including the window-smashing protest at Harrods in 1912. Refusing bail, she served a two month sentence in Holloway Prison and joined the hunger strike.

First edition; 56-page pamphlet; title page lightly toned, small spot to upper corner of early leaves, otherwise contents fresh; original grey wrappers printed in black, wire-stitched, upper joint professionally conserved by Bainbridge Conservation.



PRESENTATION COPY TO RUDOLPH REITLER

36. FREUD, SIGMUND. *Die Infantile Cerebrallähmung.* Vienna, Alfred Hölder, 1897.

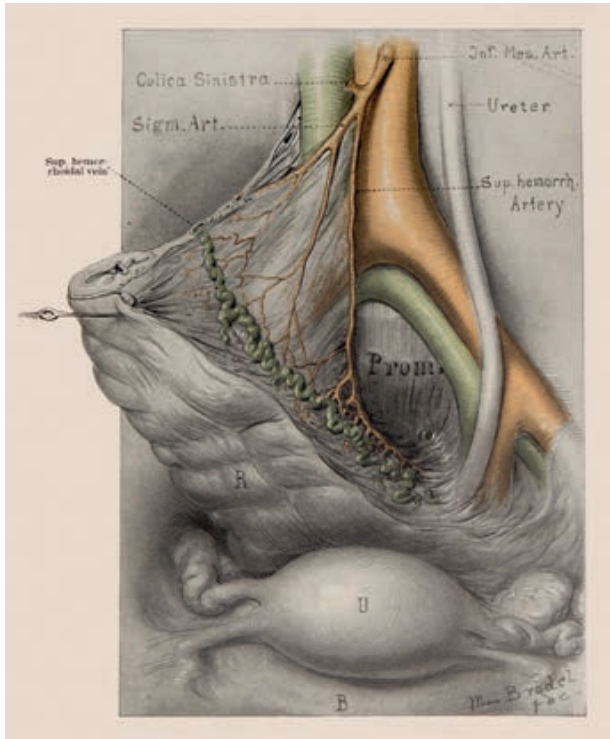
£9,750 [ref: 113676]

The rare first edition of this significant work on cerebral palsy, Freud's final neurological treatise before devoting his career to psychoanalysis. An exceptional presentation copy inscribed to his friend and colleague Dr. Rudolph Reitler, the first person to practice psychoanalysis after Freud: 'Herr Dr. R. Reitler /Freundhaftlich / Verf(asser)'.

Freud's first scientific speciality was neurology, and he trained at the Salpêtrière in Paris with the famous neurologist Jean-Martin Charcot. 'By 1897 Freud had become a leading authority on the subject of children's paralyses, so it was natural that Carl Nothnagel, in planning his encyclopaedia of medicine, should ask Freud to write the section on infantile cerebral paralysis. The work... contains an excellent description of the various forms of cerebral palsy, with precise classification of the different spastic symptoms and reference to the extra-pyramidal symptoms... Freud is today considered a founder of of pediatric neurology, and Pollack called Freud's *Infantile Cerebrallähmung* "one of the most important works ever written on this subject"' (Hook & Norman, *The Norman Library of Science and Medicine* F32).

The recipient of this copy, Rudolph Reitler (1865-1917) attended lectures by Freud while studying medicine at the University of Vienna and soon became one of his close associates. In 1902 he received a postcard from Freud inviting him to join a new discussion group on psychoanalysis, the groundbreaking Wednesday Psychological Society (later the Vienna Psychoanalytic Society), of which the physicians Wilhelm Stekel, Alfred Adler, Max Kahane were also founding members.

First edition, INSCRIBED PRESENTATION COPY; 8vo; 3 folding charts, prospectus and publisher's ads to inner wrappers, contents very faintly toned; original yellow wrappers printed in black, housed in a marbled case, grey mark to the lower wrapper, spine chipped and cracked, particularly at the tail, and re-laid down, small chip at the corner of the upper wrapper adjacent to but not affecting the inscription, wrappers rubbed and a little marked and dulled, very good condition; 327pp. Hook & Norman (*The Norman Library of Science & Medicine*), F32; Garrison & Morton (*A Medical Bibliography*), 4708.1.



THE FATHER OF MODERN MEDICAL ILLUSTRATION

37. [BRÖDEL, MAX; BECKER, HERMANN (ILLUSTRATORS)]. KELLY, HOWARD A. *Operative Gynecology. With twenty-four plates and over five hundred and fifty original illustrations.* New York, D. Appleton and Company, 1898.

£750 [ref: 114975]

First edition of this groundbreaking work, written by America's leading gynaecologist, Howard Kelly, and illustrated by the 'father of modern medical illustration', Max Brödel.

Howard Kelly, a founding physician of Johns Hopkins and pioneer of modern gynaecology, introduced key surgical innovations and established the first U.S. gynaecology professorship. Collaborating with medical illustrator Max Brödel, whose groundbreaking carbon dust technique transformed medical imagery, they produced the seminal *Operative Gynecology* and helped found the field of medical illustration as both science and art.

First edition; 2 vols, 8vo (25.5 x 16.5), 24 lithographic plates with printed tissue guards, illustrations throughout the text, contents fresh; contemporary brown half morocco, titles to spines gilt, 5 raised bands, pebble-grain cloth sides, bindings a little rubbed and scuffed, spines faded, ownership signatures partially removed from free endpapers, an excellent set; 557pp. Garrison-Morton 6198.



EDWARDIAN RETAIL DISPLAYS

38. [PHARMACY]. *Chemist's Windows. An illustrated treatise on the art of displaying pharmaceutical and allied goods in chemists' shop windows.* London, Melbourne & Adelaide, at the offices of 'The Chemist and Druggist', 1915.

£150 [ref: 114429]

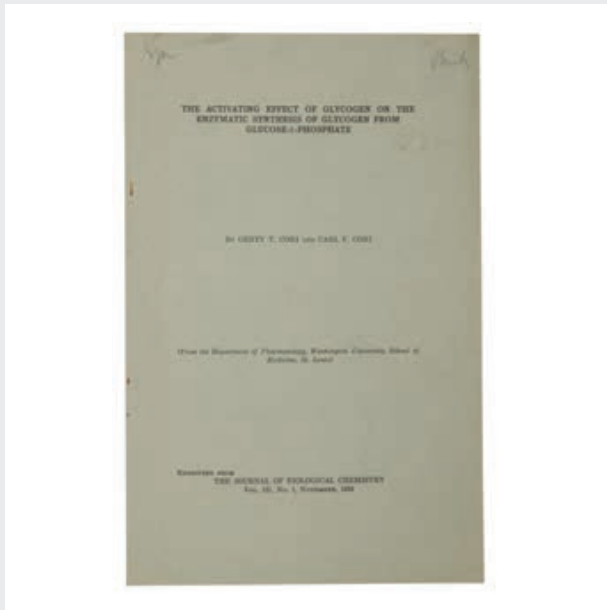
First and only edition of this record of an ephemeral and charming art form, the retail window display.

First edition; 8vo; illustrations throughout, many from monochrome photographs, free endpapers tanned, a little light spotting to the edges of the text block; original black cloth, titles to spine gilt, Chemist & Druggist magazine roundel to upper board in blind, a few small bumps to the edges, cloth very lightly rubbed with a few light marks, very good condition; 208pp.

THE FIRST WOMAN AWARDED THE NOBEL PRIZE IN PHYSIOLOGY & MEDICINE - THREE OFFPRINTS

39. CORI, GERTY T. & CARL F. 'The Activating Effect of Glycogen on the Enzymatic Synthesis of Glycogen from the Glucose-1-Phosphate', November 1939, [WITH] 'An Unusual Case of Esterification in Muscle', November 1936, [AND] 'The Activity of the Phosphorylating Enzyme in Muscle Extract', March 1939. Baltimore, MD, The Waverly Press Inc. for *The Journal of Biological Chemistry*, 1926 & 1939.

£1,250 [ref: 115026]



Three rare offprints by the Nobel Prize-winning biochemists Gerty Cori (1896-1957) and her husband Carl.

Gerty Cori was born in Prague and educated privately, then entered the University of Prague's medical school, which only rarely accepted women. There she met her husband Carl and the couple emigrated to America, beginning a life-long scientific partnership that survived several attempts by academic institutions to restrict her work in favour of her husband's career.

The Coris 'made two renowned discoveries: that carbohydrates are stored in the liver and muscles and are changed into glucose that can be used by the body; and that certain hormones affect the metabolism of carbohydrates... They postulated that blood glucose is changed to muscle glycogen which then becomes blood lactic acid. Blood lactic acid is then able to form liver glycogen, which completes the cycle by becoming blood glucose when the body needs it. This cycle is known as the Cori cycle, which was proposed in 1929. When they moved to St. Louis, the Coris continued to work on carbohydrates and disproved the current belief that glycogen metabolized glucose by hydrolysis. They demonstrated that the breakdown of glycogen involved the formation of glucose-1-phosphate, which was referred to as the Cori ester. The enzyme that catalyzed this reaction was isolated by the Coris and named phosphorylase... The Coris shared the Nobel Prize for physiology and medicine in 1947 with Bernardo Houssay of Argentina, making Gerty Cori the first woman to win the medicine and physiology Nobel Prize' (Ogilvie, *Biographical Dictionary of Women in Science*, p. 293).

Three offprints, two with green wrappers printed in black, one lacking wrappers, wrappers of the first offprint partially tanned, rust marks from staples, a very good set.



'THE BEST AND MOST CONVENIENT SUBSTITUTE FOR THE BODY'

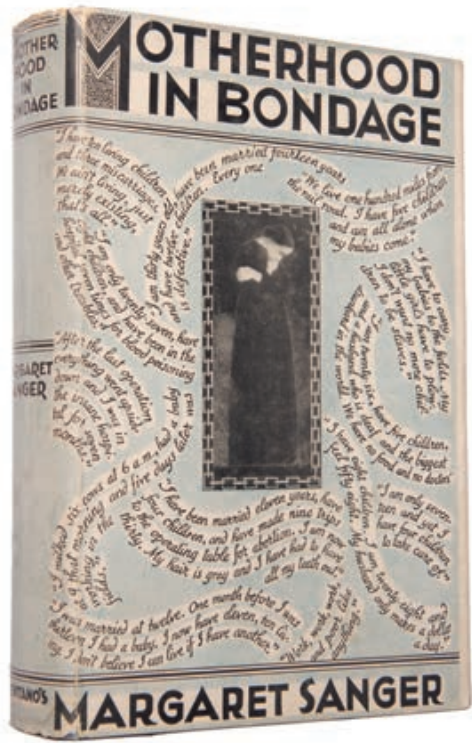
40. CHEESMAN, J.E. *Ballière's Synthetic Anatomy. The best and most convenient substitute for the body. Complete in fourteen parts.* London, Baillière, Tindall & Cox, [1927-1930s].

£750 [ref: 114128]

A superb set of this unusual and uncommon anatomical atlas composed of coloured, partly-transparent glassine overlays, rarely found complete in 14 volumes in the original binder, particularly in such nice condition.

Ballière's Synthetic Anatomy was designed as a learning aid for medical students and was released in 14 parts (1-9 and 9a-13) between 1927 and the late 1930s. Each fascicle and the cloth binder could be purchased separately for 3 shillings, 6 pence each, or the whole set together for 52 shillings, six pence. When the first parts appeared it was described by the British Journal of Surgery as 'the best and most convenient substitute for the body'.

Binder of 14 fascicles numbered 1-9 and 9a-13, each comprising upper and lower cover with the titles printed in dark blue, guide text printed on cream paper loosely inserted, and coloured anatomical illustrations on glassine creating an overlay effect, contents very fresh; binder of buff cloth, titles to upper board in red, silver 'distributed by Clay-Adams Company, Inc.' tickets to the upper cover of the binder and the title of each fascicle, cloth a little rubbed, excellent condition.



RARE IN THE JACKET

41. SANGER, MARGARET. *Motherhood in Bondage*. New York, Brentano's, 1928.

£1,750 [ref: 115095]

A very attractive first edition, in the uncommon dust jacket.

Sanger founded the clinic that would become Planned Parenthood in 1921, and in 1928 she published this volume containing hundreds of letters written to her by women desperate for birth control. Most were working or lower middle class, and describe the fear and stress of constant childbearing, the damage it was causing to their relationships, and their regret that they could not give their existing children better lives.

The publication of these letters was designed to 'make it clear that contraception could stabilize families, enable the poor to enjoy social mobility, and help to prevent violence against wives and children' (Marsh, foreword to *Motherhood in Bondage*, Ohio State University Press, 2000). Though birth control products and information had become more widely available during the middle of the nineteenth century, the Comstock Act of 1873 made distributing such information illegal, and much less accessible to the poor than the wealthy.

First edition; 8vo; contents partially unopened; original blue cloth, titles to spine and upper board in black, cloth a little mottled and lightly rubbed at the tips, an excellent, fresh copy in the jacket that is very lightly rubbed with a few tiny chips and nicks and light dampstain at the tail of the spine; 446pp.



THE FATHER OF TRANSFUSION MEDICINE

42. LANDSTEINER, KARL. *Die Spezifität der Serologischen Reaktionen*. Berlin, Julius Springer, 1933.

£1,250 [ref: 115037]

First edition of this uncommon summary of Landsteiner's decades-long work on human blood types, for which he was awarded the Nobel Prize in 1930. A very attractive copy.

It was known as early as 1875 that dangerous clots were formed when blood from animals was transfused into humans. Beginning in 1901 Karl Landsteiner (1868-1943), then working at Vienna University, showed that the same thing could occur when blood was exchanged between people. Meticulously checking the reactions of different samples, he was able to classify blood into the ABO types still in use today. He also proved that clots were caused by an immunological reaction between red blood cells and antibodies in serum, and demonstrated that the blood groups are inherited. Thanks to his efforts, the first blood testing system was established in 1910 and the earliest blood banking system was set up during the 1930s. Landsteiner continued working on blood types throughout his career, and also made important contributions to the discovery of the polio virus and to other subjects in immunology.

First edition; 8vo; diagrams within the text, ink stamp of the Frederiksberg Officerskolens Kemiske Laboratorium to the title, front free endpaper, and p. 101, pencilled biographical note in German to the front pastedown, contents fresh; original buff cloth, titles to spine and upper board in dark blue, some very light spotting to the cloth, excellent condition; 123pp. Garrison-Morton Medical Bibliography 2576.2.



THE CURE FOR TUBERCULOSIS

43. SCHATZ, ALBERT & WAKSMAN, SELMAN A. Effect of Streptomycin and Other Antibiotic Substances upon Mycobacterium tuberculosis and Related Organisms. [In] *Proceedings of the Society for Experimental Biology and Medicine*, volume 57, number 2 [bound together with numbers 1 & 3]. Utica, NY, Society for Experimental Biology and Medicine, November, 1944.

£3,500 [ref: 115549]

The rare first edition of the paper announcing the new antibiotic streptomycin as a potential cure for tuberculosis, the journal issue bound as a complete volume.

The antibacterial properties of penicillin had been confirmed in 1928, but it wasn't until the late 1930s that a method of mass production made medical use possible. Selman Waksman (1888-1973), a soil microbiologist at Rutgers, immediately saw the antibiotic potential of the organisms he studied, and beginning in 1937 he initiated a meticulous research program to isolate and test candidate drugs.

It was Waksman's graduate student Albert Schatz who did most of the work on tuberculosis and discovered streptomycin's promise, and he is listed as the first author of this paper. But once the substance was confirmed to be a miracle drug he was pushed out of the spotlight and convinced to sign away his financial rights in the discovery. Waksman was feted as a hero in international publicity and became the sole recipient of the Nobel Prize in 1952, a event described as 'one of the worst' mistakes in the history of the award (Mistiaen).

Provenance: State College of Washington.

First edition, volume 57 complete, being 3 numbers bound in 1; tall 4to (24.5 x 16.5 cm); illustrations and diagrams throughout, contents fresh; contemporary library buckram, titles to spine gilt, volume title and original blue wrappers for each number bound in, library bookplates and pencilled inscriptions, spine and edges of boards faded, cloth rubbed and a little marked, very good condition.



THE BEGINNING OF THE END FOR POLIO

44. ENDERS, JOHN C.; WELLER, THOMAS H.; ROBBINS, FREDERICK C. Cultivation of the Lansing Strain of Poliomyelitis Virus in Cultures of Various Human Embryonic Tissues. [Reprinted from] *Science*, volume 109, number 2822, pp. 85-87. [Washington D.C., American Association for the Advancement of Science], January 28, 1949.

£7,500 [ref: 115175]

The rare offprint of the paper announcing the first cultivation of polio virus in cell cultures, the breakthrough that made modern vaccines possible.

After studying pathogenic bacteria for a decade, Harvard Medical School microbiologist John Enders (1897-1985) turned his attention to viruses, refining his culture techniques with the mumps before applying them to polio. 'Before this discovery, scientists had been able to grow polio virus only in the nervous tissue of susceptible laboratory animals, commonly monkeys, in a painstaking process that yielded minute quantities of the virus. The work of Enders, Weller, and Robbins had the tremendous practical effect of enabling scientists to prepare large amounts of polio virus, making possible the mass production of the Salk killed-virus vaccine and later, the Sabin live-virus vaccine. The impact of their work, however, was not limited to the study of polio. Their culture technique gave researchers an invaluable tool for the study of other viruses; made viral research much less laborious, time-consuming, and costly; and sparked revolutionary progress in the field; (America Association of Immunologists biography).

Enders refused to accept the Nobel Prize when it was offered to him alone and insisting that his co-authors, 'those who did the work', be recognised equally.

Offprint, single leaf folded once; a fine copy. Garrison-Morton Medical Bibliography 4671.1.

OUR WANDERING CONTINENTS



ITEM 48

EARTH SCIENCE



BIOLOGY AS A NEWTONIAN SCIENCE

45. CUVIER, GEORGES L.C., BARON; KERR, ROBERT (TRANSLATOR). *Essay on the Theory of the Earth. Translated from the French. With mineralogical notes, and an account of Cuvier's geological discoveries.* Edinburgh, for William Blackwood, John Murray, & Robert Baldwin, 1813.

£1,250 [ref: 113163]

First English language edition of Cuvier's important essay establishing the role of cyclical geological catastrophes in palaeontology.

Naturalist Georges Cuvier (1769-1832) is considered the founding father of both vertebrate zoology and palaeontology. He established the concept of biological extinction on a factual basis, was one of the developers of biostratigraphy, and was among the first to suggest that reptiles had previously dominated the earth. Cuvier opposed the evolutionary theories of Lamarck and Saint-Hilaire, and posited instead that cyclical geological catastrophes caused the creation and destruction of life, basing this on evidence of alternating marine and freshwater fossils in the rocks of the Paris basin. But unlike Biblical catastrophism, Cuvier's scientifically-based theory incorporated realistic geological timeframes, accepted that the events were localised instead of worldwide, and brought catastrophes 'within the "Newtonian" system of unchanging natural laws. However obscure the cause of revolutions might be, their repetition implied that they formed part of the ordinary course of nature' (Rudwick, *The Meaning of Fossils*, p131).

'All these ideas were integrated and further developed in the *Preliminary Discourse* that Cuvier prefixed to his great *Researches on the Fossil Bones of Quadrupeds* (1812)... The attractively written geological essay with which the work began was recognised at once as a work of the highest importance. It was later issued separately as *A Discourse on the Revolutions of the Surface of the Globe*, which went through several editions and was translated into the other main European languages.

In this way Cuvier's theory, which many years later was give the misleading name of "catastrophism", became widely known and influential among the general reading public as well as among men of science. Cuvier himself rarely used the word "catastrophes", for its overtones of disaster were largely extraneous to his conception of these regular and natural events; he preferred the term "revolutions" for its more Newtonian flavor. Likewise, though the editor of the English editions, Scottish geologist Robert Jameson (1774-1854), entitled the work *Theory of the Earth*, Cuvier himself always avoided this phrase on account of its associations with the earlier speculative systems he so much deplored' (Rudwick, p132).

This edition is particularly interesting because Jameson added 'lengthy editorial notes' to the text in an attempt to connect Cuvier's catastrophes with the Biblical flood. Using geology to prove the literal truth of the Bible was of much greater concern among British intellectuals than those on the Continent, and James's edits led British readers to believe that Cuvier had more interest in this than he did in reality (Rudwick, pp133-134).

First English language edition; 8vo (21 x 12.5 cm); engraved frontispiece and 1 plate, some toning, light spotting, and offsetting, primarily to the frontispiece, titles, and plate; recently rebound to style in quarter brown calf, black morocco label, marbled boards, red speckled edges, just a little rubbed at the extremities, very good condition; 265pp.

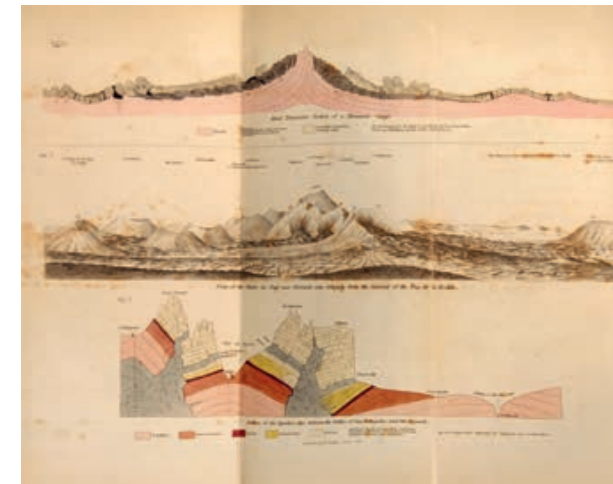
VOLCANOS AS INDICATORS OF DEEP TIME

46. SCROPE, G. POULETT. *Considerations on Volcanos, the probable causes of their phenomena, the laws which determine their march, the disposition of their products, and their connexion with the present state and past history of the globe. Leading to the establishment of a new theory of the earth.* London, W. Phillips, 1825.

£850 [ref: 115252]

First edition of this significant work by one of the leading geologists of the early nineteenth century.

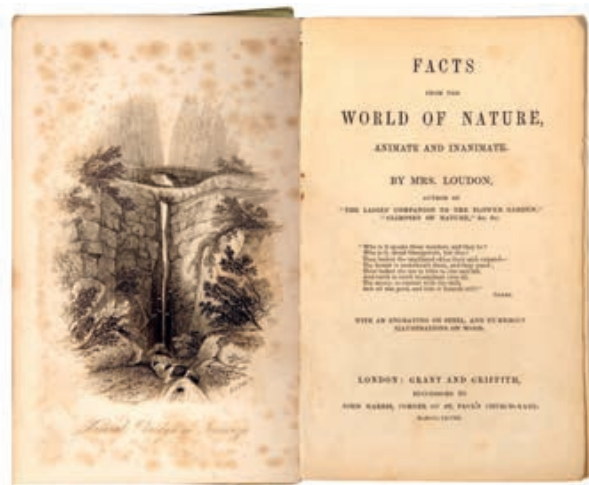
George Julius Poulett Scrope (1797-1876) was educated at Oxford and Cambridge and developed a love of volcanoes during a visit to Naples in 1817. After graduation he spent two years doing geological fieldwork in France and Italy, and was present for the 1822 eruption of Vesuvius. 'He returned to England in the autumn of 1823 with greater first-hand knowledge of volcanoes and volcanic regions than anyone then active in the Geological Society in London. The following year he was elected a fellow of that body; less than a year later he joined his contemporary Charles Lyell as one of its secretaries.



In 1826 he was elected a fellow of the Royal Society' (Oxford Dictionary of National Biography).

'Scrope's first substantial published work in geology was his *Considerations on Volcanos* (1825), in which volcanic processes were treated as crucial evidence for a general causal model of the earth. Scrope adopted the hypothesis, then coming back into favour among geologists, that the earth had begun as a hot fluid body and had cooled gradually over vast spans of time. He argued that the intensity of tectonic movements of the earth's crust and of volcanic activity had declined progressively to their present levels. He held that present volcanoes, for example, were reliable guides to the past in qualitative terms, but quantitatively they might have been dwarfed by those in earlier periods of the earth's history... In making such inferences, Scrope, like many geologists on the continent, argued that 'actual' or 'modern causes' (processes directly observable in the present world) such as volcanoes should be used as far as possible to interpret the past history of the earth; but he also conceded that that history had included occasional events on a larger scale than any known from human observations or records... He criticized the use of 'catastrophes' and 'deluges' in geological explanation, but only when such putative events were not related to observable modern causes. His approach to these methodological issues was closely similar to that adopted by his friend Lyell a few years later' (Oxford Dictionary of National Biography).

First edition; 8vo (21.5 x 12.5 cm); hand-coloured folding frontispiece and 2 folding charts, 1 with hand-coloured highlights; University of California punch stamp to title and ink stamps to verso of title, first page of preface, and edges of text block, blind stamp to each folding plate, one folding plate repaired with tissue along the length of a fold, with discolouration from old tape repair, offsetting and spotting to contents; rebound to style in brown calf, marbled sides, titles and spine compartments tooled in blind, endpapers renewed, a good copy; 270pp.



BY THE AUTHOR OF THE MUMMY!

47. LOUDON, JANE. *Facts from the World of Nature, Animate and Inanimate*. London, Grant and Griffith, 1848.

£650 [ref: 113921]

First & apparently only edition of this less well-known book on general science for young people by one of the great Victorian popularisers of botany. Rare on the market, and WorldCat locates only thirteen institutional copies. The contents cover geology, bodies of water, the atmosphere, and animals.

Loudon began writing to support her family after her father's death. 'In addition to *Prose and Verse* (1824) she published anonymously *The Mummy! A Tale of the Twenty-Second Century* (1827), a pioneering work of science fiction that brought together political commentary, Egyptomania, and interest in technology' (Oxford Dictionary of National Biography).

'[Loudon] tapped the ready market for books popularizing horticulture, botany, and natural history. *Instructions in Gardening for Ladies* (1840) was hugely successful; 1350 copies were sold on the day of publication alone. *The Ladies Flower-Garden of Ornamental Annuals* (1840), the first in a much-reprinted series of informative illustrated books, was followed by others about bulbs, greenhouse plants, and perennials... Jane Loudon also brought information about the natural system of plant classification to popular audiences, in *The First Book of Botany... for Schools and Young Persons* (1841) and *Botany for Ladies* (1842)' (ODNB).

First edition; 8vo; steel engraved frontispiece and wood engravings throughout the text, front free endpaper lacking, frontispiece foxed, contents faintly toned in the margins with occasional tiny spots; original green cloth elaborately blocked in gilt to the spine and in blind to the boards, yellow coated endpapers, contemporary bookseller's ticket of Brooke & Co., Doncaster, to the front pastedown, corners, joints, and ends of spine worn, edges of boards toned, some marks and spots to the cloth, very good condition; 390pp.

THE FIRST COMPREHENSIVE EVIDENCE FOR CONTINENTAL DRIFT, IN THE RARE DUST JACKET

48. DU TOIT, ALEX. L. *Our Wandering Continents. An hypothesis of continental drifting. With 48 diagrams*. Edinburgh & London, Oliver and Boyd, 1937.

£650 [ref: 113256]

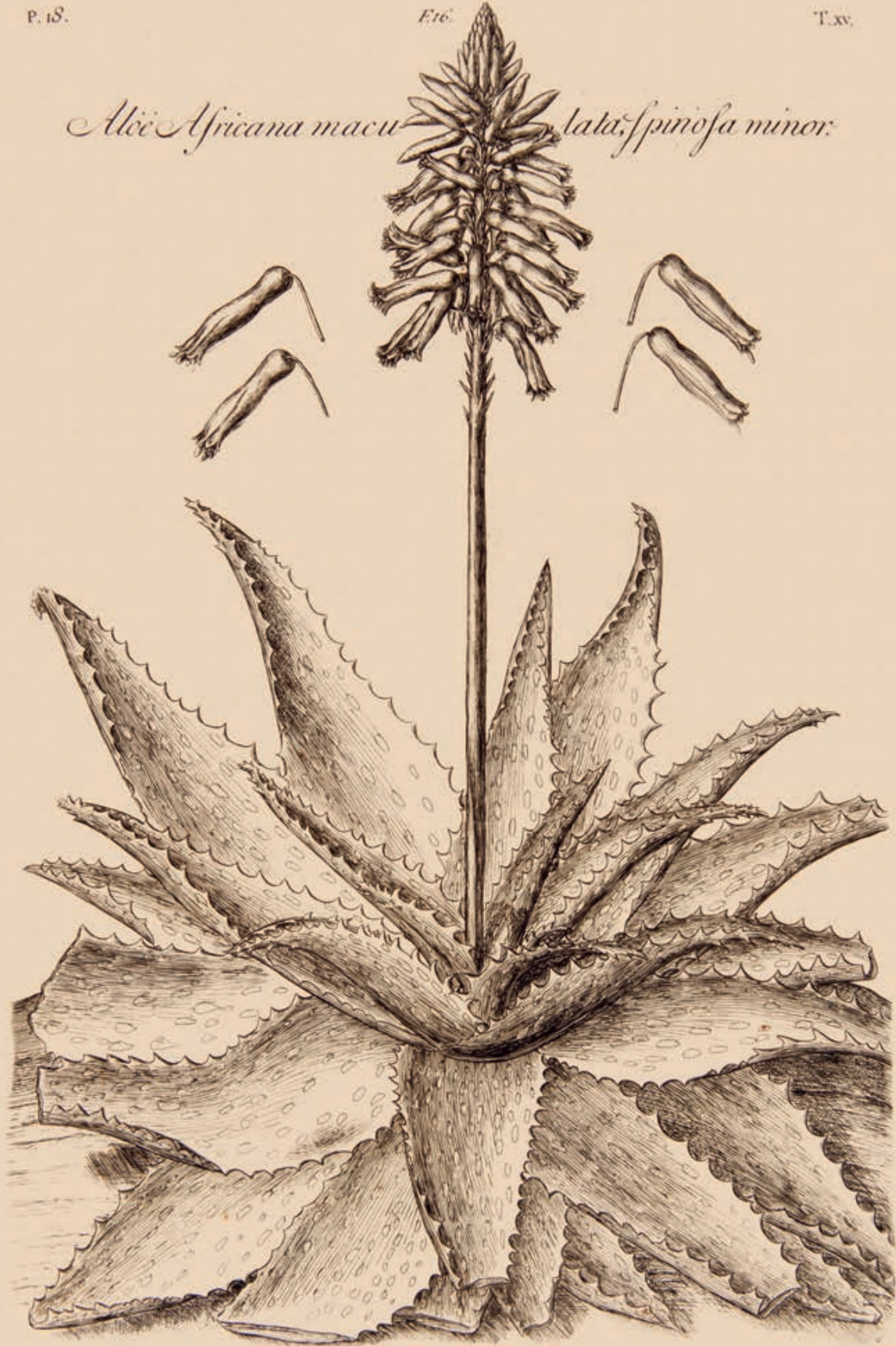
First edition, first impression, an attractive copy in the rare dust jacket. *Our Wandering Continents* presented some of the most important geological evidence for plate tectonics and included the first proposal of the existence of the supercontinents Laurasia and Gondwana.

