

Catalogue 83:
*For the 56th California International
Antiquarian Book Fair*

- **Artificial Intelligence**
- **Bibliography; History of Printing & Publishing**
 - **Bindings**
- **Early Humanism & Classical Studies**
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