South African scientist Alexander Du Toit (1878-1948) was known to his contemporaries as 'the world's greatest field geologist' (LeGrand, *Drifting Continents and Shifting Theories*, p. 82). He was the leading supporter of Alfred Wegener, who had first advanced the theory of continental drift in 1912. Du Toit collected a vast body of evidence as he mapped geological strata over large tracts of South Africa between 1903 and 1920, and he became the leading authority on the Karroo region, whose anomalies he believed were explained by continental movement. Du Toit travelled to Australia and South America in 1914 and 1923 to test this hypothesis, comparing strata and fossils between the regions.

'Using Drift, the directions of ice flow deduced from the Dwyka Tillite in South Africa and Australia could be harmonised with those reported for India and South America. *Glossopteris* and other fossils could be matched up with those in other southern continents... Drift offered an elegant solution to problems he had identified, especially those associated with the great southern glaciation' (LeGrand, p. 82). Du Toit eventually determined that the Karroo region extended across all of the southern continents, leading him to reformulate Wegener's theory — instead of one previous supercontinent, Pangea, he postulated that there had been two, Gondwana in the south and Laurasia in the North (we now know that both men were correct, as Pangea split into these two continents). Though plate tectonics would not be fully embraced by the scientific community until the 1950s, Du Toit's work made crucial contributions to our current understanding of the Earth's history.

Provenance: D. Mitchell, York (inscription).

First edition, first impression; 8vo; 2 folding plates, illustrations within the text, 1960s ownership inscription to the front free endpaper, a little spotting to the top edge of the text block, contents fresh; original red cloth, titles to spine gilt, corners bumped, spine very slightly rolled, in the lightly rubbed jacket with some nicks and short splits, very good condition; 366pp.



ITEM 49



A MONUMENT TO THE ENGLISH PRIVATE GARDEN

49. DILLENIUS, JOHAN JAKOB. *Hortus Elthamensis seu Plantarum Rariorum quas in horto suo Elthami in Cantio...* London, by the author, 1732.

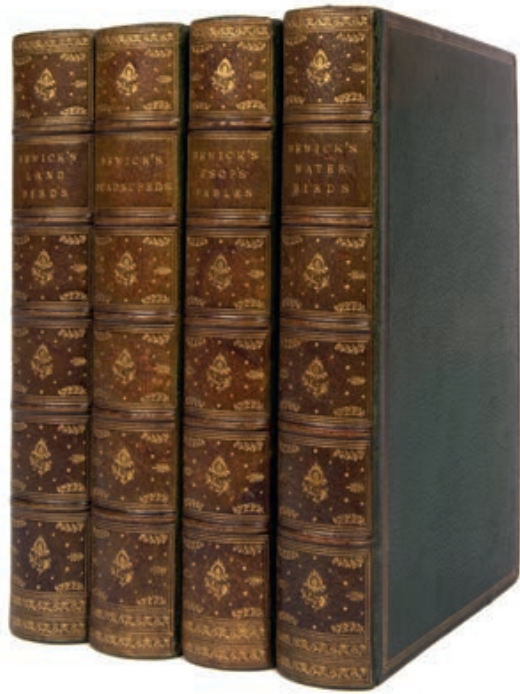
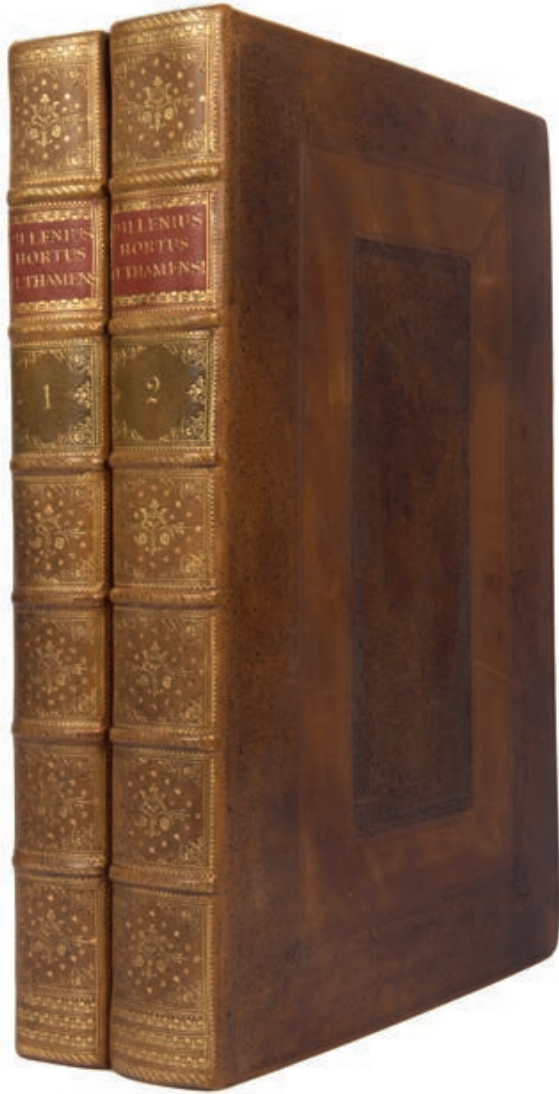
£12,000 [ref: 114675]

First edition of 'The most important book to be published in England during the eighteenth century on the plants growing in a private garden' (Henrey, p.265). A very handsome set bound to style in panelled calf, likely by master binder Bernard Middleton (1924-2019).

After his retirement, the apothecary and botanist James Sherard (1666-1738) 'chiefly resided at Eltham in Kent, where he pursued the cultivation of valuable and rare plants and his garden, with its hothouses, became noted as among the finest in England. An illustrated catalogue of his collection was published by Dillenius in 1732... Despite his election as a fellow of the Royal Society in 1706, Sherard was initially less well known as a botanist than his brother, William... By the 1720s, however, James Sherard's own reputation as a collector of rare plant specimens was established, and his discoveries of English plants had augmented those of Ray and others. He now travelled more widely in search of specimens, including trips to the continent, as well as keeping up correspondences and exchanges of plants with other botanists, notably Richard Richardson. During the 1730s, he also assisted with the management of the Chelsea gardens' (ODNB).

The 325 fine, engraved plates were produced by botanist Johan Jakob Dillenius (1687-1745), who had been persuaded to move to England by Sherard 'to arrange his herbarium and compile an encyclopaedia (*Pinax*) of all names given to plants' (ODNB). Dillenius began work on these illustrations around 1724 and the result is significant 'because of the new genera described and later taken up by Linnaeus and because of the accuracy of the plates, especially of succulent plants, which make bad specimens' (ODNB). Dillenius remained 'central to British botany in academic as opposed to virtuoso circles, advancing basic knowledge besides cataloguing the world's flora. Linnaeus, who sent him specimens of Old World tropical trees, commemorated him in a genus *Dillenia*: "of all plants [it] has the showiest flower and fruit, even as Dillenius made a brilliant show among botanists"' (ODNB).

First edition; 2 vols, folio (45 x 27.5 cm); 325 engraved plates, woodcut head-pieces and decorative initials, just a little very light spotting and offsetting; finely bound to style in panelled calf, spines elaborately gilt in compartments, red and green morocco labels; a fine set. Henrey 643; Nissen BBI 492.



MAGNIFICENT IMPERIAL OCTAVOS

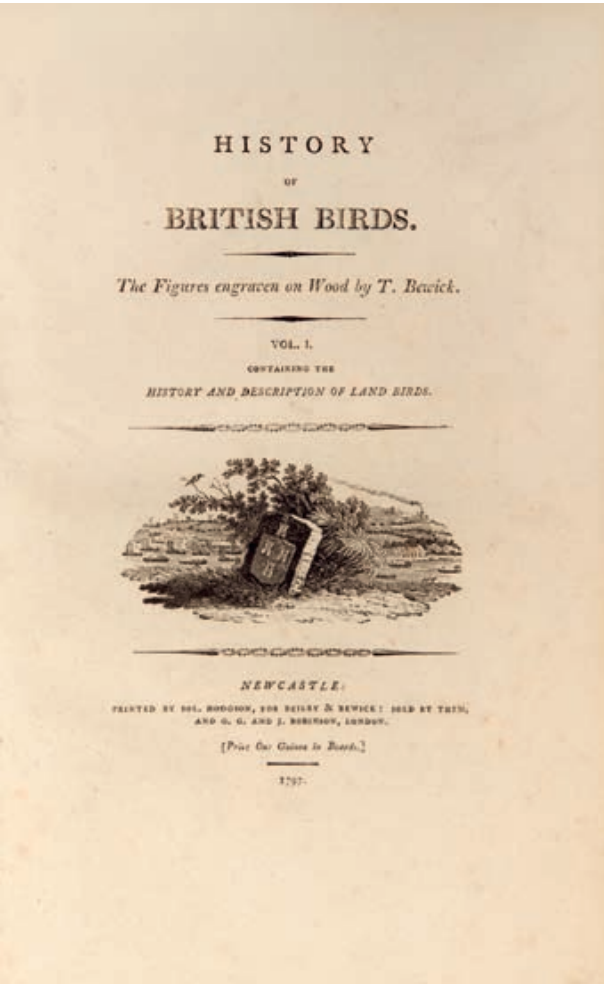
50. BEWICK, THOMAS & JOHN. *History of British Birds [WITH] A Supplement to the History of British Birds, A General History of Quadrupeds [AND] The Fables of Aesop.* Newcastle, Beilby & Bewick, 1797, 1804 & 1821; 1800; 1818.

£5,000 [ref: 113366]

An exceptional imperial octavo set, one of only 24 copies of the *Land Birds* thus, finely bound in crushed morocco. All first editions save for *Quadrupeds*, which is the fourth and best edition, the first to appear in imperial octavo and with thirteen new wood engravings, textual revisions, and the addition of scientific names. This is variant *B* of the *Land Birds*, with the vignette of a jug on page 22 in the horizontal configuration, and the 'indelicate' vignette on page 285 is in the uncensored state. In this copy of the *Water Birds* all three vignettes noted by Roscoe (pages 136, 269, and 359) match his variant A. The *Aesop* contains Bewick's facsimile receipt with his thumb mark, the short form variant.

Loosely inserted into this set is a charming typed letter from the Liverpool firm of Henry Young & Sons, Booksellers & Bookbinders, dated June 7th, 1905. It describes this as 'an exceedingly fine copy of the first issue with both the rare supplements... together with the "History of Quadrupeds" and "Fables of Aesop"'. They make in all 4 volumes, and this is the finest set we have ever seen. The "Quadrupeds", though 4th edition, is really the best edition, as it contains more matter than the earlier issue; and the engravings are very much more carefully printed and consequently finer impressions... This truly magnificent set possesses every essential point necessary to the collector; or to anyone desirous of possessing fine books in the best state obtainable... They differ in many respects from the numerous reprints, none of which can be compared with the original editions, especially the Imperial Paper Issues, which are so rare that, during a business career of more than half a century this is the Only Set that has passed through our hands'. The recipient of the letter, Norman Pringle Todd Esq. of Chislehurst, took Young & Sons up on their offer, and added his bookplate to each volume.

First editions of the *Birds* and *Aesop*, fourth and best edition of the *Quadrupeds*; 4 vols, 8vo (25.5 x 15.5 cm); approximately 1,000 wood engravings within the text, occasional light spotting, particularly to titles, but overall contents clean; finely bound in green levant morocco, crushed, spines elaborately gilt in compartments with pomegranate and foliate tools, triple gilt rules to boards and turn-ins, marbled endpapers, all edges gilt; bookplates, spines browned, uneven fading to boards, light old dampmarks to the *Aesop* volume, a very good set. Roscoe (Thomas Bewick: A Bibliography Raisonné).





HUNDREDS OF WATERCOLOURS INCLUDING UNUSUAL ANIMALS AND PLANTS

51. [NATURAL HISTORY]. [ANON.] An exceptional, early Victorian natural history manuscript. *Cranborne Chase [Dorset, Hampshire & Wiltshire] 1830s.*

£7,500 [ref: 112603]

A BEAUTIFUL AND INTELLECTUALLY ENGAGING MANUSCRIPT OF HISTORICAL AND ECOLOGICAL SIGNIFICANCE.

A remarkable English natural history album of beautifully-executed watercolours and original observations describing a much wider variety of species than usual, including reptiles, amphibians, birds, mammals, and uncommon plants. We have never encountered another amateur natural history manuscript produced at this level, with such a wide-ranging eye. This is a historically significant document with much relevance to the history of amateur zoology and botany and to the historical range and prevalence of species in southern England.

The present manuscript comprises 50 leaves, with 326 individual watercolours on the rectos and manuscript notes within printed grids on the versos. The illustrations are detailed and accomplished, and the species are easily distinguishable. The artist began each watercolour as a pencil drawing and then finished with delicate inked lines and watercolour fill, and sometimes light washes for the backgrounds. For the zoological images the pencil has been retained as the background foliage, and in some cases erasures and under-drawings are faintly visible. Many of the bird species are accompanied by an illustration of their egg, and the composition of the botanical illustrations was carefully planned, with different species of plants depicted crossing over each other in a naturalistic way, as though the specimens were all standing together. The accompanying notes are neat and highly legible, and a regular organisational system is maintained throughout, with the scientific family provided (when known) in the left-hand column, then the genus, species, and common name, and then a longer section of notes on the species of animal (plants are only named). The contents of the notes vary depending on the writer's knowledge and experiences, but in general they report on an animal's appearance, habitat, and behaviour, and record of how and where specimens were obtained.

What is most remarkable about this manuscript is the broad range of species described therein. We have handled numerous natural history manuscripts from this period, and they primarily deal with a specific type of animal, for instance birds or insects, or, when more general, stick to the better known species. However, this one includes many animals that we have never seen depicted in this format, including bats, newts, the slow-worm, and uncommon rodents such as shrews, voles, and less common rat species. The largest section is on birds, and while the usual game birds, songbirds, and raptors are well-represented, the author has included a huge range of passerines, including less recognisable species such as the stonechat, winchat, wheatear, the dartford, sedge, and willow warblers, redpole, siskin, wryneck, tree creeper, and 'goat sucker' (nightjar). The botanical section is just as diverse, with many species of orchids, nettles, hellbores, brooms, rapeseeds, and even a carnivorous *drosera* (sun dew), another species we have never encountered in an amateur manuscript.

Manuscript with watercolours in a purpose-made album with printed grids on the versos of the leaves; oblong quarto (33.5 x 24 cm); 50 leaves, watercolours on the rectos, manuscript tables on the versos of all save number 50, first leaf that presumably had manuscript text on bats lacking, gutters strengthened with paper on which the blanks have been mounted, some spotting and offsetting, and a little darkening to some of the lower corners; original half calf recently rebacked and recorned to style, green grained cloth, very good condition.



52. DUMONT D'URVILLE, JULES SEBASTIEN CESAR; QUOY, JEAN RENÉ CONSTANT; GAIMARD, JOSEPH PAUL. *Voyage de la Corvette L'Astrolabe. Atlas Zoologique... Animaux Vertébrés. Paris, J. Tastu, 1833.*

£6,500 [ref: 111379]

The scarce, illustrated zoological atlas of *Animaux Vertébrés* from the first edition of Dumont D'Urville's epic account of the *Voyage de la Corvette L'Astrolabe*, comprising the sections on mammals, birds, and fish.

The *Atlas Zoologique* was produced by Jean René Constant Quoy and Joseph Paul Gaimard. The section on vertebrates is illustrated with 71 engraved plates, 66 of which are printed in colour, after originals by Prêtre, Prévost, and Oudart, widely regarded as some of the finest bird artists of their time.

This important *grand voyage* was one in a great series undertaken by the French government in the late eighteenth and early nineteenth centuries for scientific and political purposes. Led by Jules Dumont d'Urville, its intention 'was to gain additional information about the principal groups of islands in the Pacific and to augment the mass of scientific data acquired by Louis Duperrey. The *Astrolabe* sailed South, around the Cape of Good Hope, and arrived at Port Jackson. Proceeding to New Zealand, its coast, especially the southern part of Cook Strait, was surveyed with great care. Tonga and parts of the Fiji Archipelago were explored, then New Britain, New Guinea, Amboina, Tasmania, Vanikoro, Guam and Java. The return home was by way of Mauritius and the Cape of Good Hope. Huge amounts of scientific materials were collected and published' (Hill).

From The John Crerar Library, an important research collection endowed by the American industrialist John Crerar (1827-1889), and now administered by the University of Chicago.

Provenance: The John Crerar Library, Chicago (bookplate).

First edition; large folio (52.5 x 35.5 cm); bookplates to front free endpaper, 71 engraved plates (66 printed in colour), complete for the animaux vertébrés, each plate with publisher's blind-stamp, vignette-title, table of plates, original brown wrappers bound-in (a few closed tears repaired with tape to verso), minor spotting throughout; later maroon cloth, title and shelf mark for the John Crerar Library in gilt to spine, minor wear, a very good copy. Anker p. 118; Zimmer 184; Fine Bird Books 73; Hill 88; McGill/Wood 614; Nissen ZBI, 1199; Whittell 216.



IMPERIAL OCTAVO

53. YARRELL, WILLIAM & BELL, THOMAS. A History of British Birds [WITH] A History of British Fishes with Supplement [AND] A History of British Quadrupeds [AND] A History of British Reptiles. London, John van Voorst, 1843, 1836, 1837, & 1839.

£3,750 [ref: 113478]

A handsomely bound imperial octavo set, all first editions, of Yarrell's copiously illustrated *British Birds* and *Fishes*, including the supplement to the fishes, together with Bell's *Quadrupeds* and *Reptiles*.

William Yarrell (1784-1856) was a respected zoologist. 'About 1823, he began to note the occurrence and appearance of rare birds and, by 1825, was sending specimens to the artist Thomas Bewick (1753–1828), after whom he was to name a new species of swan. He also took a great interest in the contents of poultry and fish shops and markets.

By 1825 he had assembled considerable natural history collections, notably one of birds' eggs (including the egg of a great auk). These collections included a great number of specimens collected by himself, for one of his strengths lay in careful dissection and preparation' (*Oxford Dictionary of National Biography*).

'Between 1835 and 1836 Yarrell published serially his two-volume work *A History of British Fishes*, which was very favourably reviewed. In this work he paid particular attention to species that were a source of food, and he would often eat the specimens he collected to test whether they might be added to those known to be fit for the table... In 1843 Van Voorst published Yarrell's second book, *The History of British Birds*, in three volumes... These two histories were the prototype of a series of books by other writers, mostly dealing with invertebrates, published by Van Voorst' (ODNB).

Thomas Bell (1792-1880) was, in addition to a zoologist, one of the pioneers of dentistry in Britain. 'He was responsible for innovations in the use of various dental instruments and was the first to treat teeth as living structures by applying scientific surgery to dental disease' (ODNB). He was a professor of zoology at King's College and a member of the Linnean Society, and was responsible for the descriptions of the reptiles collected during the voyage of the Beagle.

First editions; 6 vols, imperial 8vo (27 x 17.5 cm); wood engravings throughout; a little light spotting to the endpapers and occasional isolated spots to contents, but overall a clean set; uniformly bound in green morocco by Hayday, spines gilt in compartments, gilt fillets to boards and turn-ins, all edges gilt; just the occasional light scuff or rubbed area to bindings, excellent condition. Freeman 4176, 4177, 267, & 268.

COLOUR PLATES

54. GOSSE, PHILIP HENRY. *Actinologia Britannica. A history of the British Sea-Anemones and Corals. With coloured figures of the species and principal varieties.* London, Van Voorst, 1860.

£350 [ref: 114651]

First edition in book form of this attractive volume, written and illustrated by one of the foremost science popularisers of the Victorian era and originally published in parts between 1858 and 1860.

Philip Henry Gosse (1810–1888) gained recognition for his ecological studies in Canada and Jamaica, later popularising marine biology with *A Naturalist's Rambles on the Devonshire Coast* (1853). A gifted field naturalist and skilled illustrator, he brought the excitement of direct observation to a wide audience. His watercolours, used in works like *The Aquarium* and *Actinologia Britannica*, marked a significant advance in natural history illustration for the public.

First edition; 8vo; colour frontispiece & 11 plates (of which 10 colour), engravings within the text, single leaf of publisher's ads at rear, some light spotting, offsetting from the plates to the tissue guards, hinges slightly cracked; corners bumped, cloth a little rubbed, particularly at the extremities, with some small spots and marks, very good condition; 362pp. Freeman (*British Natural History Books*), 1390.



WITH THE RARE SUPPLEMENT

55. GOULD, John. *Monograph of the Trochilidae, or family of humming birds.* London, Published by the author, 1861.

£175,000 [ref: 114795]

'GOULD'S MASTERPIECE... AN INCOMPARABLE CATALOGUE AND COMPENDIUM OF BEAUTIES' (*Fine Bird Books*). The first edition and a spectacular set, with the rare supplement, from the library of the Dukes of Manchester at Kimbolton Castle.

Of all the bird families, the hummingbird held the greatest fascination for Gould, and most of the plates were drawn from specimens in his own collection, with the help of a pool of collectors whom he commissioned to hunt for rare or unknown varieties in South America. He exhibited the collection, which included nearly 2,000 birds from 300 different species, at the Zoological Gardens in Regent's Park for the Great Exhibition of 1851, attracting nearly 75,000 visitors and consolidating his reputation as one of the greatest living ornithologists.

To illustrate the birds' iridescent plumage, Gould had used a costly technique of painting in varnish and oils over pure gold leaf, which he claimed to have invented but which he seems in reality to have borrowed with very little modification from the American hummingbird specialist William Bailey. Gould's claim that the subscribers to the *Trochilidae* included 'nearly all the crowned heads of Europe' (Tree, p. 164) was a slight exaggeration, but there is no doubt that the magnificence of the illustrations, and the Victorian vogue for hummingbirds, attracted a larger and more brilliant audience than all of his other works except *The Birds of Great Britain*.

Gould died after the publication of part I of the *Supplement*, having supervised the preparation of many of the plates. The book was completed by Sharpe who finalised the text, W. Hart, who did the drawings, lithographs and colouring for the 58 remaining plates, and the ornithologist Osbert Salvin, who directed the general production. Soon after Gould's death his bird collection, which by then included 5,378 hummingbirds, was purchased by the Zoological Society, and is now part of the British Museum's natural history collections.

Provenance: *The Dukes of Manchester, Kimbolton Castle (bookplates).*

First edition; 6 vols, folio, (55 x 35.5 cm); 418 hand-coloured lithographs, MANY HEIGHTENED WITH GOLD LEAF & OTHER IRIDESCENT MINERAL PAINTS, overpainted with transparent oil and varnish colours, after John Gould, H.C. Richter, and W. Hart, Kimbolton Castle book plates, scattered spotting to contents; contemporary full green morocco, spines elaborately gilt in compartments and on the 5 raised bands, boards richly panelled with neoclassical gilt rolls and fillets, gilt rolls to turn-ins, yellow coated endpapers, all edges gilt; some dampstain to the lower board of volume I, a little fading of the spines, very good condition. Anker 177; *Fine Bird Books* p. 78; Nissen IVB, 380; Sauer 16; Wood p. 365; Zimmer pp. 258 & 263-64.



DELICATE AQUATINTS

56. CLARKE, LOUISA LANE. *The Common Seaweeds of the British Coast and Channel Islands; with some insight into the microscopic beauties of their structure and fructification.* London, Frederick Warne and Co., [1865].
£500 [ref: 115345]

First edition of this uncommon and attractive work illustrated with ten delicate aquatints by the Dalziel Brothers.

First edition; 8vo; aquatint frontispiece and 9 plates, 4-page publisher's ads at rear, contemporary gift inscription to the front free endpaper, some light spotting and dulling of the contents, particularly the early leaves; original blue cloth blocked in gilt with a seaweed design to the upper board, brown coated endpapers, all edges gilt, front hinge cracked, spine darkened and rolled, cloth rubbed with wear at the corners and ends of spine, a few small spots and marks to the cloth, a very good copy; 140pp. Freeman (British Natural History Books), 715.

Seaweed collecting, alongside other natural history hobbies, was a popular occupation during the Victorian era. Inspired by religious sentimentality and the Romantic Movement's reverence for nature, it was considered a wholesome way for women to engage with the outdoors, and functioned as an accomplishment indicating one's suitability for marriage and family life. Popular guides such as this one proliferated, also offering women a route to authorship and semi-professional scientific standing.

LOVELY PUBLISHER'S BINDING

57. CLARKE, LOUISA LANE. *The Common Seaweeds of the British Coast and Channel Islands; with some insight into the microscopic beauties of their structure and fructification.* London, Frederick Warne and Co., [1881].
£350 [ref: 115346]

Likely second edition, a lovely copy in the publisher's pictorial binding that depicts pink seaweed and a beach scene.

Second edition; aquatint frontispiece and 9 plates, 8-page publisher's ads at rear, bookseller's ticket of M. Smith of Alnwick, corner of frontispiece repaired not affecting the image, light spotting to the edges of the text block; original colour pictorial upper board and spine, the lower board being card printed with an ad, spine rolled, binding a little rubbed, dulled, and bumped, with wear at the corners and ends of the spine, very good condition; 140pp. Cf. Freeman (British Natural History Books), 715 (first edition).

THE FIRST BRITISH FISH BOOK IN COLOUR

58. COUCH, JONATHAN. *A History of the Fishes of the British Islands.* London, George Bell & Sons, 1877.
£1,500 [ref: 113488]

A handsomely bound set of this 'major contribution to ichthyology... the earliest work on British fishes to be illustrated in colour' (ODNB).

Couch (1789-1870) spent most of his life in Polperro, Cornwall, where 'for sixty years he was the doctor and trusted adviser of the village and neighbourhood' as well as a respected naturalist. Working principally in ichthyology, he investigated rare and unusual marine specimens brought ashore by local fishermen and contributed prolifically to both professional and popular science periodicals.

Couch's *History of British Fishes* 'was illustrated by hand-coloured engravings based on his own watercolours drawn from freshly caught specimens... The accuracy of the artwork enabled later workers correctly to identify some of the species which Couch, in common with his contemporaries, had misidentified. The text on the natural history of many of the sea fishes contained many original observations. Although he was knowledgeable about the faunistically rich western English Channel, his knowledge of the fishes of the northern fauna and particularly freshwaters was less certain. However, despite being resident in this distant Cornish village he was in correspondence with many of the leading scientists of the day both in Britain and in Europe and thus received help with the less familiar species' (ODNB).



Reissue; 4 vols, 8vo (25 x 16.5 cm); colour frontispiece to each volume and 248 plates, a few engravings within the text, titles and frontispiece spotted, and just occasional light spotting to the contents; brown half morocco, spines elaborately gilt in compartments with fish vignette tools, marbled sides and endpapers, all edges gilt, a few minor scuffs and rubbed areas, excellent condition. Freeman (British Natural History Books), 828.

INCLUDES WILSON'S AVES, ONE OF 25 COPIES ON SPECIAL PAPER

59. [NATIONAL ANTARCTIC EXPEDITION]. BELL, F. JEFFREY, EDITOR. *Natural History.* London, British Museum, 1907-1912.
£3,750 [ref: 115670]

A RARE COMPLETE SET OF THE NATURAL HISTORY REPORTS FROM SCOTT'S DISCOVERY EXPEDITION. THIS SET ESPECIALLY DESIRABLE FOR VOLUME II BEING THE LIMITED EDITION ON SPECIAL PAPER WHICH SHOWS EDWARD WILSON'S BIRD ILLUSTRATIONS TO THEIR BEST ADVANTAGE.

Of Wilson's contribution to volume II, Rosove writes: 'Wilson's Cetacea and Aves are among the finest reports in the entire scientific output, and they are remarkably readable. Aves includes a description of the first emperor colony discovered, at Cape Crozier. The colour plates by Wilson in Aves are, simply put, magnificent, with their rare combination of attention to the finest detail, artistic mastery, and quality of printing and coloration.' Good as they are in the standard edition, the printing of the colour plates in our limited edition is incomparably better.

The National Antarctic Expedition, was the first official British exploration of the Antarctic regions since the voyage of James Clark Ross sixty years earlier (1839-1843). Organized on a large scale under a joint committee of the Royal Society and the Royal Geographical Society, the new expedition carried out scientific research and geographical exploration in what was then largely an untouched continent.

Its scientific results covered extensive ground in biology, zoology, geology, meteorology and magnetism. The expedition discovered the existence of the only snow-free Antarctic valleys, which contains the longest river of Antarctica. Further achievements included the discoveries of the Cape Crozier emperor penguin colony, King Edward VII Land, and the Polar Plateau (via the western mountains route) on which the South Pole is located. The expedition tried to reach the South Pole travelling as far as the Farthest South mark at a reported 82° 17'S. As a trailblazer for later ventures, the Discovery expedition was a landmark in British Antarctic exploration.

First edition; 6 vols, 4to; all vols bound in original buckram-backed boards gilt, spines faded as usual, comprising: vol. I, 'Geology', 1907, 7 folding plates (plate 1 slightly frayed on fore-margin), 3 plates of rock specimen each with 1 page of descriptive letterpress, 2 folding maps in pocket at end, spine rather worn, rubbed and soiled, presented by the Trustees of the British Museum to the noted geologist G. V. Douglas who served on Shackleton's last expedition; vol. II, 'Zoology (Vertebrata, Mollusca, Crustacea)', 1907, NUMBER 24 OF 25 SPECIAL COPIES PRINTED ON SPECIAL THICK PAPER, 1 coloured lithograph after Wilson of whales showing 4 subjects, 4 lithographs of seals (2 coloured) after Wilson, 18 photographic plates of mammals (16 showing 2 or more subjects), 13 coloured lithographs of birds by Edward Wilson, 23 photographic plates of birds, (most showing 2 or more subjects), 1 plate after Gronvold showing penguin anatomy, 2 lithographs of fish, 7 cephalopodiscus plates (1 photographic, 6 lithograph including 2 partly coloured), 4 shell plates (3 lithographed), 1 crustacea lithograph, illustrations in the text, folding chart in pocket at end, spine rubbed and worn; vol. III, 'Zoology and Botany', 1907, 48 plates (mostly lithographed), 1 chart, illustrations in the text, ex U.S. Public Health Service Library with perforated library stamp to title and other library markings to binding and edges of the book block, surplus stamp of the Library of Congress to British Museum presentation slip internally clean; vol. IV, Zoology (various invertebrata), 1908, 59 plates (some partly coloured), spine soiled; vol. V, 'Zoology and Botany', 38 plates (most lithographed), spine rubbed, lightly soiled, signed by the editor, F. Jeffrey Bell on title page; vol. VI, 'Zoology and Botany', 1912, 3 lithographs, subject and author indexes for the set. Anker 535 & Ayer/Zimmer 99 (vol. II); Nissen ZBI, 4700; Rosove 288-1.A1; cf. 288-2. A1 (the limited edition not mentioned); 288-3.A1; 288-4.A1; 288-5.A1; 288-6.A1; cf. Taurus 49 (all vols limited editions); Spence 837.



PALAEONTOLOGY MADE BEAUTIFUL

60. NICOLET, ROBERT. *Paléontologie. 27 Dessins. 1918-1919. France, [1917-1919].*

£3,750 [ref: 114390]

A highly original and accomplished manuscript on palaeontology featuring 27 watercolours in grisaille and 20 ink drawings made by a talented young artist in Belgium. This is certainly one of the most remarkable manuscripts we have encountered, both for its visual appeal and the rarity of paleontology as the subject of amateur natural history manuscripts.



Along with it are 14 other accomplished small pieces, primarily watercolour birthday and holiday cards dating from 1944 to 1964 and addressed to his mother (who turned 85 in 1955 and was alive until at least 1956), his nephew Eric, and his daughter Marguerite, all in Neuchâtel. One is painted on the back of the business card of a Charles Nicolet, the director of a mineral water company in Fribourg.

Though Nicolet seems to have been from Switzerland he was almost certainly spending time in Belgium, as the elaborate frontispiece to this manuscript depicts the Bernissart Iguanodons at the Museum of Natural Sciences in Brussels. The artist has even drawn a figure standing in front of them, busily sketching — perhaps a self portrait? It's likely that many of the other drawings of fossils in the album were originally sketched in the museum, and some of the watercolours of living creatures and prehistoric humans may have been based on paintings displayed there. If not based on works in the museum, they seem to be original compositions by an artist with a sophisticated visual vocabulary who was skilled at framing compositions. The unusual qualities of the linework suggest that Nicolet may have been a commercial illustrator or graphic designer, perhaps for news media, and therefore used to working in styles suited to mechanical reproduction. He was certainly a young man, as the additional illustrated postcards in his hand date from 1964, and it is unclear if he was engaged in military or civilian war work at the time this was made.

The contents of Nicolet's manuscript begin with the 'secondary epoch', 20-30 million years in the past, characterised by 'reptiles gigantesques.' The beautiful watercolour illustrations depict a variety of dinosaurs and other creatures, including sauropods, hadrosaurs, pterosaurs, stegosaurs and marine reptiles in their natural habitats, while the accompanying ink drawings are of paleontologists working in the field and reconstructed skeletons on display. This is followed by the time of mammals and the ice ages, with watercolours of mastodons, megatherium, and deinotherium; a scene of modern humans discovering a frozen mammoth in 1799; and early hominids hunting, defending themselves, and living in a village of stilt houses over a lake. The ink drawings illustrate stone tools, a human skeleton in an uncovered burial, cave art, and the later discovery of a prehistoric wooden boat.

Produced over the course of at least three calendar years (the title gives the dates 1918-1919, but one drawing is dated 1917), the manuscript was carefully planned and precisely laid out with a frontispiece, illustrated title, portrait leaf depicting Baron Cuvier, and a final page of manuscript text describing the four paleontological epochs. Following the prefatory matter each spread is laid out with one or more ink drawings on the left-hand page and one or two tipped-in watercolours on the right, and manuscript explanatory text. Only the final page of watercolours breaks this pattern, being an evocative layout of nine smaller images illustrating the full history of life on Earth, with some of the figures breaking the panes to emerge in an almost three-dimensional fashion. Once laid down, each watercolour was carefully outlined in ink to give the document a sense of formality. It is unclear why this wonderful document was produced — perhaps as a maquette for a planned children's book, or maybe a gift to a young relative? In any case it is an evocative record of early 20th-century paleontological knowledge and museum display.

13-page manuscript (22 x 18 cm); 27 ink & watercolour drawings in grisaille tipped-in, including one on the cover, & 20 ink drawings directly on the leaves; original tan wrappers (19.5 x 23.5 cm) with manuscript titles, stitched with black thread; fine condition.



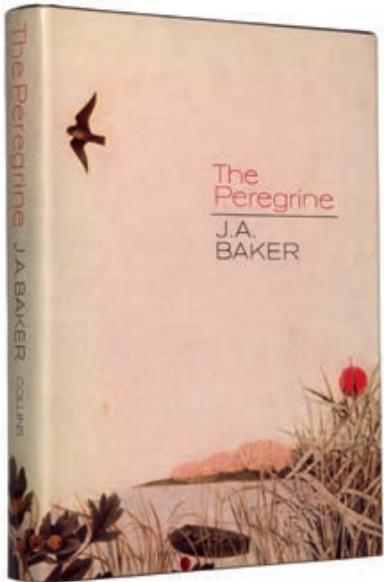
61. KNIPOVICH, NIKOLAI MIKHAILOVICH. *Putevoditel' po zoologicheskomu muzeiu [Guidebook to the Zoological Museum]. Leningrad, Rossisskaia Akedemia Nauk, 1924.*

£750 [ref: 114660]

Fifth edition of this rare guide to the Leningrad (St. Petersburg) Zoological Museum, illustrated with monochrome photos of exhibits and featuring the museum's woolly mammoth specimen on the cover.

Nikolai Knipovich (1862-1939) was a notable ichthyologist and undertook extensive studies in the Barents, Caspian, Black and Baltic seas. He worked at the Zoological museum between 1894 and 1921 and compiled this guidebook in 1910. Notably scarce, there is one holding of this fifth edition at the University of Michigan and no holding of any other edition apart from a copy of the second edition at the University of California.

Fifth edition, 8vo (19.4 x 13 cm); four plans of the museum, two of which are folding and 11 illustrations; original printed wrappers, corner of upper wrapper creased, a very good copy.



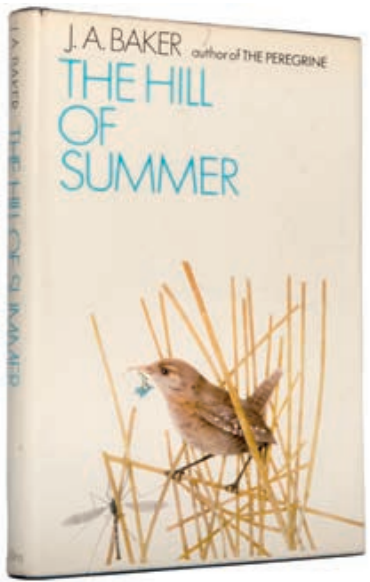
62. BAKER, J.A. *The Peregrine. London, Collins, 1967.*

£500 [ref: 115413]

First edition, first impression of this masterpiece of nature writing, now considered a cult classic and cited by Ted Hughes, Andrew Motion, Werner Herzog, amongst others, as one of the most important books of its kind.

Author J.A. Baker (1926-1987) was a librarian who spent ten years tracking peregrine falcons in coastal Essex during the 1950s and 60s. This, the first of his two published works, distils his observations of the birds and their changing habitat into a lyrical account of a single year beginning in autumn with the birds' migration from Scandinavia and ending with their return north in spring.

First edition; 8vo; spotting to the edges of the text block; original black boards, titles to spine gilt, olive endpapers, spine rolled, lower board slightly sprung, a very good copy in the jacket that is faded and a little creased along the spine panel and edges; 191pp.



63. BAKER, J.A. *The Hill of Summer. London, Collins, 1969.*

£350 [ref: 115485]

First edition, first impression of the second and final book by the author of cult classic *The Peregrine*.

While Baker's more widely known first book was an account of tracking peregrine falcons across the wintry landscape of Essex, *The Hill of Summer* vividly recounts 'a green English summer in all weathers and for all wild things: floating down a tree-shaded river in July, wandering all night through woods and fields, waiting beside a cornfield at noon, in a beech copse, on an estuary, always looking, listening, and alone' (jacket blurb).

First edition, first impression; 8vo; contents fresh; original blue boards, titles to spine gilt, yellow coated endpapers, very lightly rubbed at the extremities, a very good copy in the jacket that is a little rubbed with two short splits to the upper panel and some scratches and bumps to the lower and spine panels, production flaw crease affecting the front flap; 159pp.



A DECADE'S WORTH OF BIRD WATCHING

64. BOLTSON, HOWARD. 19 meticulous birding notebooks kept during the 1980s and early 1990s. East Northport, NY, 1985-1993.

£2,500 [ref: 113060]

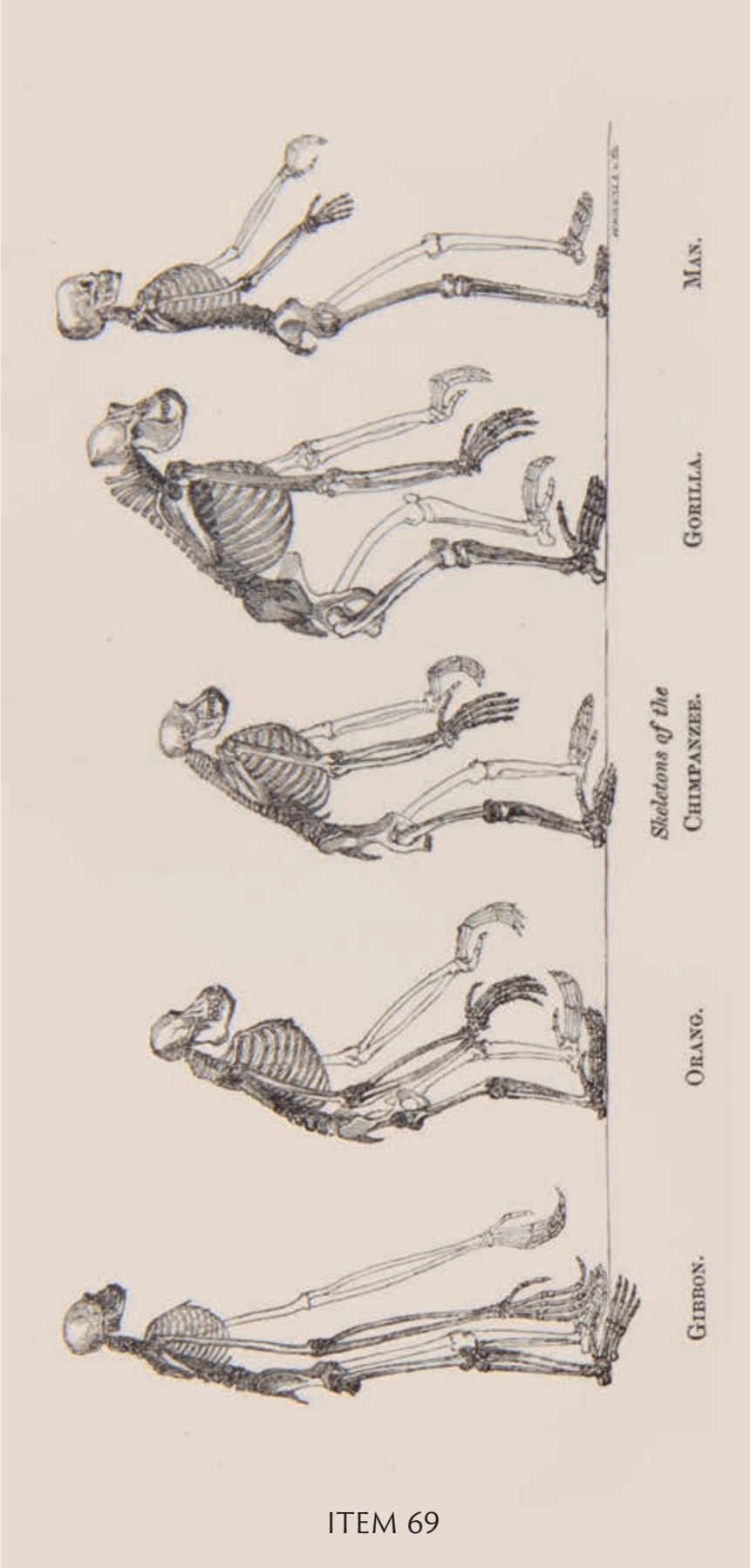
An exceptional set of notebooks recording the observations of an Audubon Master Birder between 1985 and 1992, primarily on Long Island, but also including trips within the US and Caribbean. Natural history records of such depth and specificity are extremely rare, and this set has fantastic potential for research into a wide range of topics, from the impact of climate change to the social history of birding and citizen science. While it is unfortunate that notebooks one through five, and eleven, are lacking, this is still a very significant and nearly complete set of material covering almost a decade.

The compiler of these records, Howard Boltson, lived in East Northport, near Huntington on Long Island, and was heavily involved with local and national ornithology groups. A member of the Huntington Audubon Society, he had completed the organisation's rigorous, multi-week Master Birder course and was a regular volunteer, including as a field trip leader. He participated in Project Birdwatch, an initiative of the Cornell Lab of Ornithology and the Federation of New York State Bird Clubs. Begun in 1986, the project's goal was to identify and describe seasonal patterns of bird distribution by combining data from the weekly reports of experienced observers ('How to Join Project Birdwatch' in *Feathers*, the newsletter of the Hudson-Mohawk Bird Club, winter 1986). He also regularly submitted reports of rare bird sightings to the New York State Avian Records Committee, and his photos were published at least twice in the *Journal of the North American Bluebird Society* (the spring and winter 2003 issues). Boltson was featured in the local press several times, including an article about swans in which he is introduced as 'the bird man of Huntington' (Ketcham, 'On the Swan Trail', *Long Island Journal*, January 28th, 1996).

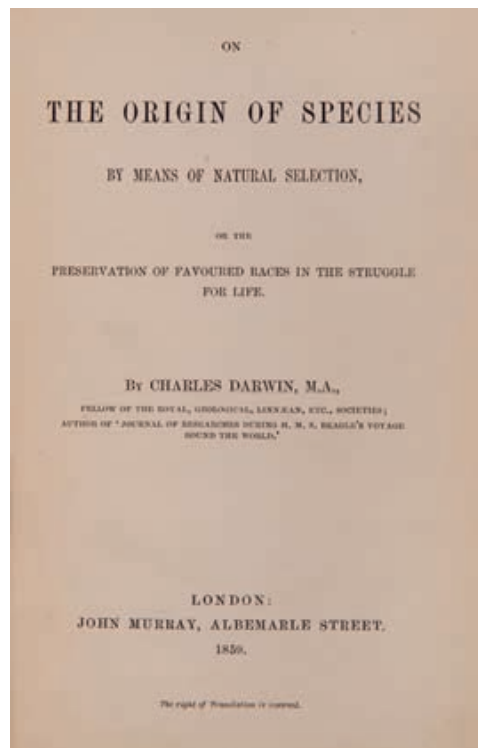
Boltson's notebooks are meticulous records of his bird watching. Each session is given a date and location (sometimes accompanied by hand-drawn maps), and notes are made about the weather and other conditions. Boltson then lists all the individual birds spotted, including their sex when the species is dimorphic (the males and females look different), and he records details of those he can't immediately identify, sometimes adding drawings to assist his memory. Activities that he witnessed, such as nesting and feeding, are included, as are bird calls. Other animals, in one case a turtle, make appearances.

Most of the entries are written in black ink with special notes in red, such as his early retirement in 1986 ('First day of retirement - N. Y. Life - good luck to me!'), the 'red letter day' in his feeder notebook when a black-capped chickadee eats from his hand for the first time, as well as his concerned report of a new heat record in notebook 18. Red ink is also used to mark the birds he adds to his life list, returning later to write their list number around the earlier text where he identified them. Totals are given for the number of species seen per month and cumulatively, with separate totals for life list additions. Boltson also records organised activities, such as field trips and lectures he either attended or led, usually tallying his expenses and gas mileage, and including the names and phone numbers of participants. A quantity of related material such as coupons, receipts, flyers, news clippings, and recording forms are loosely inserted. While the majority of Boltson's birdwatching was done locally at sites such as Jamaica Bay and Sunken Meadow on Long Island, he sometimes travelled further, including to upstate New York, New Jersey, New Hampshire, Washington D. C., Miami, the Everglades, and the Bahamas. The feeder notebook records activities at his home between November 1986 and February 1993, including the types and amounts of bird food he was putting out, the birds who appeared, and their behaviours.

19 spiral-bound pocket notebooks, each approximately 120 pages, with card covers (approximately 160 x 110 mm), completely filled with extensive manuscript notes in black, and occasionally red, ink. All but one of the notebooks are numbered (6 through 24) and each is labelled on the cover with the month and year that it was begun and ended. The other is labelled 'Feeder Notes, East Northport L. I. N. Y., Nov 1986 - Feb 1993'. Inside each of the covers Boltson has written his name, address, phone number, and current roles in birding organisations. The brands of the notebooks are Pen-Tab, Jericho, Diamond Supply Company, and CVS. Most of the contents are manuscript text, but there are frequent drawings and sometimes loosely inserted material. Notebook 11 (September 1987-March 1988) is lacking, and presumably there were also notebooks numbered 1-5 that are not included here. There is light wear to the edges of the notebooks, especially around the upper corners. Excellent condition.



ITEM 69



THE THEORY OF EVOLUTION

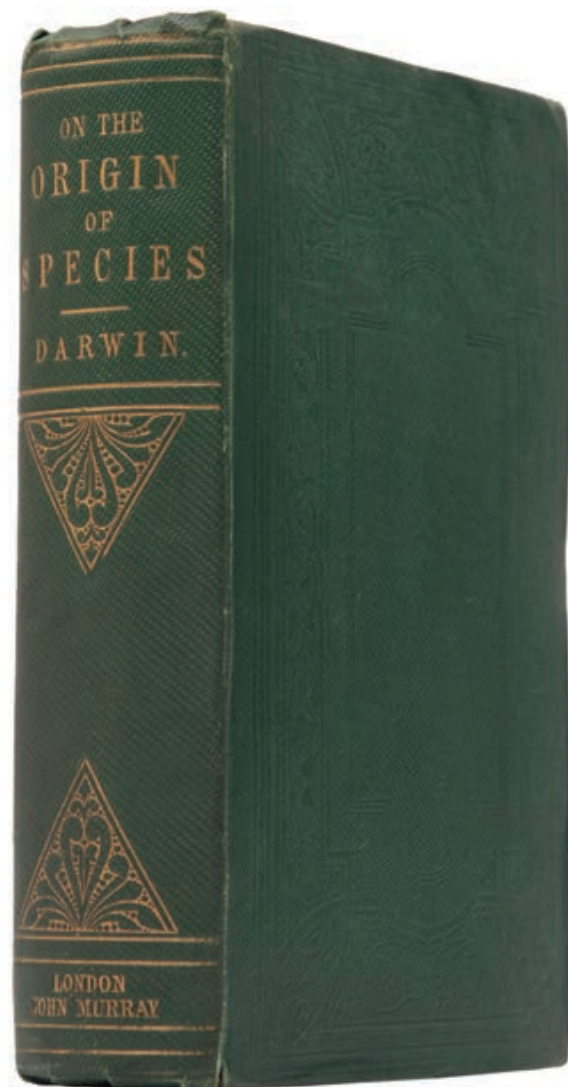
65. DARWIN (CHARLES). *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life.* London, John Murray, 1859.

£300,000 [ref: 103450]

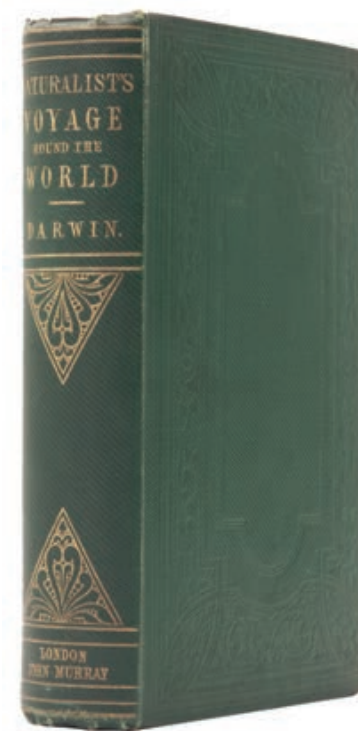
First edition of 'the most influential scientific work of the 19th century' (Horblit) and 'certainly the most important biological book ever written' (Freeman), in which Darwin explained his concept of evolutionary adaptation through natural selection, which would become the foundation of modern evolutionary theory; 1,250 copies were printed.

'The publication of the Origin of Species ushered in a new era in our thinking about the nature of man. The intellectual revolution it caused and the impact it had on man's concept of himself and the world were greater than those caused by the works of Copernicus, Newton, and the great physicists of more recent times ... Every modern discussion of man's future, the population explosion, the struggle for existence, the purpose of man and the universe, and man's place in nature rests on Darwin' (Ernst Mayr).

Provenance: George Yewdall, solicitor, Leeds (blindstamp to front free endpaper); Sir Charles Fellows, British archaeologist (armorial bookplate to rear pastedown); John Edwin Eddison, professor of veterinary medicine (signature to front free endpaper); Sturges S. Dunham (signature, dated 29 June 1931, to verso of front free endpaper).



First edition, 8vo (210 x 140 mm) gathered and signed in 12s. Original green diagonal-wave-grain cloth, spine lettered and decorated in gilt, covers ornamentally blocked in blind, pale brown coated end papers, binder's ticket of Edmonds & Remnant to rear pastedown. Housed in a green cloth book-form slipcase and chemise. Folding diagram lithographed by W. West, with two quotes on page opposite the title-page, with misprint 'speceies' on p.20, line 11, and with the whale-bear story in full on p.184, 32-page publisher's catalogue at rear dated June 1859. Bookseller's description of a different copy tipped to front pastedown, marks of ownership as noted below. Spine slightly cocked, extremities rubbed, corners bumped, very short separation at foot of front joint, end papers a trifle cracked at inner hinges, very lightly shaken with separation between signatures in a couple of places, a very good copy. PMM 344b; Dibner 199; Freeman 373 (binding variant a, advertisements variant 3, no priority); Garrison-Morton 220; Horblit 23b; Norman 593.



66. DARWIN, CHARLES. *Journal of Researches into the natural history and geology of the counties visited during the voyage of H.M.S. Beagle round the world, under the command of Capt. Fitz Roy, R.N.* London, John Murray, 1860.

£1,750 [ref: 109236]

The definitive edition of Darwin's first published book, *The Journal of Researches*, containing the naturalist's last alterations to the text, including a new postscript dated 1st February 1860 bringing the work up to date. Better known today as *The Voyage of the Beagle*, it is 'undoubtedly the most often read and stands second only to *On the origin of species* as the most often printed' of Darwin's works, and is an 'important travel book in its own right and its relation to the background of his evolutionary ideas has often been stressed' (Freeman).

Second edition, tenth thousand; 8vo (20.5 x 13.5 cm); in-text illustrations, 32pp. of publisher's ads. to rear; publisher's blindstamped green cloth, gilt spine, extremities rubbed, occasional spotting, internal front hinge split but holding; xv, 519, [1], 32[ads.]pp. Freeman 20.

THE FIRST VOLUME OF SUPPORTING EVIDENCE FOR THE ORIGIN OF SPECIES

67. DARWIN, CHARLES. *On the Various Contrivances by which British and Foreign Orchids are Fertilised by Insects, and on the good effects of intercrossing. With illustrations.* London, John Murray, 1862.

£3,250 [ref: 113167]

First edition, first issue, of this important contribution to Darwin's theory of evolution by natural selection. Freeman's variant a with vertically lined cloth and ads dated December, 1861.

Orchids 'was concerned with working out in detail the relationships between sexual structures of orchids and the insects which fertilise them, their evolution being attributed to natural selection. It is therefore the first of the volumes of supporting evidence. It was much praised by botanists, but sold only about 6,000 copies before the turn of the century' (Freeman, *The Works of Charles Darwin*, p. 112). Darwin wrote to his publisher John Murray in September, 1861 that, 'I think this little volume will do good to the *Origin*' (Freeman).

In his autobiography, Darwin stated that, though the preparation of *Orchids* had taken ten months, 'most of the facts had been slowly accumulated during several previous years. During the summer of 1839, and, I believe, during the previous summer, I was led to attend to the cross-fertilisation of flowers by the aid of insects, from having come to the conclusion in my speculations on the origin of species, that crossing played an important part in keeping specific forms constant. I attended to the subject more or less during every subsequent summer... For some years before 1862 I had specially attended to the fertilisation of our British orchids; and it seemed to me the best plan to prepare as complete a treatise on this group of plants as well as I could, rather than to utilise the great mass of matter which I had slowly collected with respect to other plants. My resolve proved a wise one; for since the appearance of my book, a surprising number of papers and separate works on the fertilisation of all kinds of flowers have appeared; and these are far better done than I could possibly have effected'.

Provenance: Joseph Gravit (bookplate).

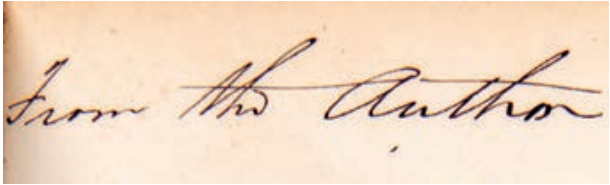
First edition, first impression, first issue; 8vo in twelves; folding plate, woodcuts within the text, 32-page publisher's ads dated December, 1861 to rear, Edmonds & Remnants binder's ticket to rear pastedown, bookplate, contents partially unopened, a few stray spots and tiny marks but overall contents clean; housed in a modern slipcase, original plum cloth rebaced with the original spine laid down with some loss from the ends, titles to spine and orchid to upper board gilt, decorative design to boards blocked in blind, coated endpapers, corners restored, some loss of size from cloth, very good condition; 365pp. Freeman (*The Works of Charles Darwin*), 800.



INSCRIBED PRESENTATION COPY

68. OWEN, RICHARD. *Palaeontology or a systematic summary of extinct animals and their geological relations.* Edinburgh, Adam and Charles Black, 1860.

£1,250 [ref: 113174]



First edition, presentation copy inscribed 'from the author' on the title and 'B Cockray, March 20, 1860, from Mr. Owen' on the front pastedown, in the same hand as the digitised Owen manuscripts at Temple University library. The text also contains a few contemporary notes in pencil and a number of exclamation points highlighting certain passages.

Richard Owen (1804-1892) was 'the most important and most influential natural scientist of his generation' (*Oxford Dictionary of National Biography*). And though his reputation has been overshadowed by his disputes with Charles Darwin, 'It was indeed by standing on his shoulders that his successors were able to see further. As significant as any of his more particular contributions... was his ability to bring order out of the accumulating chaos of the collectors' cabinets and the conflicting methodologies used to account for them. His annual series of Hunterian lectures at the College of Surgeons, his review of the whole of comparative anatomy, his compilations of his works in palaeontology and, in particular, the initial ordering of the fossil reptiles and mammals of Britain, the virtual creation of a comparative vertebrate osteology and odontology, and his design for the Natural History Museum—all laid the groundwork for others who, as intended in the assumption of a progressing science, would alter their shape and challenge their substance' (ODNB).

The present volume brought together much of Owen's work of the preceding decades, and is a general overview of palaeontology and the different orders of extinct creatures that had so far been identified, from invertebrates to mammals. It reiterates Owen's rejection of Darwinian evolution, promoting his theory of 'the continuous operation of the ordained becoming of living things' (p. 3).

Provenance: B. Cockray (inscription).

First edition, INSCRIBED PRESENTATION COPY; 8vo; folding plate, engravings throughout the text, ownership inscription on the front pastedown, some contemporary pencilled notes, occasional light spotting and marks; original burgundy diaper grain cloth rebaked with the original spine laid down, hinges strengthened, boards blocked in blind, titles to spine gilt, brown coated endpapers, Burns binder's ticket to rear pastedown, spine rolled and a little faded, cloth rubbed with some loss of size, corners bumped, some abrasions on the endpapers a very good copy; 420pp.

THE FIRST BOOK TO APPLY DARWINIAN EVOLUTION TO HUMANITY

69. HUXLEY, T.H. *Evidence as to Man's Place in Nature.* London, Williams and Norgate, 1863.

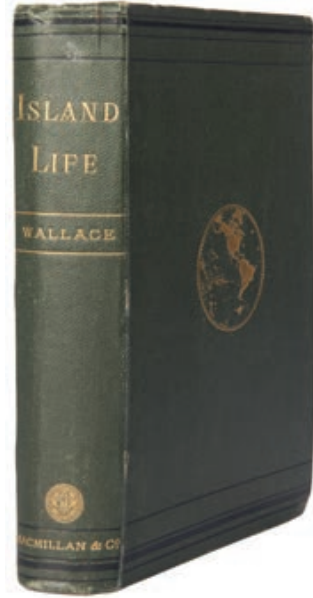
£1,750 [ref: 113171]

First edition of the first book to apply Darwinian evolution to humans, just preceding Darwin's own account in *The Descent of Man* the following year. With the first issue point identified by Hook and Norman, the frontispiece printed on [A]2v, forming an integral part of the preliminaries, and a likely issue point, the catalogue dated February, 1863.

'Huxley earned the nickname "Darwin's bulldog" for his outspoken defense of the theory of evolution through natural selection, particularly as it pertained to man. The present work grew out of the famous *Hippocampus minor* controversy of the early 1860s, in which Huxley publicly challenged the taxonomist Richard Owen's claim that man's brain differed qualitatively from those of all other mammals. Through a series of dissections of primate brains, Huxley disproved Owen's assertions that only man's brain possessed a *Hippocampus minor*, and demonstrated that the differences between men and apes were smaller than those between apes and the lower primates' (Hook and Norman, *The Norman Library of Science and Medicine* 1132).

'Written to be accessible, [*Man's Place in Nature*] was ignored by the highbrows and abominated by the religious press, but acquired a cachet among the middle-class public no less than among National Reformer secularists and Russian and German socialists' (*Oxford Dictionary of National Biography*).

First edition, first issue; 8vo; engraved frontispiece and illustrations within the text, 8-page publisher's catalogue dated February, 1863 at rear; occasional spots and marks to the contents but generally clean; original green morocco-grained cloth, titles to spine gilt, borders to boards blocked in blind, red coated endpapers printed with publisher's catalogue, spine rolled and with slight wear at the head and tail and along the joints, corners a little bumped and worn, some other small bumps at the edges of the boards, very good condition; 159pp. Freeman (*British Natural History Books*), 1855; Hook & Norman (*The Norman Library of Science & Medicine*), 1132.



70. WALLACE, ALFRED RUSSELL. *Island Life: or, the phenomena and causes of insular faunas and floras, including a revision and attempted solution of the problem of geological climates.* London, Macmillan and Co., 1880.

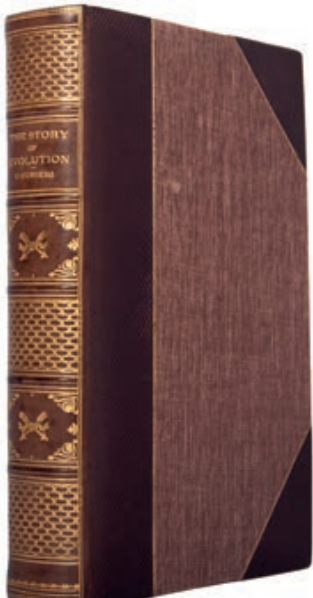
£850 [ref: 114917]

First edition, first impression of this significant volume by the co-discoverer of evolution by natural selection. This copy with the bookplate of nautical chart publisher and sailing author James Frederick Imray (1829-1891).

Island Life was 'a popular supplement to and completion of' Wallace's *Geographical Distribution of Animals* (preface), and 'was one of his most successful books. It surveyed the problems of the dispersal and speciation of plants and animals on islands which he categorized, following Darwin, as oceanic or continental. The latter type Wallace subdivided into "continental islands of recent origin", like Great Britain, and ancient continental islands, such as Madagascar. Unlike Darwin's theories of erratic spread to account for the discontinuous distribution of types, Wallace favoured theories of continuous spread followed by selective extinctions thus creating the appearance of gaps' (Darwin Online).

Provenance: James Frederick Imray (bookplate).

First edition, first impression; large 8vo; 2 maps, colour map frontispiece, engravings throughout the text, single leaf of undated publisher's ads at rear, foxing to early and late leaves and occasionally to contents, bookplate of James Frederick Imray, corners of FF5 and FF6 torn, the latter with loss not affecting text; original green pebble-patterned cloth blocked in gilt and black, brown coated endpapers, spine rolled, cloth rubbed with wear at the joints and corners, corners bumped, closed tear in the cloth at the head of the spine, very good condition; 526pp. Freeman (*British Natural History Books*), 3865.



INTRODUCING MODERN BIOLOGY EDUCATION

71. GRUENBERG, BENJAMIN G. *The Story of Evolution. Facts and Theories on the Development of Life.* London, Chapman & Hall, 1929.

£450 [ref: 114373]

First UK edition of this uncommon evolutionary biology textbook, published in the same year as the US edition. Handsomely bound in diced calf for Harrow School.

Benjamin Gruenberg was born in 1875 in what is now Novoselytsia, Ukraine, and after emigrating to the United States he earned his PhD at Columbia University under genetics pioneer Thomas Hunt Morgan. Gruenberg worked as a teacher in New York City schools from 1902 onwards, and was largely responsible for introducing the study of modern evolutionary biology and genetics, as opposed to descriptive natural history, into the education system. His prominence was so great that he was asked by Clarence Darrow to testify at the Scopes trial, but was advised to refuse by his publisher. He was also a proponent of modern sex education, writing a number of books on both subjects. After his death in 1965 the journal *Science Education* eulogised him thus: 'Few, if any science educators have had a greater impact on science education. He may aptly be described as a giant among American science teachers' (Pruitt, Benjamin Charles Gruenberg 1875-1965, *Science Education*, February 1966).

First UK edition; 8vo (20.5 x 145 cm); frontispiece and 12 plates, contents fresh; contemporary Harrow prize binding of diced purple calf, spine elaborately gilt in compartments, purple cloth sides, marbled endpapers, top edge gilt, prize bookplate, spine slightly faded, an excellent copy; 473pp.

72. DOBZHANSKY, THEODOSIUS. *Genetics and the Origin of Species.* New York, Columbia University Press, 1937.

£3,750 [ref: 115379]

First edition, first printing of the most significant work of evolutionary biology of the twentieth century. A very attractive copy.

Though Darwin's theory of evolution by natural selection was widely accepted in his lifetime, the field was hampered by its inability to explain exactly how hereditary traits were transmitted. It was only with the independent rediscovery of Mendel's laws and the development of fruit fly genetics that the 'modern synthesis' of evolutionary theory and genetics was established.

'Dobzhansky's most significant contribution to science doubtless was his role in formulating the modern synthesis of evolutionary theory. His *Genetics and the Origin of Species*, first published in 1937, may be considered the most important book of evolutionary theory in the twentieth century' in which he 'completed the integration of Darwinism and Mendelism in two ways. First, he gathered the empirical evidence that corroborated the mathematico-theoretical framework [of Fisher and Haldane].

Second, he extended the integration of genetics with Darwinism much beyond the range of issues treated by mathematicians, and into critical evolutionary issues — such as the process of speciation — not easily subject to mathematical treatment. Moreover, Dobzhansky's book was written in prose understandable to all biologists. The line of thought of *Genetics and the Origin of Species* is surprisingly modern — in part, no doubt — because that book established the pattern that successive evolutionary treatises would largely follow'. It was received 'with great excitement by the biological community' and 'would inspire other biologists to bring into the modern synthesis of evolutionary theory the contributions of such fields as systematics, paleontology, and botany. Equally or more important, *Genetics and the Origin of Species* provided a conceptual framework that would stimulate experimental research for many years' (Ayala, 'Theodosius Dobzhansky 1900-1975', National Academy of Sciences, pp 166-167).

Provenance: Dexter Jerry (inscription).

First edition; 8vo; illustrations throughout the text, contemporary ownership inscription to the front pastedown, contents faintly toned; original blue cloth, titles to spine gilt, lower corner bumped, cloth very lightly rubbed with a couple of small marks, a very good copy; 364pp.

AUTHOR'S PRESENTATION COPY

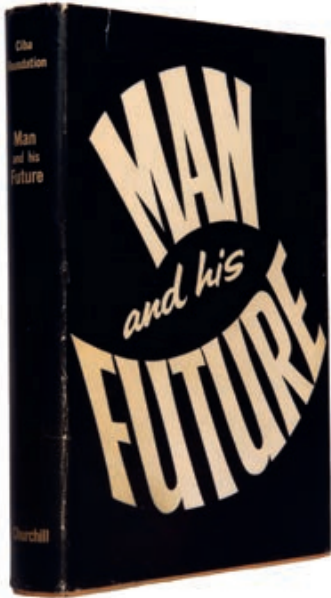
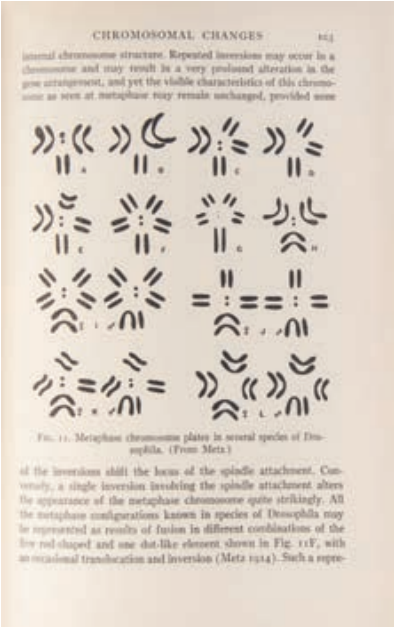
73. HUXLEY, JULIAN. *Evolution. The Modern Synthesis.* London, George Allen & Unwin Ltd, 1942.

£750 [ref: 112437]

The first edition of Julian Huxley's (1887-1975) major work on evolutionary biology, inscribed by the author to 'James from Julian, faithfully, August 1942'.

The term 'synthesis' in the title linked Huxley to an important stage in the development of evolutionary biology which took place in the 1930s, fusing Darwinian natural selection with advancements in the study of the genetics of populations and mutation. Although Huxley had trained primarily as a zoologist, *Evolution* is noteworthy for the breadth of treatment and balance between the plant and animal kingdoms (ODNB).

First edition, first impression, PRESENTATION COPY INSCRIBED BY THE AUTHOR; 8vo (22 x 15 cm); publisher's green cloth, spine lettered in gilt, top-edge stained green, MS shelfmark on paper label to spine, a little soiled, undipped yellow dustjacket lettered in green, spine faded, slightly soiled, otherwise internally clean, very good.



EARLY REFERENCE TO HUMAN CLONING

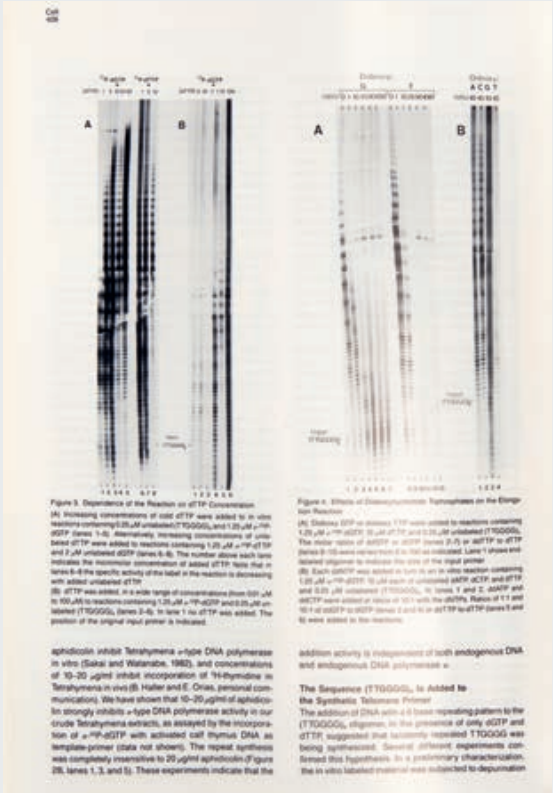
74. [HALDANE, J.B.S.] WOLSTENHOLME, GORDON (EDITOR). *Man and His Future. A Ciba Foundation volume. With 8 illustrations.* London, J. & A. Churchill Ltd., 1963.

£2,500 [ref: 115071]

First edition, first impression of an early reference to human cloning as a scientific possibility, in the final paper, 'Biological Possibilities for the Human Species in the Next Ten Thousand Years' by J.B.S. Haldane (p. 337-361). An attractive copy and uncommon, particularly in the dust jacket.

The papers collected in this volume were all presented at a London conference on the future of human biology hosted by the Ciba Foundation. In addition to Haldane, the contributors include evolutionary biologist Julian Huxley; Gregory Pincus, one of the developers of the birth control pill, who writes here on reproductive control in mammals; and Hermann J. Muller, who was awarded the Nobel Prize for his discovery that x-rays cause genetic mutations. Given the eugenicist leanings of Huxley and others involved, it is unsurprising that the contents are focused on population control and the 'improvement' of human genetics, as is Haldane's paper. He references cloning as part of a wide-ranging overview of the future of human biology and argues that cloning 'persons of attested ability' has the potential to 'raise the possibilities of human achievement dramatically', and that 'everyone selected for this purpose will presumably exceed the median considerably in some respect' (p. 352).

First edition, first impression; 8vo; illustrations, contents fresh; original cloth, titles to spine and upper board in gilt on black ground, spine rolled, a few tiny rubbed spots to the cloth, a very good copy in the price-clipped jacket that is a little rubbed with some short splits and nicks and partial toning of the lower panel; 410pp.



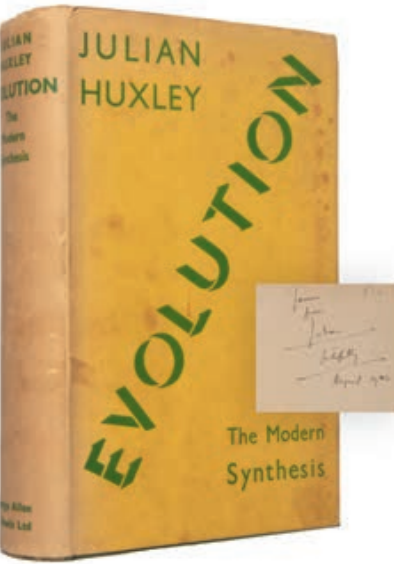
THE KEY TO AGING & CANCER

75. GREIDER, CAROL & BLACKBURN, ELIZABETH H. *Identification of a Specific Telomere Terminal Transferase Activity in Tetrahymena Extracts [in] Cell, volume 43, number 2, pp. 405-413. Cambridge, MA, The MIT Press, December, 1985.*

£1,250 [ref: 115049]

First edition, the journal issue in original wrappers, of the paper announcing the discovery of telomerase, a key part of the body of work for which the authors were awarded the Nobel Prize. A superb copy.

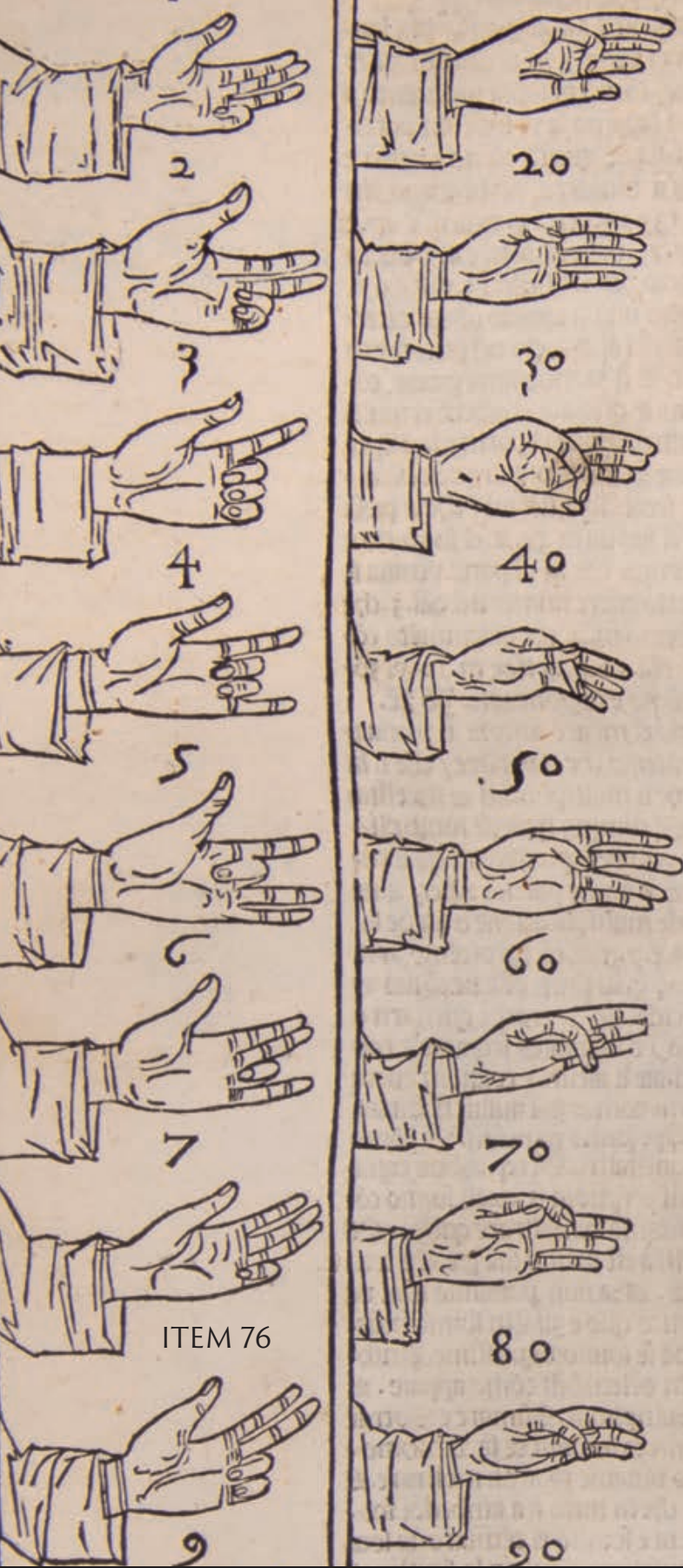
Prior to the 1980s one of the major questions in biology was how DNA fully replicated itself without damage. In 1980 Elizabeth Blackburn (1948 -), then a post-doc at Yale, discovered that the ends of chromosomes were capped with extra genetic material, telomeres. Two years later she and her colleague Jack Szostak were able to prove that telomeres protect DNA during replication. In 1984 Blackburn and graduate student Carol Greider discovered that the enzyme telomerase produces the telomeres, and presented their work in the present paper.



As Blackburn explained it to the *Guardian* in 2017, 'If you think of your chromosomes — which carry your genetic material — as shoelaces, telomeres are the little protective tips at the end. They are made of repeating short sequences of DNA sheathed in special proteins. During our lives they tend to wear down and when telomeres can't protect chromosomes properly, cells can't replenish and they malfunction. This sets up physiological changes in the body which increase risks of the major conditions and diseases of ageing: cardiovascular disease, diabetes, cancer, a weakened immune system and more... It is happening in all of us at some rate, but the rate can change. An enzyme called telomerase can add DNA to the ends of chromosomes to slow, prevent and partially reverse the shortening' (Corbyn, 'Elizabeth Blackburn on the Telomere Effect', the *Guardian*, January 29, 2017). It was also discovered that telomerase itself can play a role in cancer: rapidly dividing cancer cells should wear out their telomeres and die, but overactive telomerase replenishes them, essentially making cancer cells immortal.

Blackburn, Greider, and Szostak were jointly awarded the Nobel Prize in Medicine and Physiology in 2009. Greider has worked at Cold Spring Harbor Laboratory and is director of the Department of Molecular Biology and Genetics at Johns Hopkins. Blackburn, now President of the Salk Institute, is one of the most recognised biologists in the world, having 'received nearly every major award in science, including the Lasker, Gruber and Gairdner prizes. She was named to the TIME 100 in 2007, the magazine's yearly list of the most influential people in the world. She is a member of numerous prestigious scientific societies, including the National Academy of Sciences, the National Academy of Medicine and the Royal Society of London' (Salk Institute biography).

First edition, journal issue; perfect bound; colour illustrations throughout; original pictorial wrappers, very lightly rubbed at the extremities, mild bumping of the spine ends, slight fading of the yellow title on the cover, excellent condition.



MATHEMATICS & NAVIGATION

THE MOST INFLUENTIAL WORK IN THE HISTORY OF CAPITALISM

76. PACIOLI, Luca. Summa de arithmetica. Toscolano, Paganino Paganini, 1523.

£135,000 [ref: 105576]

Second edition of 'the first great general work on mathematics printed' (Smith, *Rara arithmetica*, p56) and the first printed text to set out the method of double-entry bookkeeping, leading to its description as 'the most influential work in the history of capitalism' and earning Pacioli the title 'Father of Accounting'. Furthermore, it is the first printing of any of the works of the great thirteenth-century mathematician Leonardo of Pisa, called Fibonacci (c. 1175-c. 1250), and of the author's friend, the brilliant mathematician and artist Piero della Francesca (1416-92).

The *Summa*, the writing of which had been completed by 1487, is in two volumes, the first dealing with arithmetic and algebra, the second with geometry. The first volume is divided into nine chapters (*distinctiones*): the first seven on arithmetic (222 pages), chapter 8 on algebra (78 pages), and chapter 9 on business (150 pages). The second volume comprises chapters 1-8 (151 pages) on geometry, with separate signatures and foliation and a caption title. There is a brief colophon at the end of part I referring to the full colophon at the end of part 2.

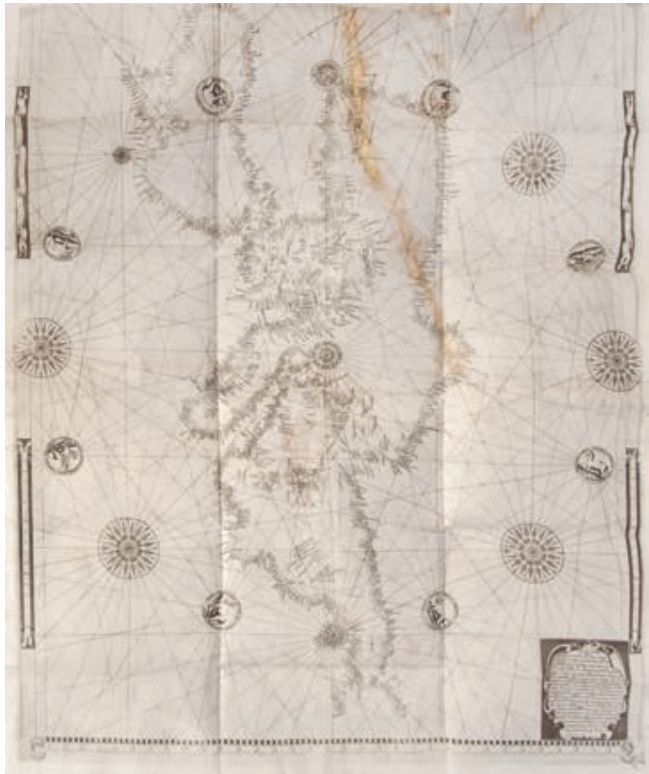
The first part of the *Summa* is the first printed comprehensive treatment of algebra and arithmetic, based largely on Fibonacci's 1202 *Liber Abaci* which famously introduced Arabic numbers to the West, and which was itself in part a translation of the treatises on algebra and arithmetic of the Persian mathematician and astronomer Muhammad ibn Mūsā al-Khwārizmī (c. 780-c. 850) (the word algorithm derives from his name). The second part, on geometry, is based on Fibonacci's *Practica Geometriae*, but includes at the end a section on stereometric geometry and regular solids taken from the *Trattato d'abaco* of Piero della Francesca. The business section also introduces the 'rule of 72' for predicting an investment's future value, anticipating the development of the logarithm by more than a century.

The *Summa* was central to the thinking of Leonardo da Vinci (1452-1519). Pacioli came to Milan where he held the chair of mathematics from 1496 to 1499, during which years he lodged with Leonardo, and taught him mathematics. Leonardo owned a copy of the first edition of the *Summa* and refers to it in his notebooks.

Provenance: Four manuscript inscriptions to title (three deleted); extensive early marginal annotations to 36v-38r (the section on finger counting); occasional marginal annotations elsewhere.

Second edition; 2 vols in one, folio (30.8 x 20.8 cm); title printed in red and black within a woodcut strapwork border, white on black woodcut initials (including a portrait of the author on A1), woodcut diagrams and illustrations throughout, L2r with full-page woodcut diagram with red printing, frontispiece with partially erased annotations, small tear to right-hand margin on frontispiece and a stain of acid ink puncturing the paper at the bottom of the frame, E4v-E6r with extensive marginal annotations, text underlined and annotated throughout (not affecting legibility of text), S3 with obvious oxidation spots that do not disturb the text, evidence of wormholes, occasional creasing of pages, marginal spotting, very occasional marginal dampstains; 18th-century full vellum, red title piece on spine with gilt border and lettering, warping to upper board, wormholes on boards and spine, some soiling to boards, corners slightly rubbed; [8], [1], 2-224; 76pp. Adams P8; Edit 16 28198; Goldsmiths-Kress 15; Honeyman 2380; Mortimer, Harvard (Italian), 347; Riccardi II, 227/228; Sander 5367; Tomash & Williams P2; USTC 846002.





WITH THE RARE PORTOLAN CHART

77. CRESCENZI, BARTOLOMEO. *Nautica Mediterranea*. Rome, Bartolomeo Bonfadini, 1607.

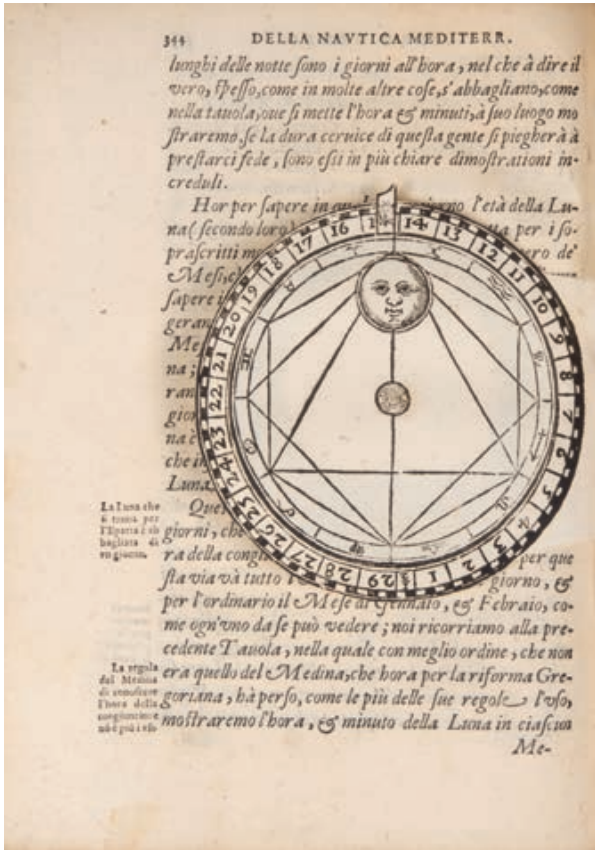
£37,500 [ref: 115678]

Second edition of this rare maritime classic, one of the first works to attempt the correction of navigational maps to account for magnetic declination. With the rare portolan chart lacking from most copies, including that in the National Archives and both copies in recent auction records (Christie's 2012 and 2016). *Nautica mediterranea* was first published in 1602 and reissued here with only the date on the title page altered, as the colophon bears the original date.

Portolan charts originated in the 13th century as navigational aids for sailors in the Mediterranean, and are characterised by rhumb lines, which radiate in the direction of wind or compass points to aid in laying courses between different places on the chart. Crescenzi states in this publication that, 'he has personally experienced the errors in traditional charts [caused by magnetic declination across the Mediterranean] thanks to his period as a hydrographer on the galleys of the Papal fleet (from 1588 to 1593) and other voyages made as a passenger and observer in the period 1594-95. Crescenzio argues that magnetic declination was zero in the Azores and rose gradually and uniformly from Gibraltar to the eastern Mediterranean... He propose to correct this by rotating the axis eight degrees clockwise around the Azores as fixed center... The work is accompanied by a printed nautical chart, which dates from 1596 but is the result of the application of the theories subsequently outlined in detail within the 1602 publication itself' (Astengo, 'The Renaissance Chart Tradition in the Mediterranean', *The History of Cartography*, volume 3, pp. 196-197).

In addition to mapping, the text covers numerous other maritime matters, including the construction of galleys and nautical warfare, and includes two functioning volvelles.

Second edition; 2 parts in 1 volume, 4to (248 x 177 mm); folding portolan map, 2 volvelles, 3 engraved folding plates, engravings, woodcuts, and letterpress tables throughout the text, headpieces and decorative initials, portolan chart and final gathering of the second part mounted on a stub but with old dampstain matching the rest of the text and rear endpapers, repaired tear across a third of the portolan chart with some loss filled in, and a few other small repairs and closed tears and some spotting, Nn4 torn with loss in the lower margin not affecting the text, small worming spots in the margin from Dd2 through Ggg sometimes slightly affecting the marginal notes, Y3 and Y4 misbound after X4, spotting and dampstain; contemporary limp vellum, title in manuscript to spine, vellum worn, creased, and darkened, particularly at the spine and edges, and with some small areas of loss, marks, and spots, very good condition; 534 & 63pp.



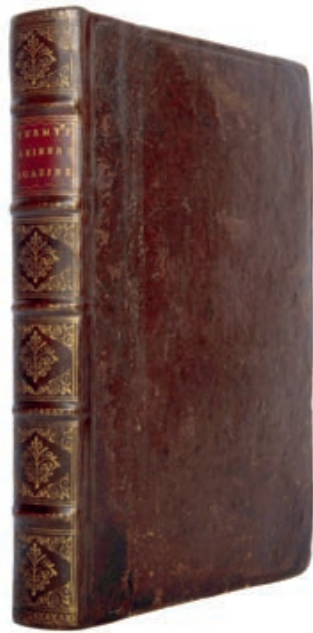
A SOURCEBOOK FOR GULLIVER'S TRAVELS

78. STURMY, SAMUEL. *The Mariners Magazine; or, Sturmy's Mathematical and Practical Arts*. Containing, the description and use of the scale of scales... the art of navigation, resolved geometrically... a discourse of the practick part of navigation... a new way of surveying of land... the art of gauging... the art of gunnery... astronomy, geometrical, instrumental, and by calculation, the art of dialling... London, Printed by E. Cotes for G. Hurlock, W. Fisher, E. Thomas, and D. Page, 1669.

£7,500 [ref: 114888]

First edition. 'This Mariners Magazine is a compendium of useful information and is essentially a course in practical mathematics. It was designed to give practical advice to seamen (and others). It did not provide the latest scientific thinking and limited itself to only the information to perform a given function' (Tomash & Williams S210). Examples with the volvelles are now scarce, and the most recent copy at auction was in 1998 (Sotheby's).

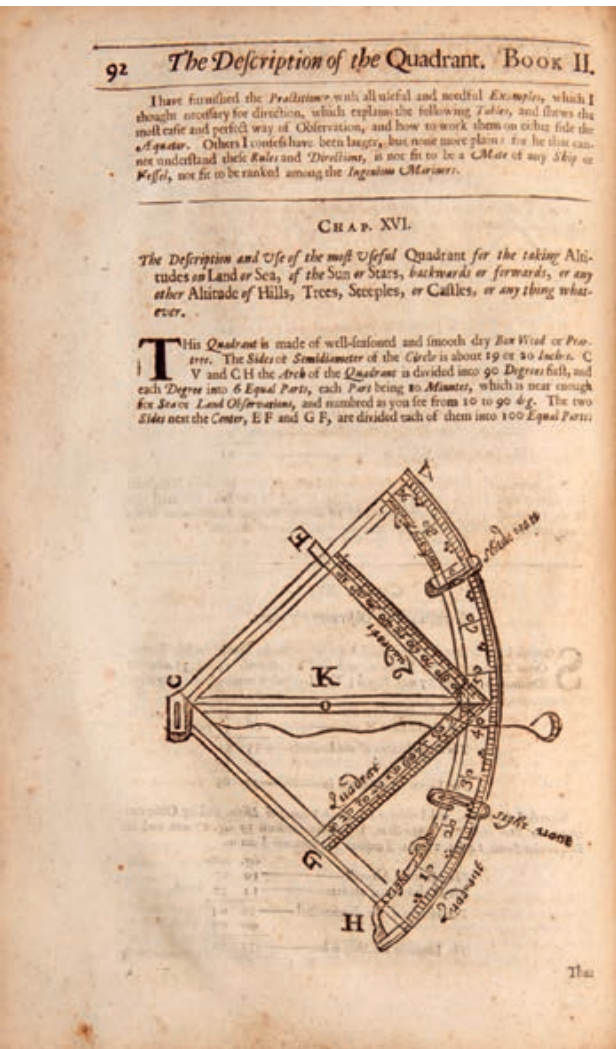
Captain Sturmy commanded ships sailing out of Bristol, mainly to Virginia and the West Indies. His experiences formed the basis for this book which was intended 'to provide his three brothers, his sons, and other young seamen with all they needed to know, even if their mathematical knowledge was restricted to arithmetic. The magazine was written in lively fashion, in the sections on seamanship the usual commands and responses being set out as dialogue between captain and crew (parts of this were lifted verbatim by Jonathan Swift for *Gulliver's travels*' (Oxford Dictionary of National Biography).

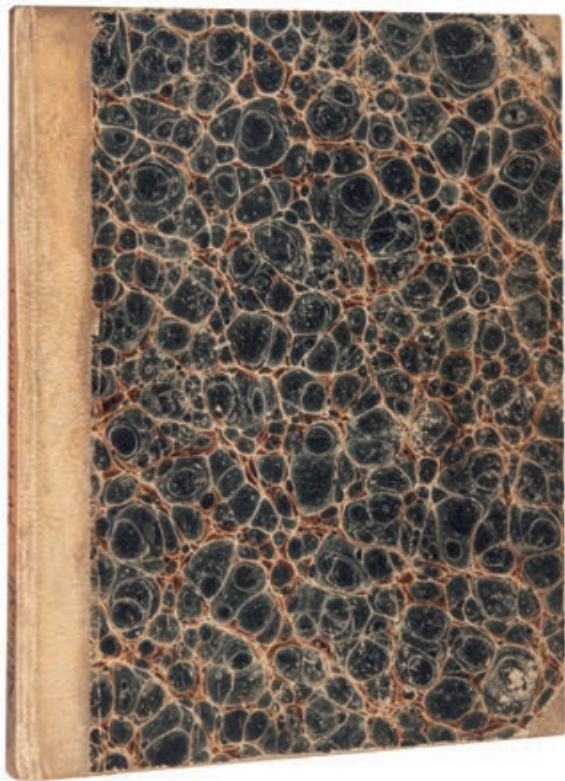


[The] 'work is composed of several books on the topics of navigation, instruments, surveying, gauging, astronomy, dialing, gunnery, fireworks, fortification and a summary of penalties applied for smuggling' (Tomash & Williams).

Provenance: Radulph Wilbraham (contemporary signature to title); Erwin Tomash (his sale, Sotheby's London, 18 September 2018, lot 624).

First edition, folio (28.8 x 19. cm); title page printed in red and black, frontispiece portrait, additional engraved title and 10 folding plates (some with unassembled volvelles), woodcut and engraved diagrams and illustrations, 2 leaves inserted between 2D1-2, folding table, with blank leaf 3R4, portrait and additional title inserted on stubs, portrait possibly supplied, with short closed tears and restoration to outer margins, a few short splits to folding plates, scattered browning, soiling, and edge wear, worm hole to blank inner margin of 4c to end; contemporary calf, rebaked to style with spine gilt in compartments, red morocco label, calf worn, very good condition. ESTC R23470; Tomash & Williams S210; Wing S6096.





IMPORTANT EARLY WORK

79. LEIBNIZ, GOTTFRIED WILHELM. *Ars Combinatoria, in qua ex arithmeticae fundamentis complicationum ac transpositionum doctrina novis praeceptis exstruitur, & usus ambarum per universum scientiarum orbem ostenditur; nova etiam artis meditandi...* Frankfurt, Christopher Cröker, 1690.

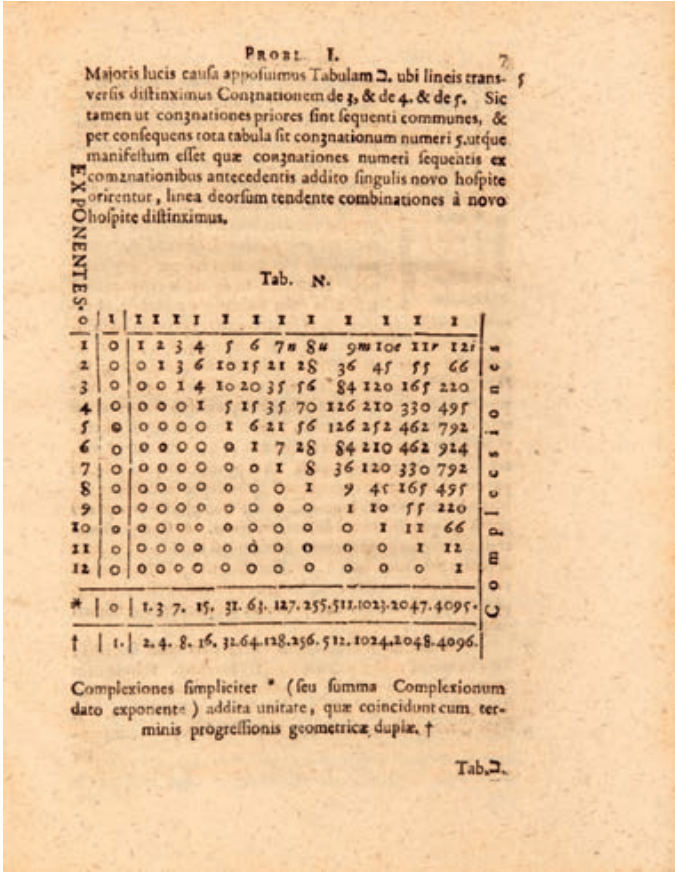
£19,500 [ref: 114780]

Second edition of Leibniz's groundbreaking early work on combinatorics, a highly original proposal in logic and mathematical philosophy expanded from his thesis *Disputatio arithmetica de complexionibus* and first published with the title *Dissertatio de arte combinatoria* in 1666. Both editions of the text are rare in commerce, with only one copy of each noted in auction records over the last two decades.

Leibniz's *Arte Combinatoria* is concerned with two issues, the development of a system of symbols denoting human concepts so that they could be symbolically manipulated 'to discover new truths and find proofs for the old ones', and a 'meta-science' for 'investigating the various methods and procedures (deductive and inductive, empirical and logical) internal to each scientific field' (Mugnai, *Leibniz: Dissertation on Combinatorial Art*, Oxford University Press, 2020). These would remain major pre-occupations for Leibniz throughout his life.

Though the book made Leibniz famous among European intellectuals it was written before he had thoroughly studied mathematics. He responded to this unauthorised edition with a note in the scientific journal *Acta Eruditorum*, writing that though the text was 'not sufficiently polished' it contained "'many new meditations"' he did not regret concerning "'the art of discovery"' and the "excellent" idea of an alphabet of human thoughts' (Mugnai).

Second edition; 4to (18.5 x 14.5 cm); engraved frontispiece, tables in the text, decorative initials, typographic headpiece, contents faintly toned but overall clean; early 19th century half vellum with marbled boards, manuscript title to spine, small bookplate of the same period in the upper left corner of the front pastedown, the name scratched out and the number '192' in manuscript, calf a little toned, boards rubbed with wear at the edges, very good, unsophisticated condition; 78pp.



Dr. HALLER'S TABLE of Observations, exhibiting the Probabilities of LIFE.

| Age. | Perjona. | Age. | Perjona. | Age. | Perjona. | Age. | Perjona. | Age. | Perjona. |
|------|----------|------|----------|------|----------|------|----------|------|----------|
| 1 | 1000 | 8 | 680 | 15 | 628 | 22 | 586 | 29 | 539 |
| 2 | 895 | 9 | 670 | 16 | 622 | 23 | 579 | 30 | 534 |
| 3 | 798 | 10 | 661 | 17 | 616 | 24 | 571 | 31 | 527 |
| 4 | 700 | 11 | 651 | 18 | 610 | 25 | 567 | 32 | 515 |
| 5 | 622 | 12 | 642 | 19 | 604 | 26 | 560 | 33 | 507 |
| 6 | 540 | 13 | 640 | 20 | 598 | 27 | 551 | 34 | 499 |
| 7 | 462 | 14 | 634 | 21 | 592 | 28 | 546 | 35 | 490 |
| 48 | 417 | 50 | 346 | 51 | 332 | 64 | 202 | 71 | 111 |
| 44 | 407 | 51 | 315 | 52 | 303 | 65 | 182 | 72 | 100 |
| 45 | 397 | 52 | 324 | 53 | 293 | 66 | 163 | 73 | 90 |
| 46 | 387 | 53 | 311 | 54 | 283 | 67 | 152 | 74 | 81 |
| 47 | 377 | 54 | 302 | 55 | 273 | 68 | 142 | 75 | 72 |
| 48 | 367 | 55 | 292 | 56 | 263 | 69 | 132 | 76 | 63 |
| 49 | 357 | 56 | 283 | 57 | 253 | 70 | 122 | 77 | 54 |

THE LIFE INSURANCE EQUATION

80. DE MOIVRE, A[BRAHAM]. *Annuities upon Lives; or, the Valuation of Annuities upon any Number of Lives; as also, of Reversions. To which is added, an appendix concerning the expectations of life, and probabilities of survivorship.* London, William Pearson, 1725.

£3,600 [ref: 114565]

First edition of the text that founded life insurance as a mathematical field, variant title listing only William Pearson as the publisher (ESTC N30304).

Abraham de Moivre (1667-1754) was a founder of the field of probability and theory and analytic geometry. In *Annuities...* he 'formulated the hypothesis that among a body of persons over a certain age the successive annual decreases by death are nearly equal' (Morton, *A Medical Bibliography* 1690). 'This mathematics became a standard part of all subsequent commercial applications in England' (*Dictionary of Scientific Biography*).

First edition; 4to (22 x 13 cm); errata on A8 verso, woodcut head and tail-pieces and initials, table, contemporary ownership signature to title, 2 19th-century ownership inscriptions to front blank, upper corner of front blank torn with loss, small portion of the upper corner of the title trimmed off, small chip from the lower edge of the table, a little spotting to title, text toned at the extreme edges; recently rebound to style in brown half calf, spine gilt in compartments with floral tools, marbled sides, new endpapers, a very good copy; 108pp. ESTC N30304; Norman Library of Science & Medicine 1530; Morton, *A Medical Bibliography* 1690.

MATHEMATICS FOR VICTORIAN ENTREPRENEURS

81. HORSFALL, JOHN [WILLIAM]. *Workbook of sophisticated mathematics by a textile factory scion, with allegorical animal illustrations.* [Yorkshire], September 26, 1870.

£2,750 [ref: 115330]

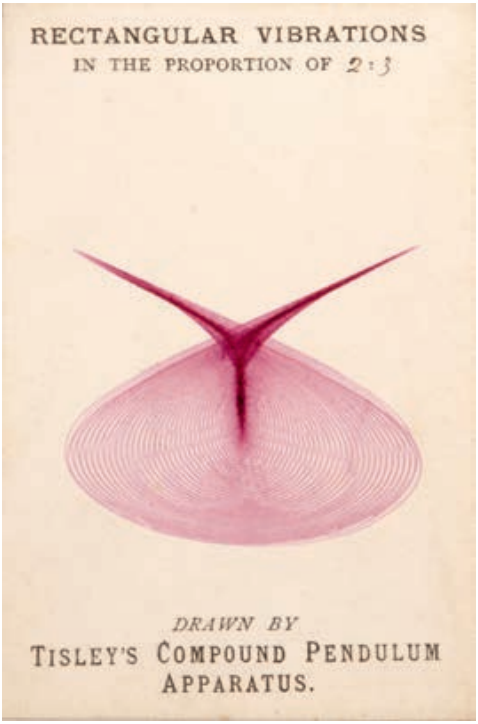
A charming nineteenth-century mathematics workbook focused on unusually sophisticated entrepreneurial calculations, completed by the son of a Yorkshire textile magnate.



The engraved title of this volume gives the publisher as J.S. Publishing & Stationery Co. of Otley, locating the manuscript to the Yorkshire area, and the pencilled ownership inscription reads, 'John Horsfall, Sept 26 - 1870'. This was most likely the second son of John Horsfall of Halifax (1823-1886), founder of the textile firm that still bears his name. John William would go on to manage the company from 1905 to 1922. His position in a manufacturing family explains the contents of this 106- page manuscript. Some of the mathematics are typical of the period, such as fractions, simple interest, and monteary calculations, but a substantial portion covers truly uncommon subjects: commissions, stock purchasing, brokerage fees, interest on annuities, and profit and loss in partnerships. We have handled numerous mathematics workbooks completed by children expected to go into a trade, but have never seen mathematics geared to highlevel management and entrepreneurship.

One of John's similarities with other children is that he seems to have enjoyed drawing on his homework, and the manuscript is of interest for the elaborate and naive coloured illustrations used as allegorical headers: such as a leopared bloodily consuming a bird to represent partnerships.

Manuscript in purpose-made album with engraved frontispiece, comprising 88 leaves with approximately 106 pages of manuscript in red and black ink and coloured pencil, pencilled ownership inscription on the frontispiece, occasional spots and marks but overall contents clean; original black half skiver and marbled boards, wear at the corners and ends of the spine, boards a little rubbed and scuffed, very good condition.



82. TISLEY & SPILLER, OPTICIANS AND SCIENTIFIC INSTRUMENT MAKERS. [Trade card] Vibrations in the Proportion of 2:3. Brompton Road, London, [c. 1870s].

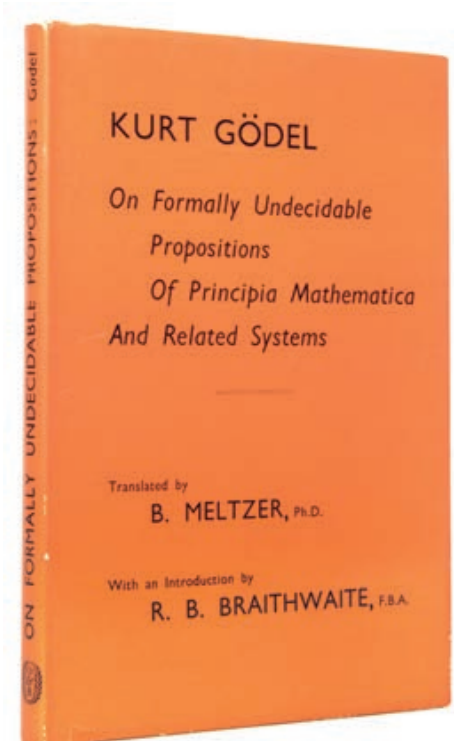
£350 [ref: 114817]

A rare trade card for the scientific instrument makers Tisley & Spiller, featuring an original drawing in purple ink produced by their 'compound pendulum apparatus', a type of harmonograph, and hand-labelled with the movement ratio used.

'A machine recognisable as a harmonograph was described by S.C. Tisley in 1873 to demonstrate the action of two pendulums acting simultaneously. It was manufactured under that name by Tisley and Spiller a few years later. Although used to analyse sound, it became more popular as a scientific toy. While the image of the pattern could be projected, the usual construction by the end of the century was to attach the drawing table and pen to two separate pendulums, which were then adjusted in frequency, amplitude and phase to give a variety of patterns' (Science Museum MS/0470).

The Science Museum holds a volume of 96 harmonograms produced by the same firm, some very similar to the design here (Science Museum MS/0470), and the Science Museum Library has an album of scientific trade cards that includes an example from Tisley & Spiller. The company operated for a relatively short period between the 1860s and 1876, one reason that their ephemera is scarce.

Trade card (11.5 x 7.5 cm); original pendulum drawing in purple, manuscript portion of title and rest of text in black, fine condition.



THE FOUNDATION OF MODERN MATHEMATICS, LOGIC & COMPUTER SCIENCE

83. GÖDEL, KURT. On Formally Undecidable Propositions of Principia Mathematica and Related Systems. Translated by B. Meltzer with introduction by R. B. Braithwaite. Edinburgh & London, Oliver & Boyd, 1963.

£1,250 [ref: 114739]

First English language edition of Gödel's incompleteness theorems, originally published in *Monatshefte für Mathematik* in 1931. A lovely, fresh copy in the unusually bright dust jacket.

Gödel's incompleteness theorems are some of the most significant statements ever contributed to the fields of mathematics and logic, proving that even in elementary arithmetic there exist propositions that cannot be proven or disproven within the system. Gödel's work overturned a century's worth of efforts to establish an axiomatic basis for all mathematics, showing instead that the field cannot be bound within one formal system. It laid the foundations for theoretical computer science and demonstrated that computers can never be programmed to answer all mathematical questions.

The original owner of this copy, R.M.P. Quilliam, seems to have been a chemist or materials scientist.

First English language edition, first impression; 8vo; original grey cloth, titles to spine in red; neat contemporary ownership signatures to the front pastedown and free endpaper and date to the rear pastedown, in the very lightly rubbed jacket with bright spine panel, excellent condition; 72pp.



ITEM 91

ASTRONOMY & SPACE



THE FIRST PRINTED CELESTIAL ATLAS

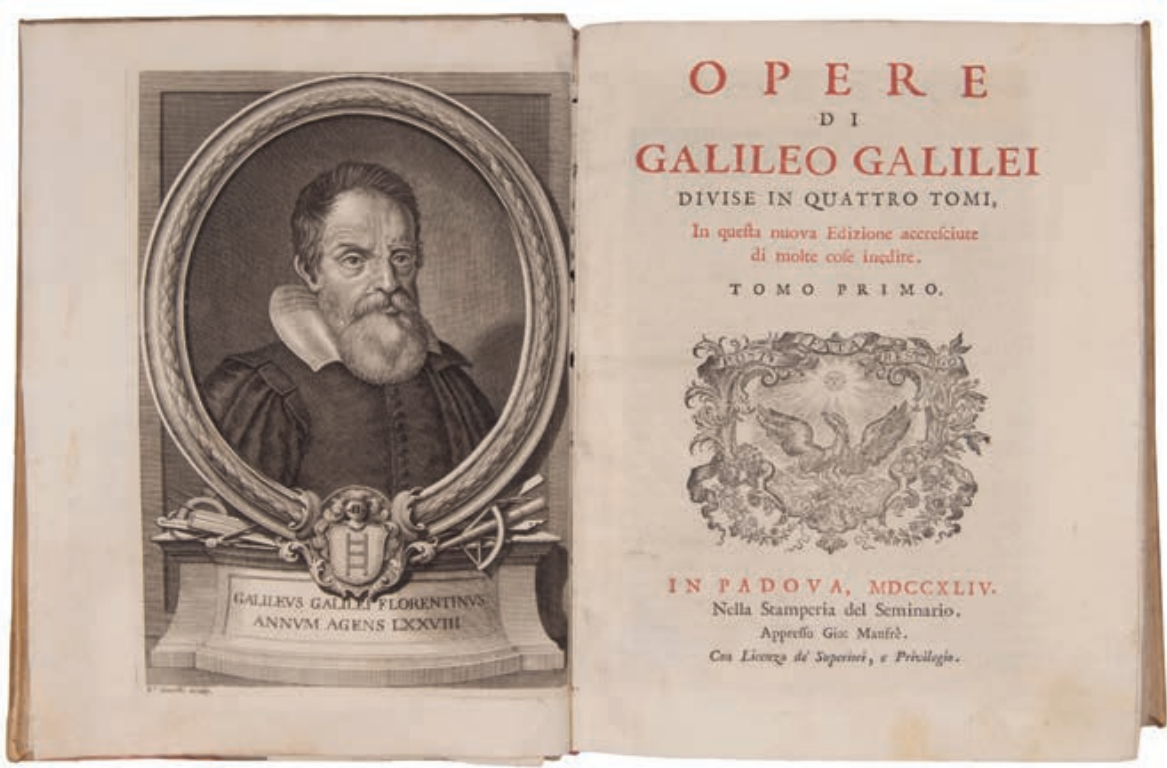
84. PICCOLOMINI, ALESSANDRO. De le stelle fisse libro uno. [BOUND WITH] De la sfera del mondo. Venice, Giovanni Varisco, 1559.

£3,000 [ref: 98418]

AN EARLY EDITION OF *DE LE STELLE FISSE*, THE FIRST PRINTED CELESTIAL ATLAS. NOTABLE FOR THE DEPICTION OF THE CORONA AUSTRALIS OR SOUTHERN CROSS.

Originally published in 1540, the present work contains forty-seven star maps (numbered i-xlvi, xxiv not used as always), one for each of the Ptolemaic constellations with the exception of Equuleus. In this work Piccolomini pioneered the use of letters to identify the stars - a system later adopted by Bayer and, through him, by all modern astronomers. Following the first edition of 1540, there were at least ten further Italian editions, and three French and Latin translations, within the first century after the initial publication, a testament to the popularity and importance of Piccolomini's work.

Two works in one vol., 4to 'De le stelle fisse': engraved title, 244pp., incorporating 47 full-page woodcut star maps printed recto and verso; *De la sfera del mondo*: engraved title, 12, 99pp. illustrations in text, eighteenth-century Italian half calf, marbled boards, morocco label, light soiling to title. Norman Library of Science & Medicine 1696; BM STC (Italian), p154; Brown (Astronomical Atlases), pp17-18; Houzeau & Lancaster 2491; cf. Deborah J. Warner, (The Sky Explored: Celestial Cartography 1500-1800).



GALILEO REHABILITATED

85. GALILEI, GALILEO. Opere di Galileo Galilei divise in quattro tomi, in questa nuova edizione accresciute di molte cose inedite. Padua, Stamperia del Seminario, Apressio Gio[vanni] Manfrè, 1744.

£9,500 [ref: 111598]

The first collected edition of Galileo's works to include his famous *Dialogo* defending Copernicus' heliocentric model of the universe against the traditional Ptolemaic system, here 'finally released to the public with the appropriate licences' (to the reader).

First printed in 1632, the *Dialogo* led to Galileo's arrest and trial for heresy the following year. Found guilty, he was placed under house-arrest for the remainder of his life, and the future publication of any of his works was banned. His rehabilitation began in 1737 when the Inquisition agreed to move his remains from an unmarked grave to a mausoleum opposite Michaelangelo's tomb in the Basilica di Santa Croce, Florence. Seven years later the present work was published with the Church's consent, although prefaced by Galileo's sentence and abjuration of 1633, and a theological introduction countering the heretical aspects of the work. The *Dialogo* itself remained on the Index Librorum Prohibitorum until 1835.

This edition 'much more complete and orderly than the previous two' (Riccardi), and includes Galileo's *Trattato del modo di misurare*, *Ventitrè lettere*, and *Problemi vari* in addition to the *Dialogo*, which all appear here for the first time in any of his collected works. Despite this new freedom to print some of Galileo's most controversial works, the editor, Abbot Giuseppe Toaldo (1719-1797), professor of mathematics and astronomy at Padua, still had to obey the instructions of an Inquisitor of the Congregation of the Holy Office.

With 28 leaves of additional manuscript notes in an early hand, including figures, mainly referring to two scientific Italian authors, Guido Grandi (1671-1742) and Giuseppe Venturoli (1768-1846).

First complete collected edition, third overall; 4 vols; 4to (25 x 18.5 cm); engraved portrait frontispiece by Zucchi, titles in red and black with Phoenix device, text in Italian, 1 folding engraved plate, numerous woodcuts in-text, woodcut initials and headpieces, MS annotations in pen to front free endpapers, scattered marginalia in pencil, table on inserted lead in vol. II quire XXX, 26ff on separate sheets of loose MS notes and geometric drawings in a contemporary hand, small internal tear to f.12 vol. IV with minor loss, otherwise internally bright and crisp with only occasional very minor browning; contemporary vellum, contrasting red morocco lettering-pieces to spine, sprinkled edges, labels slightly chipped, otherwise a fine set; [8], lxxxviii, [4], 601, [1]; [4], 564; [4], 486; [8], 342, [2]pp. Brunet II, 1461; Carli & Favaro 478; Cinti 176; Gamba p.152; Houzeau & Lancaster 3386; Riccardi I, 522 'molto più completa ed ordinata delle due precedenti'.



HUBBLE'S FIRST WORK ON GALAXIES

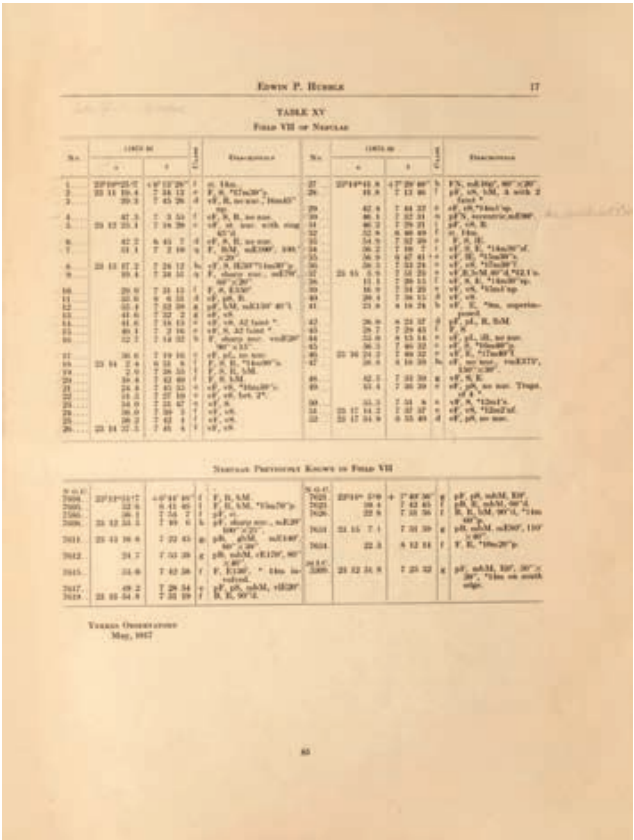
86. HUBBLE, EDWIN. Photographic Investigations of Faint Nebulae. A dissertation submitted to the faculty of the Ogden Graduate School of Science in candidacy for the degree of doctor of philosophy. Department of astronomy. Publications of the Yerkes Observatory, volume IV, part II. Chicago, IL, University of Chicago Press, 1920.

£5,000 [ref: 115541]

The rare first edition of Hubble's doctoral dissertation, containing the first suggestion that 'nebulae' were not gas clouds local to the Milky Way, but much larger structures outside of it. This study laid the foundation for his groundbreaking discoveries about the nature of galaxies and the scope of the universe.

The present work was a statistical study "'of the numerous small, faint nebulae, vague markings on the photographic plate, whose very forms are indistinct.'" Hubble studied several clusters of these small, faint nebulae that he had discovered by photographing fields with the 24-inch reflector of the Yerkes Observatory. Until this time only 76 nebulae were known in clusters; Hubble added 512 more in seven well-defined clusters. these objects he classified according to form, brightness, and size, and he measured their positions accurately. Hubble went on to estimate the minimum sizes of these objects by reasoning that "'the spirals form a continuous series from the great nebulae of Andromeda to the limit of resolution, the small ones being much more numerous. Considering them to be scattered at random as regards distance and size, some conception may be formed of their dimensions from the data at hand... If they are within our sidereal system, then, as they are most numerous in the direction of its minimum axis, the dimensions of our system must be much greater than commonly supposed'". Hubble continued with an estimate of the velocity of escape from a spiral, which he found to be comparable to that of the galaxy. Thus he concluded, "Considering the problematic nature of the data, the agreement is such as to lend some color to the hypothesis that the spirals are stellar systems at distances to be measured often in millions of light years"' (Mayall, 'Edwin Hubble 1889-1953, A Biographical Memoir', pp. 188-189).

First edition; illustrations from monochrome photographs within the text, Harvard College Library and Astronomical Observatory ink and blind stamps, pencilled annotations; recently rebound in marbled boards without the original wrappers and half title; a very good copy.



THE BOLDEST PROBE OF THE UNIVERSE YET MADE

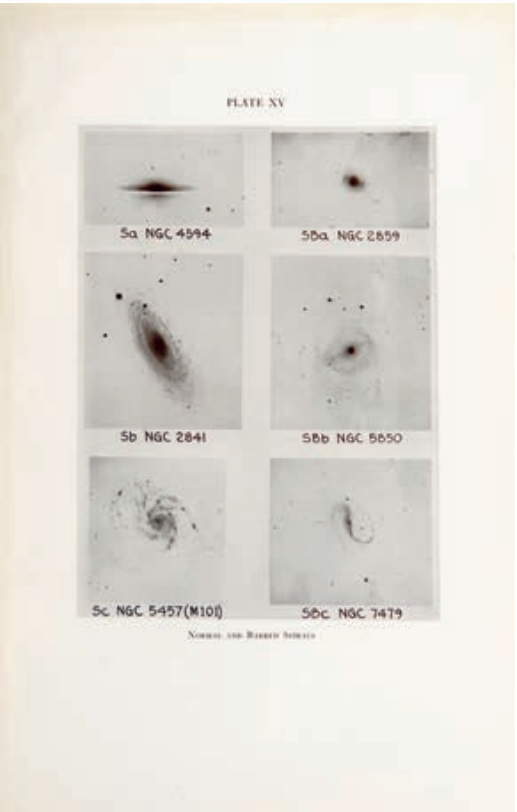
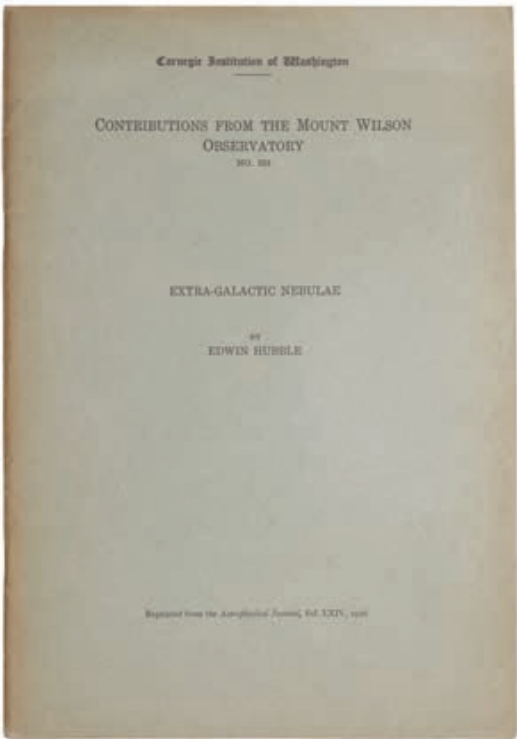
87. HUBBLE, EDWIN. Extra-Galactic Nebulae. Carnegie Institution of Washington. Contributions from the Mount Wilson Observatory No. 324. Reprinted from the *Astrophysical Journal*, Vol. LXIV, 1926. Washington D.C., [American Astronomical Society and] Carnegie Institution, 1926.

£6,500 [ref: 115628]

The rare Carnegie Institution offprint of the paper that first presented four of Hubble's groundbreaking achievements: classification of galaxies by shape; determination of the mean density of galaxies in the universe; the use of Cepheid stars to estimate galaxy magnitudes; and his application of general relativity to estimate the radius of curvature of the universe, the calculation that 'represented the boldest probe of the universe yet made' and 'greatly stimulated theoretical work in cosmology' (Mayall, 'Edwin Hubble 1889-1953, A Biographical Memoir', pp. 193-194). This body of research would also lay the foundation for another major discovery, Hubble's Law, which states that galaxies move away from us at speeds proportional to their distance — that the further away a galaxy was the faster it was moving — which would be published three years later.

Using the Mount Wilson Observatory's 100-inch telescope to investigate Cepheid variable stars, Hubble had by 1925 conclusively proven that galaxies (still termed nebulae) were large structures outside of our own Milky Way. He 'immediately began to use the galaxies as tools for studying the large-scale structure of the Universe' (Longair, *The Cosmic Century*, p. 87). This paper opens with his classification scheme for galaxies — ellipticals, normal spirals, barred spirals, and irregulars — which is still in use. He then addressed the distribution of galaxies in the universe, using their apparent magnitudes to show that 'the number of galaxies increased with increasing apparent magnitude exactly as expected for a uniform distribution. This result was to have profound implications for the construction of cosmological models because it meant that, as a first approximation, the Universe could be taken to be homogenous on the large scale' (Longair, p. 87). 'Next, Hubble worked out the typical masses of galaxies, and from this he estimated the mean mass density in the Universe' and 'recognised that this figure had cosmological significance. Adopting Einstein's static model for the Universe, he found that the radius of curvature of the spherical geometry was 27,000 Mpc and that the number of galaxies in this closed Universe was 3.5×10 to the 15th power' (p. 88). Hubble noted that the Mount Wilson telescope could therefore observe typical galaxies to about 1/600 of the radius of the Einstein Universe, and that improvements in telescopes would likely make it possible to observe 'an appreciable fraction of the Einstein Universe'. 'Thus, by 1926, the first application of the ideas of relativistic cosmology to the Universe of galaxies had been made' (Longair, p. 88).

Provenance: Frankfurt University Observatory (ink stamp).



49-page wire-stitched pamphlet; 3 plates, ink stamp of the Frankfurt University Observatory to the title; original blue-green wrappers printed in black, wrappers a little rubbed and toned along the spine and edges, light crease to the upper wrapper, very good condition.

88. FESSENKOV, VASILIIY GRIGOREVICH; ROZHKOVSKEY, DMITRY ALEXANDROVICH. Atlas gazovo-pylevykh tumannostei [Atlas of Gaseous Dust Nebulae]. Almaty, Astrophysical Institute, Academic of Sciences of the Kazakh, SSR, 1953.

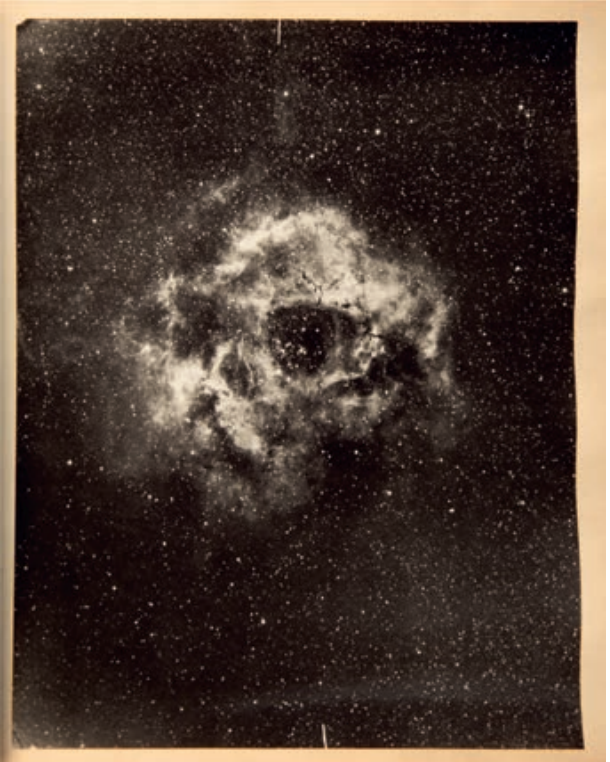
£12,500 [ref: 115106]

INCREDIBLY SCARCE AND IMPRESSIVE ALBUM WITH ORIGINAL PHOTOGRAPHS.

First and only edition of this large atlas volume of original photographs with accompanying text compiled by V. G. Fesenkov and D.A. Rozhkovsky who pioneered studying the gaseous nebulae. These are the leading Soviet astrophysicists of their time who were the first to make a photographic 'Atlas of Gas and Dust Nebulae' in trying to understand the 'evolution of structure of nebulae, turbulent phenomena in interstellar clouds and in the vicinity of hot stars.'

In 1950, academician V. G. Fesenkov and D.A. Rozhkovsky began a detailed study of gas-dust galactic nebulae. A large collection of original photographs of them, over 700 negatives, made it possible to prepare and publish in 1953, for the first time in the USSR, the Atlas of Gas and Dust Nebulae, in which reproductions of several dozen nebulae and their individual details were presented. The purpose of this work was to study the evolution and structure of nebulae, turbulent phenomena in interstellar clouds and in the vicinity of hot stars. High-quality photographs of the atlas clearly illustrated a peculiar panorama of the fine structure of objects formed by the radiation of ionised gas and made it possible to reveal dust scattering the light of stars. The atlas contained new, very useful information and stimulated the interest of astronomers in observing nebulae. A detailed study of a large observational material allowed D.A. Rozhkovsky to discover about 30 new diffuse nebulae.

Provenance: Hale Library of the Carnegie Institute (deaccessioned).



First (only) edition, square 4to (30 x 26.5 cm); 59 original mounted photographs, with text referencing each photograph and additional text material, leaves a little warped; a touch of wear, some soiling to fore-edge, embossed stamp of Carnegie Institution; original gilt-stamped maroon cloth, minor wear to spine, a very good copy.

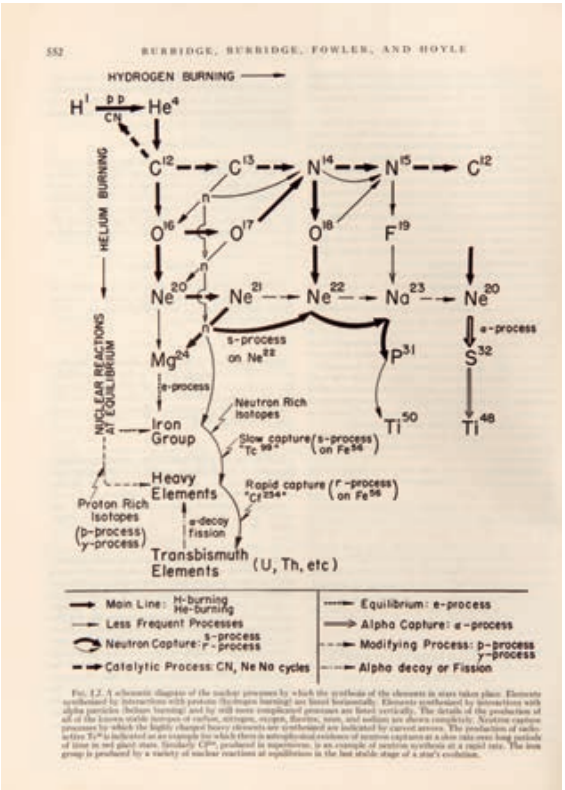
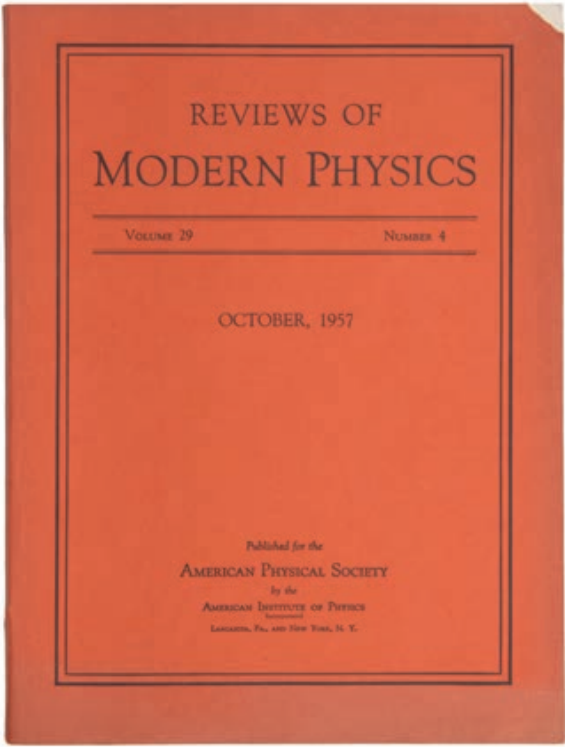
89. BURBIDGE, MARGARET & G[EOFFREY] R.; FOWLER, WILLIAM; HOYLE, FRED. *Synthesis of Elements in Stars. [In] Reviews of Modern Physics volume 29, number 4. Lancaster, PA & New York, for the American Physical Society by the American Institute of Physics, October, 1957.*

£4,750 [ref: 115533]

First edition, journal issue, of one of the most revolutionary papers in modern science, presenting conclusive proof that the heavy elements which make life possible are created in the stars and distributed throughout the universe by supernovae. Lead author Margaret Burbidge (1919-2020) was to become a 'towering figure in the history of modern physics and astronomy... a key driver of three great revolutionary thrusts in the development of physics and astronomy over the last 70 years' (University of California obituary). By the early 1950s it was clear that the lighter elements, hydrogen, helium, and lithium, were created during the Big Bang, but there were two competing theories on the origin of the heavier elements. Physicist George Gamow believed that they were all made at the origin of the universe, but in 1954 astronomer Fred Hoyle proposed that they were instead created by the process of nuclear fusion in stars. British astronomer Margaret Burbidge was at the time working at Caltech, and she and her husband Geoffrey collaborated with Hoyle and William Fowler to investigate the hypothesis.

'Over a two-year period, 1955-56, the Burbidges and Fowler then gathered a wealth of evidence in support of Hoyle's theory. These included astronomical observations taken by Margaret of the elemental abundances, and the laboratory measurements of nuclear reactions gathered by Fowler. The results were conclusive. The paper changed our understanding of cosmic evolution, and of our connection to the vast universe. As Fowler put it: "All of us are truly and literally a little bit of stardust"', a sentiment famously echoed by Carl Sagan in 1973 (*Guardian* obituary, April 22, 2020).

The present paper, usually referred to as 'B2FH' for its three authors, 'was undoubtedly the Burbidges' greatest scientific achievement, with far-reaching consequences for astrophysics and cosmology' (Royal Society obituary, August 25, 2021) and 'it also brokered the deep relationship between observational astronomy and nuclear physics' (University of California obituary). Burbidge and her husband went on to become leaders in the physics of quasars, and she also pioneered the use of space-based astronomical instruments, most notably the Hubble Space Telescope's Faint Objects Spectrograph.



First edition, journal issue; tall quarto; 4 pages of illustrations from photographs, contents fresh; original orange wrappers printed in black, neat area of loss from the top corner of the upper wrapper, lower edge of upper wrapper slightly faded, spine a little rolled, wrappers lightly rubbed, very good condition.



90. LEVANTOVSKII, VLADIMIR ISAAKOVICH. *Raketoi k Lune [Rocket to the Moon]. Moscow, Gos. Izd. fiziko-matematicheskoi literatury, 1960.*

£500 [ref: 115520]

First edition of this stylishly designed, popular work on the technical aspects of travelling to the Moon, published at the beginning of the Space Race.

Vladimir Levantovskii was a talented scientist, editor and publisher who produced popular books on astrodynamics. He managed to popularise the mechanics of space flight for Soviet readers by publishing highly engaging scientific books such as this one. A scarce work in the original dust-jacket.

First edition; 8vo; black & white illustrations throughout, some full-page; publisher's blue cloth backed blue paper boards, design in silver to upper board, title in black to spine, pictorial dust-jacket, corners bumped, wear to dust-jacket with some loss, a good copy; 379pp.



PRESENTATION COPY INSCRIBED BY THE SPACE FANTASY ARTIST ANDREI SOKOLOV

91. LEONOV, A.A. & SOKOLOV, A. (ILLUSTRATORS); DENISOV, V.P.; ALIMOV, V.I. *Kosmicheskie Dali [Cosmic Distances]. Moscow, Izobrazitel'noe iskusstvo, 1972.*

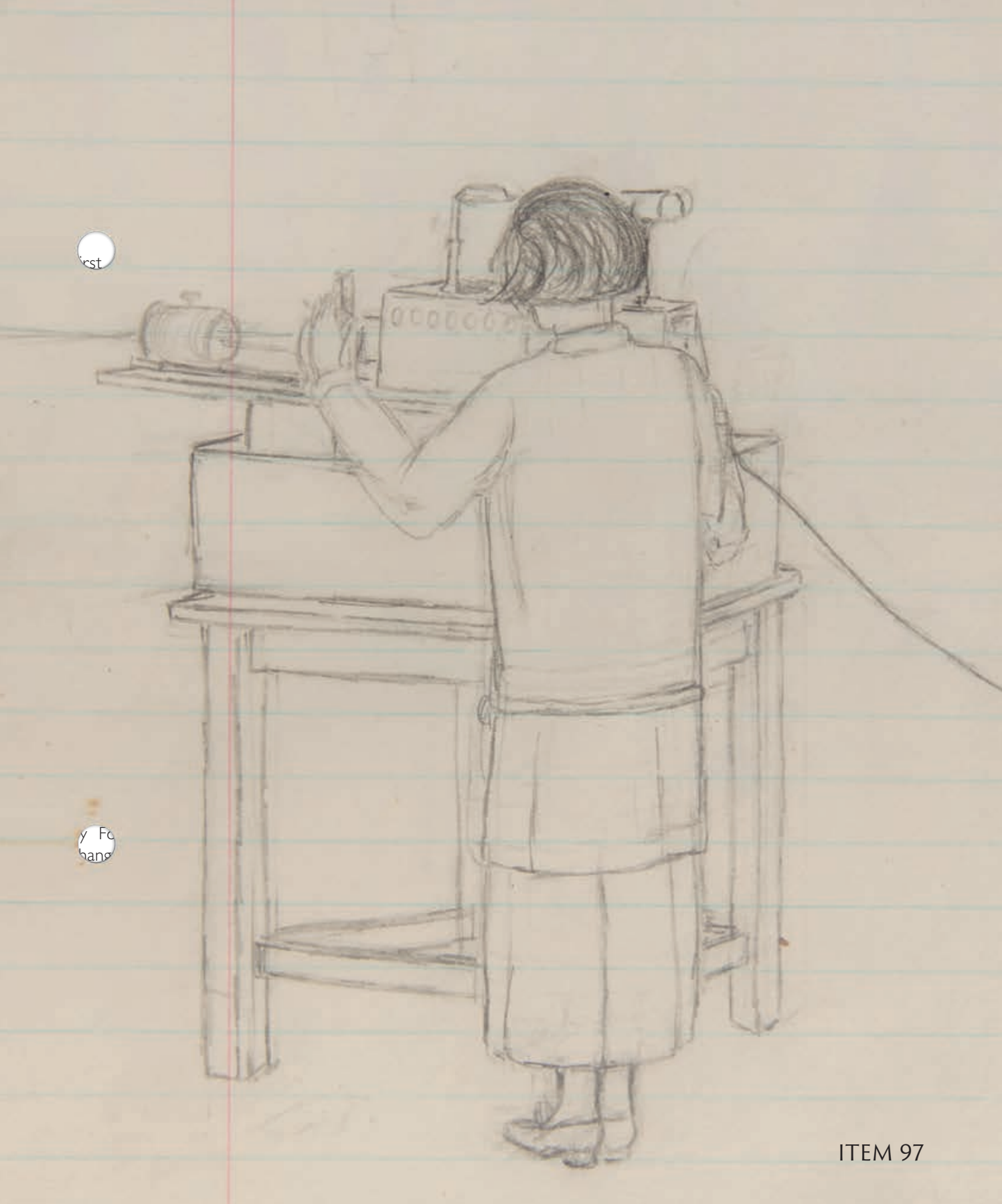
£3,750 [ref: 114998]

First edition, PRESENTATION COPY INSCRIBED BY THE SPACE FANTASY ARTIST ANDREI SOKOLOV to Fuad Borisovich Yakubovskiy, Soviet minister for 'special construction projects'.

A striking portfolio of Soviet space art with thirty four plates depicting imaginary spacewalks, satellite constructions, curious spacecraft, dreamy constellations and unexplored planets and moons. One of the artists, A. Leonov, was the pioneering cosmonaut who made the first spacewalk, exiting the capsule during the Voskhod 2 mission. Art, however, was his first love and he was the first person to sketch earth from space. He often collaborated with his close friend Andrei Sokolov, who unlike Leonov did not have first hand experience of space and instead chose to paint a more fantastical picture.

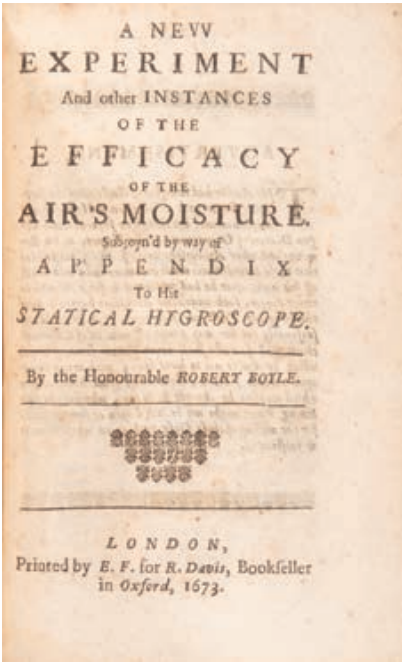
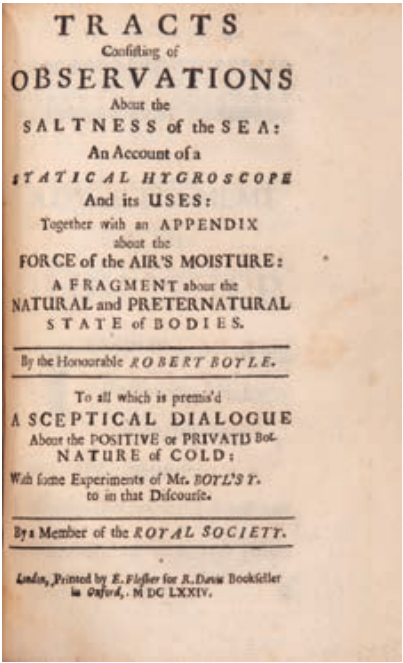
The album was published to mark the 15th anniversary of the launch of Sputnik and is a glorious example of ambitious propaganda. It was clearly designed to make an impact with the elaborate portfolio case and wonderful illustrations which are often highlighted with silver. The inclusion of real life space missions alongside imagined realities of the future is an assertion of the potential for Soviet cosmonauts.

First edition, PRESENTATION COPY SIGNED BY A. SOKOLOV on the verso of the upper portfolio board, folio (38 x 28.5 cm); complete with 34 plates (of which 16 are double page), each with descriptive text on the verso, 36pp. of text by Denisov and Alimov in a separate booklet (also with an introduction by Yuriy Gagarin); housed together in the original blue leatherette portfolio, enamel and metal USSR medallion to upper cover and title in silver, a very good copy.



ITEM 97

CHEMISTRY & PHYSICS



‘IMPORTANT MILESTONE IN THE HISTORY OF THE THEORIES OF CHEMICAL COMBINATIONS’

92. BOYLE, ROBERT. Tracts. The Cosmicall qualities of things... [BOUND WITH] Observations about the saltiness of the Sea... Oxford, W.H. for Ric. Davis, 1671; London, Printed by E. Flesher for R. Davis Bookseller in Oxford, 1674.
£8,750 [ref: 112438]

A rare sammelband, containing the first editions of two collections of tracts by the natural philosopher and founding fellow of The Royal Society, Robert Boyle (1627-1691).

Comprising eight essays in total covering important milestones in the advancement of natural science from observations on astronomy and the voyages of discovery that had taken mankind to new remote regions of the world, to the description of experiments on the problem of rendering seawater fit for human consumption.

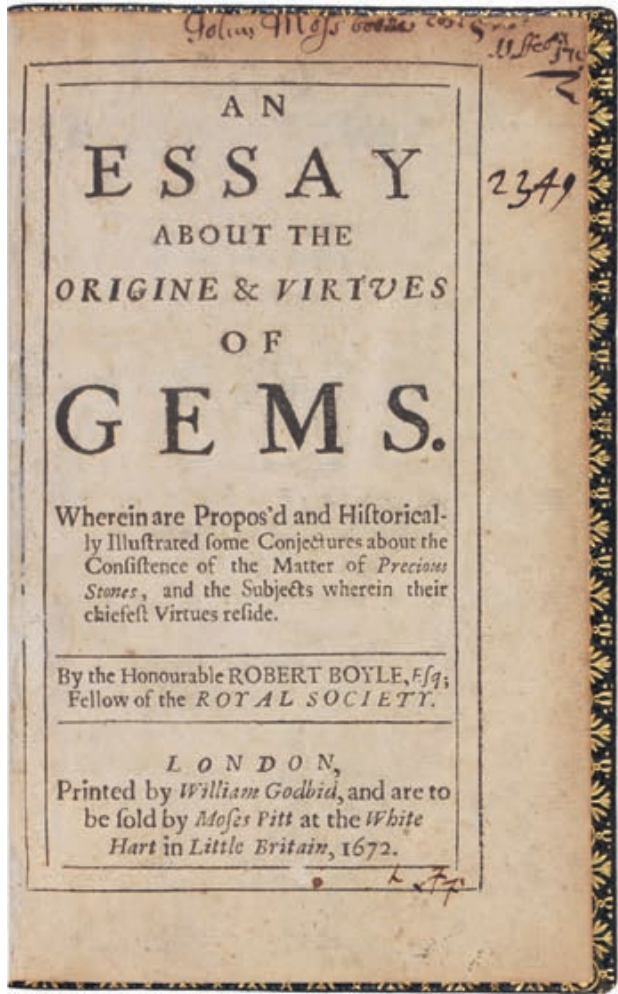
In particular, Boyle's account of 'local motion' in his essay on *Cosmicall qualities* made important advances in his corpuscular theory of matter; reaffirming the break he first made with classical Aristotelian notions of the four elements in the *Sceptical chymist*. Assuming the existence of different 'simple' elements and the occurrence of various combinations of their corpuscles in differing states of 'local motion', Boyle's theory was able to account for the existence of all natural phenomena (Fulton).

Also of note are Boyle's descriptions of an 'Engin' invented by a Swedish scientist that had allowed him to remain for several hours at great depths in the sea, and his observations on the change of colour of vegetable extracts when their reaction is changed from acid to alkali.

‘One of the important milestones in the history of the theories of chemical combinations’ (Fulton).

Provenance: Jules Cuisinier, 120, Boulevard Richard Lenoir, Paris (ownership stamp).

First editions, complete; 8vo (17.5 x 12 cm); ownership stamp to front free endpaper recto, pen inscription to verso 'R. Boyle Tractatus V. de rebus naturalibus quibus additum historia qualitaturn singularium', closed tear to front free endpaper; [COSMICALL...]: issue without title-ornament, [A]2 cancel-title ([A]3 in Fulton foliation, speculates a cancelled blank), [A]3 advertisement to the reader, [A]4 errata, H7 blank, H8 blank recto, verso label-title, half-titles, pp26-27 of 'Cosmicall Susptions' misnumbered 22-23, sub-title 'Three Tracts' bound after essay on the 'Temperature of the Subterraneall' (consistent with pagination) and advertisement to rear, 'Subterranean Regions' C5 recto and verso with identical text, 'Submarine Regions' B2 and B3 cancels; [OBSERVATIONS...] [A]1 blank, A3-A4 recto advertisement to the reader, half-titles, verso advertisements present; bound in contemporary blind-ruled calf, abrasions with loss to leather, joints and covers expertly restored, sprinkled edges, occasional light spotting and minor soiling, very good; [6], 42, [2], 27, [3], 3-28, [6], 3-43, [5], 3-21, [3], 16, [6]; [8], 51, [3], 6, [2], 5, [3], 11, [3], 39, [3], 5, [3], 11, [3], 27, [3], 14pp. ESTC R3181 & R17503; Fulton 83 & 113.



FIRST EDITION

93. BOYLE, ROBERT. *An Essay About the Origine & Virtues of Gems, wherein are propos'd and historically illustrated some conjectures about the consistence of the matter of precious stones, and the subjects wherein their chiefest virtues reside.* London, by William Godbid, and are to be sold by Moses Pitt at the White Hart in Little Britain, 1672.

£7,500 [ref: 100199]

The 'beginning of the modern development in knowledge of crystal structure' (Fulton).

Robert Boyle (1627-1691), a natural philosopher and founding member of The Royal Society, observed the formation of crystals from solution and experimented using gems in his own collection. This led him to several important conclusions including that gems and other crystalline minerals had similar origins and structures.

Provenance: John Moss (ink inscription); Duncan Andrews (bookplate).

First edition; 8vo (17 x 11.5 cm); title within double-ruled woodcut border, title a little soiled with very minor restoration to inner margin, a good copy otherwise, ink ownership inscription to head, bookplate to front pastedown; 20th century morocco, gilt, spine slightly faded; [16], 180, 182-185pp. Fulton 96; Wellcome II, p.222; Wing B3947; ESTC R18997.

THE BEGINNING OF AIR QUALITY MONITORING

94. SMITH, ROBERT ANGUS. *Air and Rain. The beginnings of a chemical climatology.* London, Longmans, Green, and Co., 1872.

£450 [ref: 113134]

First and only edition of the first book on the results of air quality monitoring, a pioneering work in the chemical investigation of pollution, particularly acid rain.

Robert Angus Smith (1817- 1884) became concerned about industrial pollution while associated with the heavy chemical industry in Manchester in the 1840s and 50s. After experiencing the use of chemists as paid witnesses in environmental lawsuits he became an advocate for scientific independence and court reform, and was made a government inspector.

This volume presents the 'vast body of data' that Smith collected by sampling air and water around Manchester and other areas over three decades (ODNB). Of particular importance is his identification of the phenomenon of acid rain, which he correctly determined was caused by coal burning, and for which he coined the term in 1859.

Provenance: C.G. Higginson, Owens College (bookplate).

First edition; 8vo (21 x 31 cm); 9 lithographic plates, engravings and tables within the text, bookplate, occasional light spotting to the contents; contemporary prize binding of tan calf, spine gilt in compartments, green morocco label, school crest, double fillets and decorative roll to upper board in gilt and blind, marbled edges and endpapers, decorative roll to turn-ins in blind, spine a little darkened, some indentations and small spots to the upper board, very good condition; 600pp.

DISCOVERING THE ELECTRON

95. THOMSON, J.J. *Conduction of Electricity Through Gases.* Cambridge, at the University Press, 1903.

£350 [ref: 115682]

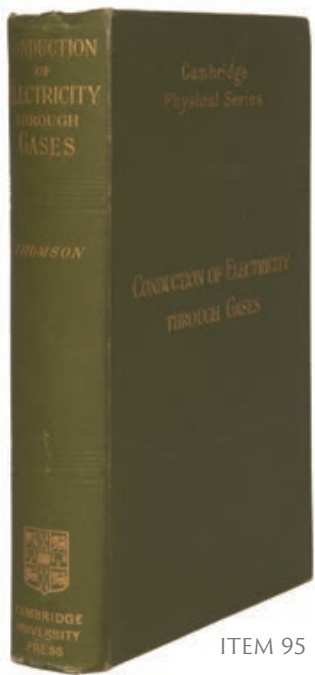
First edition, first impression of this key work describing the research program that led to the discovery of the electron.

Thomson's discovery of the electron and its mass and charge, achieved by investigating the rays produced when elemental gases were electrified, 'revolutionized the science of physics. The "indestructible" atom was no more and it began to seem likely that the common constituent of all matter was a form of energy. Thomson's discovery opened up new fields of investigation in almost every branch of physics and initiated such departments as thermionics and photo-electricity' (*Printing and the Mind of Man* 386).

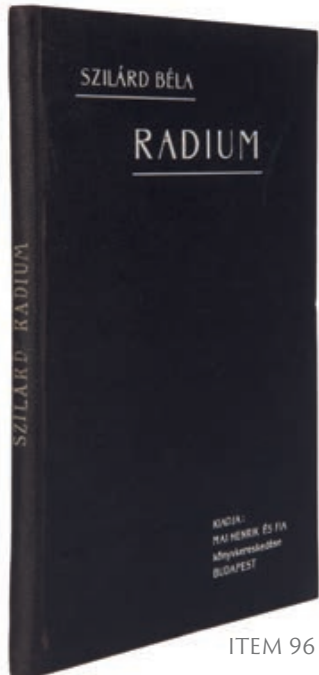
The announcement of the discovery of the electron was first made at a Friday evening lecture of the Royal Institution in 1897, with two publications on its properties appearing in 1898. The present volume, published in 1903, covers Thomson's entire research program in detail and is based on a series of lectures given at the Cavendish Laboratory.

'Thomson was President of the Royal Society from 1915 to 1920 and Nobel Prize Winner in Physics in 1906. He made the Cavendish Laboratory at Cambridge the greatest experimental school in physics ever known and was succeeded by his pupil Rutherford' (PMM).

First edition; 8vo; illustrations and charts within the text, contemporary ownership inscription to the front free endpaper, endpapers and half title spotted; original green cloth, titles to spine and upper board gilt, cloth very lightly rubbed at the extremities, a very good copy; 566pp. PMM 386; Norman Library of Science & Medicine 2076.



ITEM 95



ITEM 96

THE FIRST BOOK ON RADIOACTIVITY IN HUNGARIAN

96. SZILÁRD, BÉLA. *Radium és Radioaktivitas.* Budapest, Mai Henrik és Fia Könyvereskedése, 1905.

£1,250 [ref: 115254]

First edition of the first book on radioactivity published in Hungarian. Rare, Worldcat locates only a single institutional copy at the Hungarian Academy of Sciences.

Author Béla Szilárd graduated with a degree in pharmacy from the University of Budapest in 1904. Between 1907 and 1910 he worked at the Curie laboratory in Paris, then spent the First World War at the Instituto de Radioactividad of the University of Madrid, returning to Paris in 1920.

Szilárd 'carried out some experiments on special forensic photography, on the measurement of Roentgen rays, and on the determination of the appropriate doeses for medical applications... he collected data and published a map of the spread of radioactive substancesa round the world' and 'constructed electrometers for specialised usage of radioactive measurements and performed experiments with them' (Palló, 'Isotope Research Before Isotopy', Hungarian Academy of Science, 2008). It was for this measurement work that Szilard was awarded the Légion d'honor.

'His short book, *Radium és Radioaktivitas*, the first on radioactivity in the Hungarian language, focused on the description of rays, radioactive substances and their medical applications' (Palló).

Provenance: Dr. Száthmáry László (ink stamp).

First edition; 8vo; diagrams in the text, contemporary ownership ink stamp and inscription to the title, pencilled inscription to the rear pastedown, contents faintly toned; original black pebble-grain cloth, titles to spine and upper board in white, spine a little dulled, cloth very lightly rubbed at the tips, front free endpaper professionally reattached by Bainbridge Conservation, endpapers toned, excellent condition; 85pp.

ORIGINAL DRAWINGS OF WOMEN CHEMISTRY STUDENTS

97. TOMLINSON, MURIEL. Small group of original artworks, including 15 pencil drawings of women practising chemistry. [Oxford, 1920s].

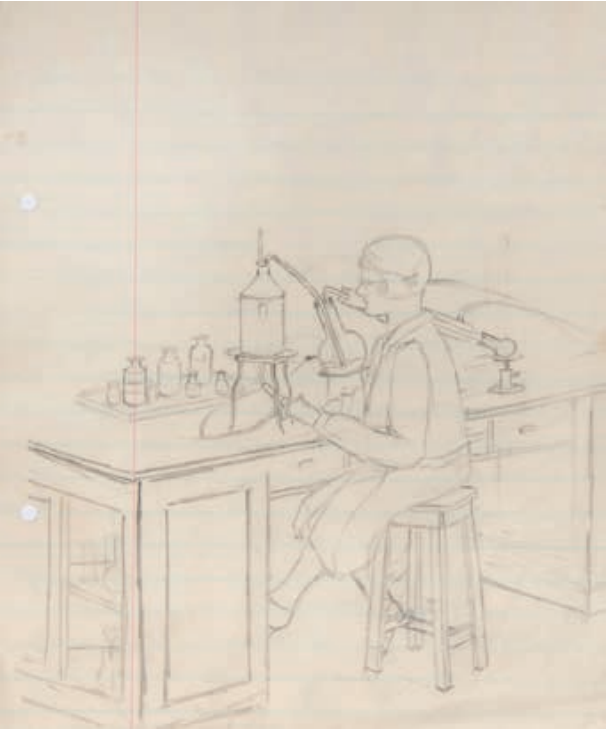
£1,250 [ref: 114422]

A wonderful group of artworks by the pioneering Oxford chemist Muriel Tomlinson (1909-1991), a number documenting her education during the 1920s. It includes fifteen pencil drawings of women at work in the chemistry laboratory, teaching, or sitting finals, and three drawings which depict the laboratories in detail. Together with other artwork by Tomlinson from the 1920s and 30s, including drawings, watercolours, and linocuts.

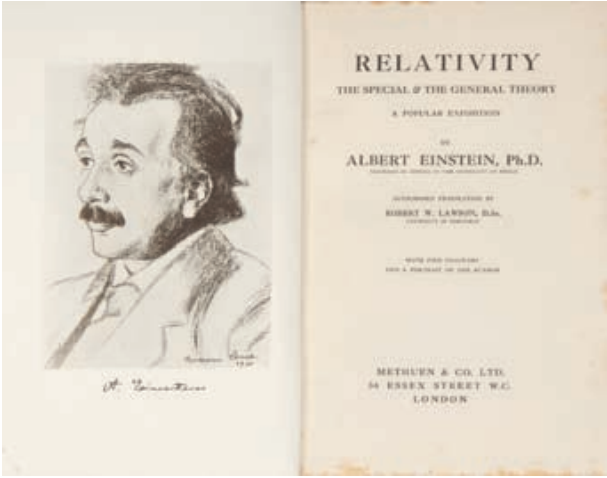
Tomlinson showed early promise in science. In 1921 she was awarded a free place at King's High in Warwick, where she was Head Girl in 1928, and she later explained that chemistry attracted her 'because of the delightful blue colour the word conjured up for me. To me, all words have colour' (Beidas, Landor Association biography). She was then awarded two scholarships to attend St. Hilda's College, Oxford, graduating with first class honours in chemistry. 'Her undergraduate tutor sensed her promise early on, and encouraged her to take her Part One examinations at the end of the second year. Later, Muriel realised that she alone, out of all the other (male) students of the subject, had been told to do this, the rest having to wait until the third year, and although this daunted her a little, she still obtained a first class pass' (Beidas).

These charming drawings were produced during the 1920s and it is unclear whether they represent the laboratories at King's, St. Hilda's, or both. Young women are shown at workbenches with a wide variety of apparatus, and there are also images of women lecturing, drawing on blackboards, and sitting tests (labelled 'matric'). A number of portraits from this period may be of fellow students and teachers, and one has been reworked several times. The archive also includes twenty-nine other drawings and watercolours, including a series of portraits dating to the 1920s and possibly early 30s; 28 linocuts very much in the style of the late 1920s and 1930s, including landscapes and village scenes, some of which have been made into attractive Christmas cards. There is also an official drivers' license photograph of Tomlinson mounted on a blank application form.

After completing her PhD Tomlinson was awarded a Mary Somerville Research Fellowship and in 1935 was appointed lecturer at Girton College, Cambridge. After the Second World War she returned to St. Hilda's as a don, where she established the biochemistry department and became 'responsible for practical work across the university' before returning to a focus on research and academic writing (Beidas). In later life Tomlinson was active with King's High, serving as a governor and member of the management committee, and two laboratories at the school are named in her honour.



25 pencil drawings dating to the 1920s on various papers, some lined, of which 18 are explicitly related to chemistry education and the others being portraits, possibly of fellow students or teachers, 29 other drawings and watercolours, 28 linocuts (a number of duplicates), drivers' license photograph, housed in a card chemise printed with a mushroom and dandelion pattern and with a colour paste-on of a landscape, excellent condition.



THE FIRST POPULAR TREATMENT OF RELATIVITY THEORY

98. EINSTEIN, ALBERT. *Relativity. The Special & the General Theory. A popular exposition. Authorised translation by Robert W. Lawson. With five diagrams and a portrait of the author.* London, Methuen & Co. Ltd., 1920.

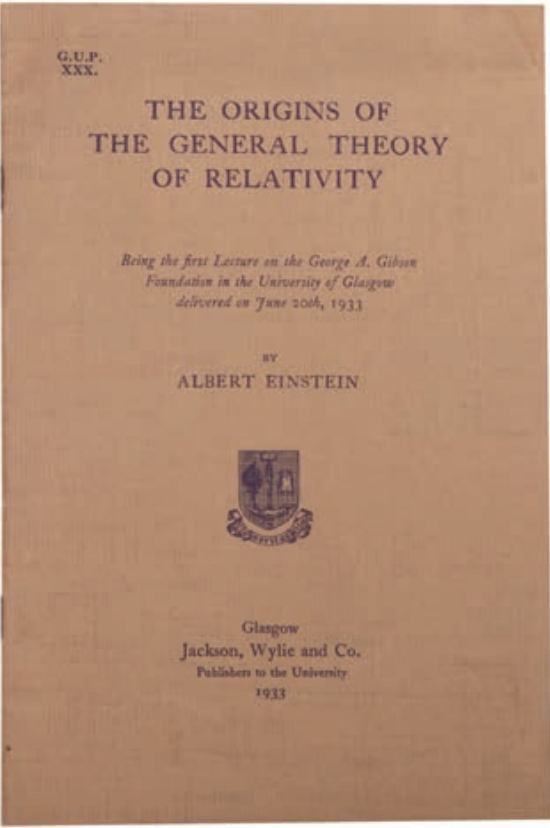
£1,250 [ref: 115592]

First English language edition, first impression of Einstein's first popular treatment of relativity. This copy from the library of British physicist Leslie Fleetwood Bates (1897-1978), who did his doctoral work under Ernest Rutherford at Cambridge and became a specialist in ferromagnetism.

Einstein's general theory of relativity, 'one of history's most imaginative and dramatic revisions of our concepts of the universe', was completed in a frenzy of work at the end of 1915 (Isaacson, *Einstein: His Life and Universe*, p. 223). The following year he published, in German, *Relativity: The Special and the General Theory*, an account intended to be accessible to the general public, and which he tested by reading drafts to his step-daughter Margot. Einstein took the opportunity to publish the present English language edition when interest in general relativity exploded after the theory was confirmed by Arthur Eddington's eclipse observations in 1919. This edition includes an important new appendix on Eddington's work titled 'The Experimental Confirmation of the General Theory of Relativity' that was not present in the previous German edition.

Provenance: Leslie Fleet Bates (ownership signature).

First edition, first impression; 8vo; portrait frontispiece, equations and diagrams within the text, separately paginated 8-page publisher's ads at rear, contemporary ownership inscription to the front free endpaper, occasional pencilled marks in the text, and numbers on the rear pastedown, Foyle's ticket to the front pastedown, spotting to the edges of text block and early leaves; original red cloth, titles to spine in gilt and to upper board in blind, spine faded, spine titles dulled, cloth lightly rubbed with some marks and pale spots to the upper board, very good condition; 138pp.



EINSTEIN ESCAPING THE NAZIS

99. EINSTEIN, ALBERT. *The Origins of the General Theory of Relativity. Being the first lecture on the George A. Gibson Foundation in the University of Glasgow delivered on June 20th, 1933.* Glasgow, Jackson, Wylie and Co., 1933.

£1,750 [ref: 116373]

First edition, the rare offprint of a talk given by Einstein at the University of Glasgow during his peripatetic summer after the Nazi take-over of Germany.

Einstein spent much of the early 1930s on extended visits to the United States, and the first Gestapo raid of his Berlin flat occurred in February, 1933 while he was a visiting professor at Caltech. The Nazi Enabling Act was passed in March as Einstein travelled back to Europe, and on arriving in Antwerp he officially renounced his German citizenship. After a short stay in Belgium he toured the UK, during which time he was presented with an honorary doctorate by the University of Glasgow, where he gave this non-technical talk on the 20th of June. In October Einstein returned to the US and joined Princeton's Institute for Advanced Study, where he spent the remainder of his career.

12-page wire-stitched pamphlet; a little light spotting to the contents, crease affecting the upper corner of the wrappers and contents, staples a little rusty, excellent condition.

DISCOVERING HOW ATOMS WORK

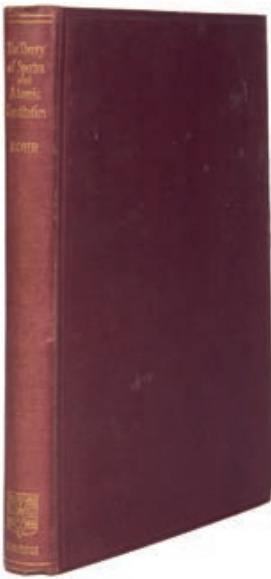
100. BOHR, NIELS. The Theory of Spectra and Atomic Constitution. Three essays. Cambridge, at the University Press, 1922.

£500 [ref: 115593]

The first collected edition and first English language publication of three talks originally given in Danish and German between 1913 and 1921 while Bohr was working out his Nobel Prize-winning theory of atomic spectra. This copy from the library of British physicist Leslie Fleetwood Bates (1897-1978), who did his doctoral work under Ernest Rutherford at Cambridge and became a specialist in ferromagnetism.

Provenance: Leslie Fleetwood Bates (ownership signature).

First collected edition and first English language publication of each essay, first impression; 8vo; diagrams within the text, contemporary ownership signature to the front free endpaper and pencilled notes in the margins throughout, spotting to the endpapers and edges of text block; original burgundy cloth, titles to spine gilt, spine rolled and faded, cloth rubbed and a little spotted with some bumps to the edges of the upper board, very good condition; 126pp.



PAVING THE WAY FOR DOROTHY HODGKIN AND ROSALIND FRANKLIN

101. [LONSDALE] YARDLEY, KATHLEEN. Three rare offprints from the early career of x-ray crystallographer Kathleen Lonsdale. All published in the Mineralogical Magazine: 'An X-ray examination of calcium formate', March 1925, Vol. XX, No. 108, pp296-298; 'An X-ray examination of aramayoite', December 1926, Vol. XXI, No. 115, pp163-168; 'The structure of baddeleyite and of prepared zirconia', December 1926, Vol. XXI, No. 115, pp169-175.

Oxford, Frederick Hall, at the University Press, 1925-1926

£1,250 [ref: 113276]

Three rare, early offprints by Kathleen Lonsdale, one of the first women elected to the Royal Society and the recipient of its Davy Medal for outstanding contributions to chemistry.

X-ray crystallography (measuring the diffraction of x-rays by the atoms in a molecule in order to determine its structure) was one of the key scientific techniques of the 20th century. Developed by the father and son team of William Henry and William Lawrence Bragg beginning around 1912, it would eventually be used to determine the structure of DNA. Lonsdale (then Yardley) became involved in the field when the elder Bragg offered her a research position on the completion of her physics degree in 1923, and under his supervision she studied organic compounds. Her first paper was published in the *Philosophical Transactions* in 1924.

'Lonsdale was strongly attracted to experimentation and considered the best work to be that work done alone. In 1929, she published a remarkable paper on the first aromatic compound to be examined by crystallography, hexamethylbenzene; the paper is considered to be a classic in the field' (Ogilvie, *Biographical Dictionary of Women in Science*, p804). She was the first woman president of both the International Union of Crystallography and the British Association for the Advancement of Science, and was named Dame Commander of the Order of the British Empire in 1956.

3 offprints; 8vo; in the original grey wrappers; fine condition.



SEMINARS BY NOBEL PRIZE WINNERS

102. [BERKELEY RADIATION LABORATORY]. ALVAREZ, LUIS; SEGRÉ, EMILIO, ET AL. Mimeographed Experimental Physics 290(f) Lectures. Berkeley, CA, University of California at Berkeley, c. 1950

£5,000 [ref: 115600]

A rare set of mimeographed lecture notes from an experimental physics course connected with Berkeley's Radiation Laboratory, with chapters by three Nobel Prize winners. Mimeographed lecture notes of this kind were made by students for themselves and their colleagues, and exist in very small numbers.

We have located only two auction records for this set, the present one, sold in 2018, and a copy at Christie's in 2002.

Berkeley's '290' physics courses are 'graduate level courses that feature a weekly seminar on physics topics', 'many of which are open to the public', generally meaning the research community (Berkeley website). The present lectures are all labelled '290(f)', what was then a course in experimental physics connected with the Berkeley Radiation Laboratory. Now known as the Lawrence Berkeley National Laboratory, this research centre was established in 1931 by Ernest Lawrence and centred around his development of the cyclotron, a new and more powerful type of particle accelerator for which he was awarded the Nobel Prize. The laboratory has remained a leader in physics research up to the present day, and was responsible for numerous twentieth century breakthroughs, including electronic enrichment of uranium for the Manhattan Project, the discovery of the transuranic elements and the anti-proton, and measurement of the cosmic microwave background radiation.

Taking place around 1950 (none of the reference sources listed in the text have publication dates past 1949), the present course begins with relatively basic concepts in electrical engineering — necessary for anyone doing hands-on experimental work at the Radiation Laboratory — and proceeds to linear accelerators, the cyclotron, and beta ray spectrographs. Of the fourteen lectures, three were presented by Nobel Prize winners:

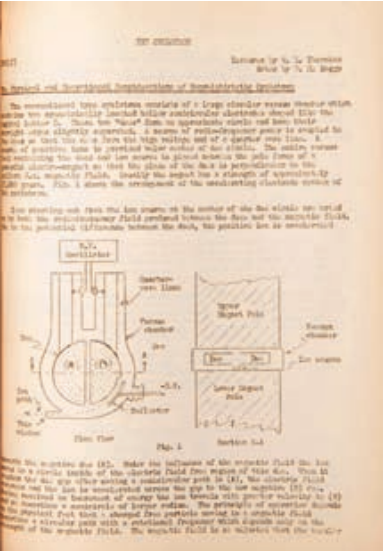
Chapter 7, Ionization: Emilio Segré (1905-1989) discovered the antiproton and the elements technetium and astatine. An Italian Jew, he was made stateless by the Mussolini government in 1938 while on a visit to Berkeley, and was offered a position at the Radiation Laboratory. Between 1943 and 1946 he worked at Los Alamos, after which he returned to Berkeley until his retirement in 1972.

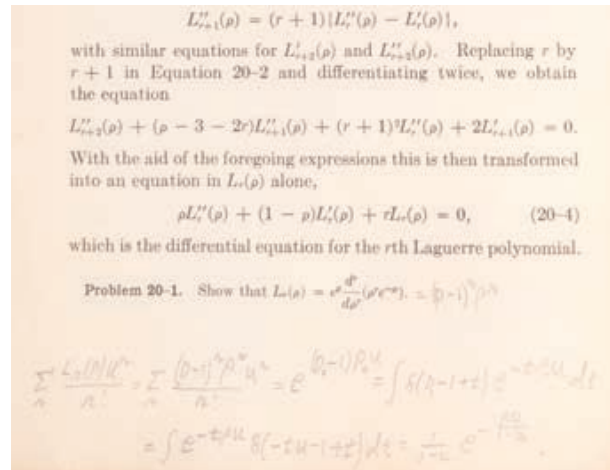
Chapter 10, General Accelerator Considerations: Edwin McMillan (1907-1991) was, with Glenn Seaborg, the first to produce a transuranic element, neptunium. He joined the Radiation Laboratory in 1933 and during the Second World War worked on microwave radar and the Manhattan Project. When hostilities ended he returned to Berkeley, co-developed the synchrotron, and became director of the laboratory after Lawrence's death in 1958.

Chapter 12, Linear Accelerators: Louis Alvarez (1911-1988) was a pioneer who made fundamental discoveries in physics through his development of the hydrogen bubble chamber. He joined the laboratory in 1936 and worked with the experimental team headed by Robert Oppenheimer. During the war he contributed significantly to radar research, joined the Manhattan Project, and then returned to Berkeley.

The full contents are as follows: 1. Electrical Measurements (no author listed); 2. Vacuum Tubes and Amplifiers by A. Bratenahl; 3. Pulse Circuits by R. Mozely; 4. Oscillators by D. Gow; 5. Rectifiers and Power Supplies by D. Gow; 6. General Considerations of Particle Counters by B.J. Moyer; 7. Ionization Chambers by Emilio Segré; 8. Geiger Counters by R. Chasson; 9. Proportional Counters by H.F. York; 10. General Accelerator Considerations by E. McMillan; 11. Van de Graaf Electrostatic Accelerators by A.J. Hudgins; 12. Linear Accelerators by Louis Alvarez; 13. The Cyclotron by R.L. Thornton; 14. Beta Ray Spectrographs by A.C. Helmholtz.

14 mimeographed typescript lectures on 144 leaves, rectos only; diagrams throughout the text, some pencilled notes, contents a little toned; brown pressboard binder, housed in a custom brown cloth folding case, later manuscript title to upper cover, some sticker residue, edges a little rubbed, corners bumped, very good condition.





THE GREAT EDUCATOR TEACHES HIMSELF QUANTUM MECHANICS

103. [FEYNMAN, RICHARD] PAULING, LINUS & WILSON, E. BRIGHT JR. *Introduction to Quantum Mechanics with Application to Chemistry*. New York, McGraw-Hill Book Company, 1935.

£37,500 [ref: 115715]

First edition, Richard Feynman's own copy, from which he taught himself quantum mechanics while an undergraduate at MIT. With his ownership inscription, pencilled notes on five pages of the text, and hand-drawn bookplate (not by Feynman, but probably by his beloved first wife, Arline Greenbaum, who was interested in art).

Feynman entered MIT during the autumn of 1935 when quantum mechanics was a new field, 'so much more obscure even than relativity'. There was not yet a course he could take, though he and a friend, T.A. Welton, were 'desperately eager to be at the front edge of physics'. As a teenager Feynman had already taught himself advanced mathematics, so 'with the guidance of just a few texts' the two young men 'embarked on a program of self-study' (Gleick, *Genius*, p. 74). 'Their collaboration began in one of the upstairs study rooms of the Bay State Road fraternity house and continued past the end of the spring term... They filled a notebook, mailing it back and forth, and in a period of months they recapitulated nearly the full sweep of the 1925-27 revolution' in quantum theory (Gleick, pp. 74-77). Feynman also wrote in the books he used, and this one includes significant pencilled notes and equations, with around five examples in his hand and others in Welton's.

The author of the present text, Linus Pauling, was one of the founders of quantum chemistry and a two-time Nobel laureate. *Introduction to Quantum Mechanics*, which had only just been published when Feynman obtained this copy, was based on a series of lectures Pauling presented in 1930, and which had been attended by Einstein. It is now considered a classic in the field.



Feynman would go on to earn a PhD in physics at Princeton, work on the Manhattan Project, and make important contributions to particle physics, superfluidity, and quantum electrodynamics for which he was awarded the joint Nobel Prize in physics in 1965, but is popularly remembered for the best-seller *Surely You're Joking Mr Feynman!* and his introductory textbook *Lectures on Physics*, which led to his nickname 'The Great Educator'.

The present volume is an evocative and historically significant record of his process for educating himself in the most cutting-edge science of the period.

Provenance: Richard Feynman (bookplate, inscription & annotations).

First edition; diagrams & equations within the text, pencilled notes on eleven pages and Feynman's bookplate and ownership inscription to the front pastedown, printed telephone message slip on yellow paper loosely inserted at p. 210, contents faintly toned; original blue cloth, titles to spine gilt, housed in a custom folding case, cloth rubbed with wear at the corners and ends of spine, joints and ends of spine professionally conserved, otherwise very good; 468pp.

LEARNING FROM THE GREAT EXPLAINER

104. [FEYNMAN, RICHARD]; NEWBURN, RAY L. Manuscript lecture notes for Physics 129, Advanced Mathematical Physics. *Pasadena, CA, Caltech, 1954-1955.*

£17,500 [ref: 114794]

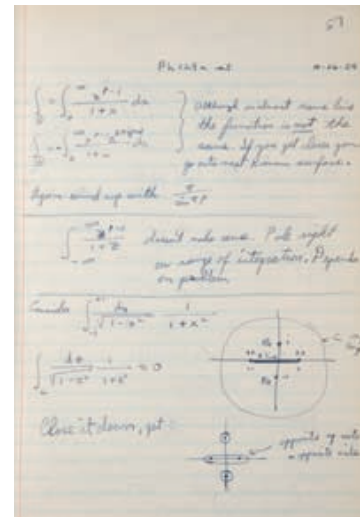
A rare, complete set of lecture notes made by prominent NASA scientist Ray L. Newburn (born 1933) when he was a student in Richard Feynman's advanced mathematical physics course at Caltech, only a few years after Feynman had joined the faculty and long before he was a celebrity.

While sets of formal mimeographed lecture notes from Feynman classes occasionally appear on the market (usually his 1951 course *High Energy Phenomena and Meson Theories*) manuscript notes made in real time during classes are much rarer; and we have only encountered one other example in the last fifteen years. The present set is comprehensive, neat, and very readable, and there is a delightful immediacy about Newburn's prose reactions to various topics. Also included are his returned homework and tests, graded and often snarkily annotated in red pencil by the TA. These notes offer a unique opportunity to study Feynman's teaching methods and the student response to them, as well as the wider history of high-level physics education in America.

Following the conclusion of the Manhattan Project in 1945, Feynman worked as a professor at Cornell but quickly became restless, unsatisfied with the school's scientific culture and overshadowed by Hans Bethe. So in 1949 he readily accepted a position offered by Robert Bacher, Caltech's new head of physics. Feynman would spend the rest of his career there, and the university became intimately tied to his growing legend. It was at Caltech that he presented the revolutionary *Lectures in Physics*, published in 1964. That series completely reinvisioned the way that physics was taught to undergraduates, incorporating the cutting-edge science that Feynman had participated in, and it would therefore be worthwhile to investigate differences between material presented in both the *Lectures* and the present course notes.

Ray L. Newburn earned his bachelor's and master's degrees in astronomy at Caltech in 1953 and 1954 and completed his PhD work in 1956. He then joined NASA's Jet Propulsion Laboratory 'for the summer' and stayed for the rest of his career, retiring in 1999 but maintaining his connections to the laboratory as a contractor. 'In his long tenure with JPL, he participated in the development of plans for lunar and planetary exploration', including the Mariner 2 and Cassini missions (STARDUST biography). Much of Newburn's career was focused on comets, including the Giotto and Vega missions to Halley's comet, and he was the Chief Environmental Modeler and head of the imaging team for the STARDUST mission, which was the first to return samples from a comet, and also the first to return samples of any kind from beyond the Moon's orbit. He was awarded the NASA Exceptional Service Medal and has an asteroid named in his honour.

Manuscript lecture notes and coursework, approximately 300 leaves, text on both sides, occasional mimeographed course material, contents faintly toned and a little rubbed along the edges; bound in contemporary brown pressboard binder with the compiler's title and ownership inscription on the upper cover, cover and first leaf of text professionally conserved and reattached to the text block by Bainbridge Conservation, corners of binder a little creased, very good condition.



THE RARE FIRST ACCOUNT OF THE MANHATTAN PROJECT, WITH SECRET PAGE

105. SMYTH, HENRY DeWOLF. A General Account of the Development of Methods of Using Atomic Energy for Military Purposes under the Auspices of the United States Government 1940-1945. Written at the request of Major General L. R. Groves United State Army. Publication authorised as of August 1945. [Washington D.C., Adjutant General's Office], 1945.

£4,500 [ref: 112920]

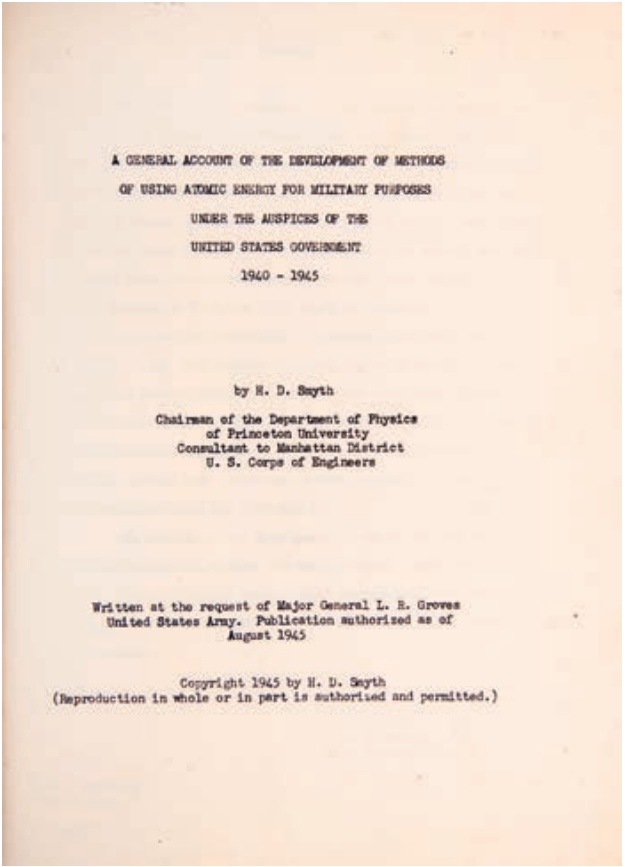
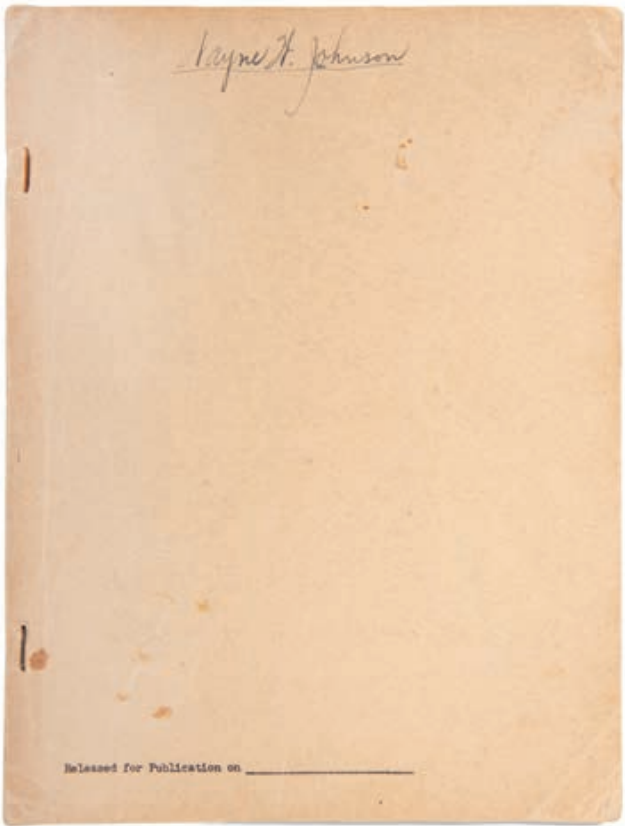
The rare lithoprint edition, the first obtainable edition of the official account of the development of the atomic bomb, with the full text on page VI-12, usually left blank to keep information on plutonium production rates secret. Because of the speed and security precautions under which the report was printed and bound, to be made public only six days after the bombing of Hiroshima, leaves are often missing or duplicated. In this case there is no text on page IX-10, and two leaves, VII-9/10 and VII-11/12, are duplicated.

This copy bears the ownership signature of Wayne W. Johnson, a personnel director of the Metallurgical Laboratory at the University of Chicago. The Metallurgical Laboratory was established in 1939 by Enrico Fermi and Leo Szilard, two of the prime movers of the Manhattan Project, in order to study the chemistry of plutonium, its chain reaction, and how it could be isolated in quantities large enough to produce a weapon.

'The Smyth Report', as this volume is more commonly known, was the official, unclassified narrative of the weapon's development, a 'remarkably full and candid account' intended for general release once the weapon's existence was made public (PMM 422). The first edition was a mimeographed version stamped secret, of which all copies save Smyth's were destroyed. The next was this lithoprint, published in an edition of only 1,000 copies that were distributed to Manhattan Project leaders and members of the press, followed by a Government Printing Office edition. The first trade edition was published in September 1945 by Princeton University. It remained on the *New York Times* best-seller list until January of the following year and would go through eight printings by 1973.

Provenance: Wayne W. Johnson (ownership signature).

First lithoprint edition; perfect bound; 2 full-page graphs, equations within the text, leaves VII-9/10 and VII-11/12 duplicated, a little creasing to the corners of the text block; wire-stitched in the original stiff, cream-coloured textured wrappers, 'released for publication on' printed on the upper wrapper, and housed in a custom brown morocco-backed folding case, ownership signature to upper wrapper, a few small spots and marks, light rubbing, and a little creasing of the wrappers, finet condition; 99 leaves. PMM 422; Coleman (The 'Smyth Report': A Descriptive Check List); Hook & Norman (The Norman Library of Science and Medicine), 1962.



ITEM 107

TECHNOLOGY & COMPUTING

BY THE INVENTOR OF THE KINETOSCOPE

106. [EDISON, THOMAS ALVA] DICKSON, W.K.L. & ANTONIA. The Life & Inventions of Thomas Alva Edison. With 200 Illustrations by W.K.L. Dickson, R.F. Outcalt, L. Bauhan, and J. Ricalton. London, Chatto & Windus, 1894.

£350 [ref: 115241]

First edition and a finely bound copy of this lavishly illustrated biography of Thomas Edison. The author was film pioneer William Kennedy Laurie Dickson (1860-1935) the man who, working under Edison at Menlo Park, invented the Kinetoscope, an early motion picture camera, and the Kinetograph motion picture camera.

First edition; large 8vo (27 x 18.5 cm); portrait frontispiece from photograph and monochrome illustrations throughout, a handful of leaves towards the rear unopened, endpapers spotted and occasional small spots to contents but overall clean; contemporary brown half morocco, spines gilt in compartments, marbled sides and endpapers, top edge gilt, binding a little rubbed and scuffed, a very good copy; 362pp.

RARE IN-HOUSE PUBLICATION

107. VICKERS AIRSHIP DRAWING OFFICE. The Tee-Square Magazine Christmas 1918 [and] Christmas 1919. Barrow-in-Furness, Vickers, Limited, 1918 & 1919.

£3,750 [ref: 114064]

A remarkable survival, two issues of a magazine created in-house by staff of the Vickers Airship Drawing Office at Barrow-in-Furness to celebrate Christmas 1918 and 1919. Charming, and appropriate for a technical drawing office, the contents have been reproduced entirely as mimeographs, technical drawings, and even a blueprint. Both issues are signed H.P. Joyce on the covers, though we have been unable to locate anyone by that name in historical records online. The issue for 1919 is described as the fourth annual effort, so there were at least four produced, though they are extremely rare. We can locate no copies in institutional holdings and these are the only two listed in auction records.

The contents of these magazines were submitted by staff, mainly identified by their initials, and they include poems and songs, short stories, satirical articles, fake advertisements, cartoons and caricatures. Most are related to airship work and refer to staff and office in-jokes, including 'memorials' to former colleagues, some seemingly real and others potentially comedic. Accomplished cartoons depict airships and planes with monstrous faces; one compares a manager's command of 'silence!' with the Treaty of Brest-Litovsk; and 'Other Gods' depicts a Greek god on a chariot in the clouds, with an airplane and an airship flying above.

There is a lengthy piece satirising scientific household management ('the only object of matrimony being to make money by cheapening the cost of living...'), and another gives the office 'house rules' ('Gentlemen entering this Office will please leave the door wide open. Draughtsmen who have no business will please call often, remain as long as possible, and take a chair and make themselves comfortable...'). The 1918 issue has a delightful puzzle page made in blueprint, with a chess conundrum and word games. Perhaps the most entertaining contents to non-initiates are the fake advertisements, one of which promotes radium facial hair removal. The bindings are likewise charming, handmade from blue paper with hand-coloured titles pasted on. The one for 1918 depicts a Red Cross nurse with two red highlights on her uniform, and the 1919 issue has a fully coloured-in scene of an airship floating over the Vickers Air Station.

The Vickers engineering company originated as a steel foundry in Sheffield in 1828, and over the course of the 19th century it expanded into shipbuilding and military hardware. In 1911 it began aircraft manufacturing, and in 1909 successfully tendered to construct Britain's first large rigid airship, after government concern about German Zeppelins. The Vickers Air Station at Barrow Docks was constructed for this purpose, and the illustration on the cover of the 1919 issue depicts 'the private railway station and the floating airship shed on the Cavendish Dock: this was unusual in the Barrow Dock complex in having no dock gates, so the only ship being able to enter it was an airship!' (Kender, 'R80 — The Last British Wartime Rigid Airship', *Dirigible, The Journal of the Airship Heritage Trust*, vol. XII, no. 2, 2001, p. 20).

The first ship manufactured was His Majesty's Airship No. 1, also known as 'Mayfly' because it was destroyed by high winds while being moved in preparation for its maiden flight. Next came the HMA No. 9r, the first British rigid airship to fly on completion in 1916. The third and final model was R.80, which was initially planned for the military but completed for civilian use but, not being suitable for either, was scrapped in 1925. The airship depicted on the cover of the 1919, though fictitious, is similar to R80, and may have been changed slightly to avoid breaching security (Kender).

Provenance: *H.P. Joyce, Vickers Drawing Office (inscriptions).*

2 hand-made, in-house staff magazines; mimeograph text, illustrations printed as technical drawings, two with hand-colouring, one chess diagram in blueprint, contents a little toned with occasional small marks and spots, mimeograph bleeding through onto opposite sides of leaves; perfect bound in original blue and green wire-stitched paper wrappers with illustrations pasted-on, that for 1918 with red watercolour highlights and that for 1919 in full watercolour, wrappers rubbed and a little worn, with splits, chips, and creasing at the edges, some dampstain, particularly on the lower covers, light rust stains, very good condition; 37 and 39 leaves.

REALISING BABBAGE & LOVELACE'S ANALYTICAL ENGINE

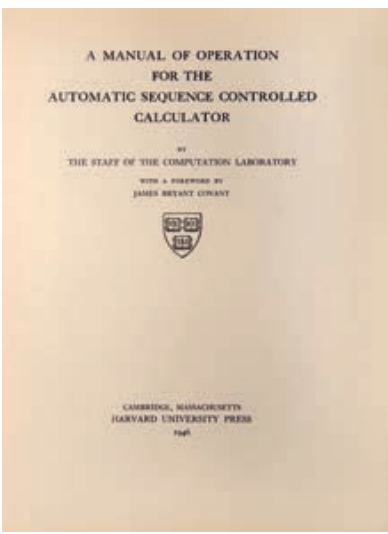
108. HOPPER, GRACE MURRAY; AIKEN, HOWARD. A Manual of Operation for the Automatic Sequence Controlled Calculator. Cambridge, MA, Harvard University Press, 1946.

£5,000 [ref: 113917]

First edition of the first computer manual, written for the Harvard Mark I. One of the earliest general-purpose electromechanical computers, the Mark I 'brought Babbage's principles of the analytical engine almost to full realization, while adding important new features' (IBM's ASCC Introduction 2, IBM website via the Wayback Machine). Significant portions of this manual were composed by computer science pioneer Grace Murray Hopper (1906-1992), who was 'the chief author of chapters 1-3 and the eight appendices following chapter 6. Chapters 4 and 5 were written by Aiken and Robert Campbell, and chapter 6, containing directions for solving sample problems on the machine, was primarily the work of Brooks J. Lockhart' (Hook & Norman, History of Information website).

Interestingly, the present copy contains pencilled editorial notes in chapter 1, typically shortening and simplifying sentences as if for a new edition or perhaps a separate publication or talk. Though at first glance the hand looks similar to Hopper's, careful comparison with a technical manuscript produced during the same period does not seem to indicate a match ('Formulas and coding for problem G on the Mark I', Grace Murray Hopper Collection, Smithsonian National Museum of American History). The corrections also do not match the final text of Aiken and Hopper's article on the Mark I in *Electrical Engineering* 65, also published in 1946. Additionally, there are calculations on a scrap of lined paper loosely inserted between pages 292 and 293, but these not not match her hand, either. We have been unable to locate sufficient examples of Aiken's handwriting to determine whether he was the editor.

The Mark I was first proposed in 1937 by Harvard professor of applied mathematics Howard Aiken (1900-1973), whose background was in both electrical engineering and physics, and who hoped to use electronic calculating machines to solve complex scientific problems. Initially designated the Automatic Sequence Controlled Calculator, it was funded by the U.S. Navy and IBM, built by IBM at Endicott, New York, and delivered to Harvard in early 1944. The Mark I was used immediately by the Manhattan Project's John von Neumann to make calculations related to the implosion of the first atomic bomb.



First edition; 4to; 9 plates from photographs of which 8 are double-sided, pencilled editorial notes to chapter 1, light tanning from a loose partial sheet of equations inserted between pages 292 and 293, contents faintly toned; original blue cloth, title to spine gilt, cloth rubbed and marked with scattered loss of size, particularly along the spine, faint ring mark to the upper board, small worn areas at the extremities, very good condition; 561 pp. Hook & Norman (*Origins of Cyberspace*), 411.

Grace Murray Hopper came to the project as a naval reservist after earning her PhD in mathematics at Yale and teaching at Vassar for thirteen years. She was one of the first three programmers of the Mark I and made enormous contributions to the project, for which she received the Naval Ordnance Development Award (Mitchell, *The Contributions of Grace Murray Hopper*, University of North Texas PhD Dissertation, 1994). 'In 1946 Aiken and Grace Hopper published *A Manual of Operation for the Automatic Sequence Controlled Calculator*. The instruction sequences scattered throughout this volume on the Harvard Mark I were among the earliest published examples of digital computer programs. Aiken saw himself as Babbage's intellectual successor, and in an excellent historical introduction to this technical manual he and Hopper placed the Harvard Mark I in its historical context' (Hook & Norman).

'[The Harvard Mark I] manual was a milepost that marked the state of the art of machine computation at one of its critical places: where, for the first time, machines could automatically evaluate arbitrary sequences of arithmetic operations. Most of this volume (pp. 98-337, 406-557) consists of descriptions of the Mark I's components, its architecture, and operational codes for directing it to solve typical problems.... The *Manual* is one of the first places where sequences of arithmetic operations for the solution of numeric problems by machine were explicitly spelled out. It is furthermore the first extended analysis of what is now known as computer programming since Charles Babbage's and Lady Lovelace's writings a century earlier. The instruction sequences, which one finds scattered throughout this volume, are thus among the earliest examples anywhere of digital computer programs' (Ceruzzi 1985, xv-xvii). The Mark I was obsolete almost as soon as it was delivered, and Aiken and his team would go on to design and build three additional machines. He 'directed research in switching theory, data processing, and computing components and circuits' and 'initiated one of the earliest graduate programs in computer science at Harvard University: fifteen doctoral degrees and many master's degrees were earned under his supervision... Scientists across the world were welcomed into his laboratory, and he did much to stimulate interest in computers in Europe' (IEEE Computer Society biography).

Hopper remained at Harvard through 1949 to work on the Mark II and III, but had to leave when her three-year term as research fellow ended because permanent positions were not available to women. She joined the Eckert-Mauchly Computer Corporation as a senior mathematician on the development of the UNIVAC I and II. It was there that she 'pioneered the idea of automatic programming and explored new ways to use the computer to code. In 1952 Hopper developed the first compiler called A-0, which translated mathematical code into machine-readable code—an important step toward creating modern programming languages' (Biography, Office of the President of Yale University). Beginning in the early 1950s she pushed for language-based programming, which at the time was believed to be infeasible. Her creation of a word-based compiler and programming language, FLOWMATIC, made computers more accessible, and in 1959 she was a leading participant in the development of COBOL, the Common Business-Oriented Language that could be used across industries. 'By the 1970s, COBOL was the "most extensively used computer language" in the world' (Yale).

Hopper is one of the most recognised women in the history of science and technology. In addition to more than forty honorary degrees, she was the first woman to receive the National Medal of Technology as an individual; the first woman and first American to become a Distinguished Fellow of the British Computer Society; and was posthumously awarded the National Medal of Freedom, the highest civilian award in the United States.



CANADA'S GRACE HOPPER

109. WORSLEY, BEATRICE & HUME, J.N.P. *Transcode Manual. A system of automatic programming for FERUT, the Ferranti Mark I electronic digital computer at the University of Toronto.* Toronto, Computation Centre, University of Toronto, October, 1955.

£4,500 [ref: 114270]

First edition of the only separately published work by computing pioneer Beatrice Worsley (1921-2003) and the founding document of Canadian computer science: the manual for using Worsley's Transcode system for the Feranti Mark I. Rare; we can locate only one other copy, at the University of Toronto, where the text was prepared. This copy is from the library of Queens University, Kingston, Ontario, where Worsley spent the final part of her career.

As a student Worsley excelled at science and earned her undergraduate degree in mathematics and physics at the University of Toronto. Immediately after graduating in 1944 she enlisted in the Women's Royal Canadian Naval Service, working on ship degaussing and hull corrosion. In 1946 Worsley began graduate studies at MIT, writing an important master's thesis, *A Mathematical Survey of Computing Devices*, 'a fascinating snapshot of contemporary computing technology' (Campbell, Beatrice Helen Worsley: Canada's Computing Pioneer, IEEE Annals of the History of Computing, 2003).

Worsley became firmly committed to computing as a career, and in 1948 she joined the new University of Toronto Computation Centre. She was sent to Cambridge to study the new EDSAC, arriving with a colleague to find it 'in a fairly advanced state of construction, and though neither had an engineering background, both helped prepare it for the first run on 6 May 1949' (Campbell). Her report on the initial results was later published in the important 1975 volume *The Origins of Digital Computers*.

In Cambridge Worsley resumed her graduate studies under Douglas Hartree, and her PhD dissertation, *Serial Programming for Real and Idealised Digital Calculating Machines*, is believed to be the very first involving modern computers. 'By the time Worsley finished her assignment at Cambridge she was one of the most computer-literate women in the world, with practical and theoretical expertise that few could have matched. She was one of the first female academic computer programmers who wrote all her own programs, a point she strongly emphasised in her dissertation' (Campbell).

At around the time Worsley returned to Toronto the Computation centre was installing its first computer; a Ferranti Mark I which she named the Ferut. It proved difficult to program, particularly for scientists with limited computer experience, and Worsley and a colleague were assigned to create an automatic coding system for it. They dubbed their project Transcode and finished writing the compiler within about a year. Transcode was an immediate success. Basic lessons could be taught in two hours, and the calculations could be returned to users in a matter of days, not weeks' (Campbell). One important feature was the ability to input numbers as decimals rather than binary code. The present publication was written as a manual specifically 'for scientists, engineers, and others in Canada to make available to them the use of FERUT... With its aid one can write programs for computations by the machine without having to learn the many intricacies that must be mastered by the professional programmer' (preface).

Despite Worsley's expertise, track record, and core role in the Computing Centre she was not promoted to assistant professor until 1960. 'In comparison to other staff members, the lack of official recognition is conspicuous and is almost certainly because of her gender' (Campbell). In 1965 she left Toronto for Queen's University in Ontario to launch a new Computing Centre and teach undergraduate classes, and this copy of the manual was originally in the Queens University Library. Worsley died unexpectedly during a research sabbatical at age 50 and 'left a fascinating career. Her natural appreciation for what computers were capable of doing was reflected in a lifelong interest in the development of computer libraries and scientific computation. A skilled mathematician and unquestionably Canada's first female computer scientist, she found a successful calling in a profession dominated by men' (Campbell).



Provenance: Queen's University Library, Kingston, Ontario (bookplate); R.M. Chisholm (ownership signature).

First edition; 4to; frontispiece & 4 plates, folding appendix, small illustrations and equations within the text, some light pencilled equations and notes, contents faintly toned; original blue wire-stitched wrappers printed in black; shelf number in black ink to the upper wrapper, bookplate with withdrawn stamps of Queen's University, Ontario, library pocket and bar code on the inside of the rear cover, wrappers lightly rubbed with some creasing, toning, and a few spots at the corners and edges, very good condition; 58pp.

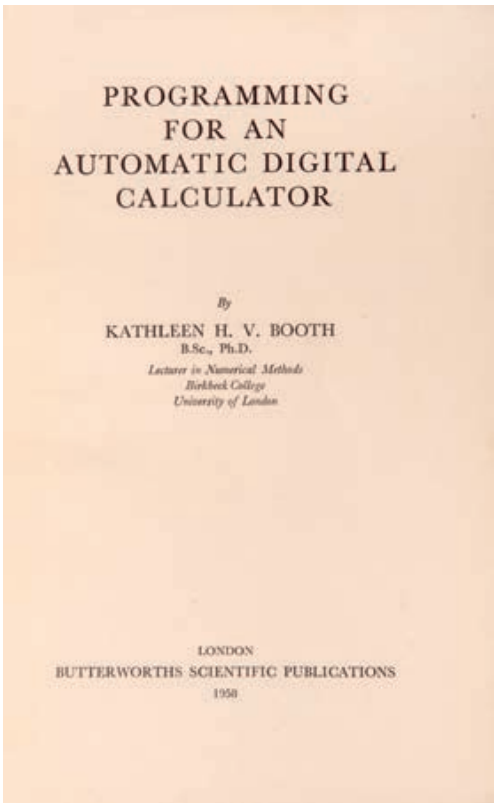
AUTHOR OF THE FIRST ASSEMBLY LANGUAGE & NEURAL NET PIONEER

110. BOOTH, KATHLEEN. *Programming for an Automatic Digital Calculator.* London, Butterworth Scientific Publications, 1958.

£1,250 [ref: 114271]

First edition of one of the first conventionally published programming books, written by computing and AI pioneer Kathleen Booth (1922-2022).

Booth studied mathematics at Royal Holloway, University of London, and then worked on aerodynamics at the Royal Aircraft Establishment, Farnborough. Between 1942 and 1962 Booth worked at Birkbeck College as part of one of the smallest British computer groups of the time.



The team created the ARC (Automatic Relay Computer), the SEC (Simple Electronic Computer), and the APE(X) C (All-purpose Electronic (Rayon) Computer), remarkable achievements given the size of the team and the resources it had access to. Kathleen's husband, Andrew Booth, often built the machines and Kathleen programmed them. After returning from a visit to the United States in 1947 where Kathleen and Andrew met John von Neumann, she wrote a paper detailing changes to the ARC using von Neumann architecture, to create the ARC2. She is credited with writing the first assembly language.

In 1957, Kathleen co-founded the School of Computer Science and Information Systems at Birkbeck College and in 1958 published a book on programming the APE(X), notable for being one of the earliest books on programming and highly unusual in having a female author' (Centre for Computing History biography). In 1962, following Birkbeck's refusal to endow a chair in computer science, the Booths left for Canada, 'where Kathleen undertook research on machine translation and neural networks. She also became an advocate for women in science and engineering' and the couple founded a consultancy, Autonetics Research Associates (*Guardian* obituary). Booth continued working into her 70s, publishing her final paper 'Using neural nets to identify marine mammals' in 1993.

First edition; 8vo; equations, tables, and diagrams within the text, publisher's ink stamp to the rear pastedown, a little light spotting to the edges of the text block and the endpapers; original green cloth, titles to spine gilt, spine rolled, corners bumped, spine titles dulled, a few small spots and marks to the cloth; very good condition; 238pp.

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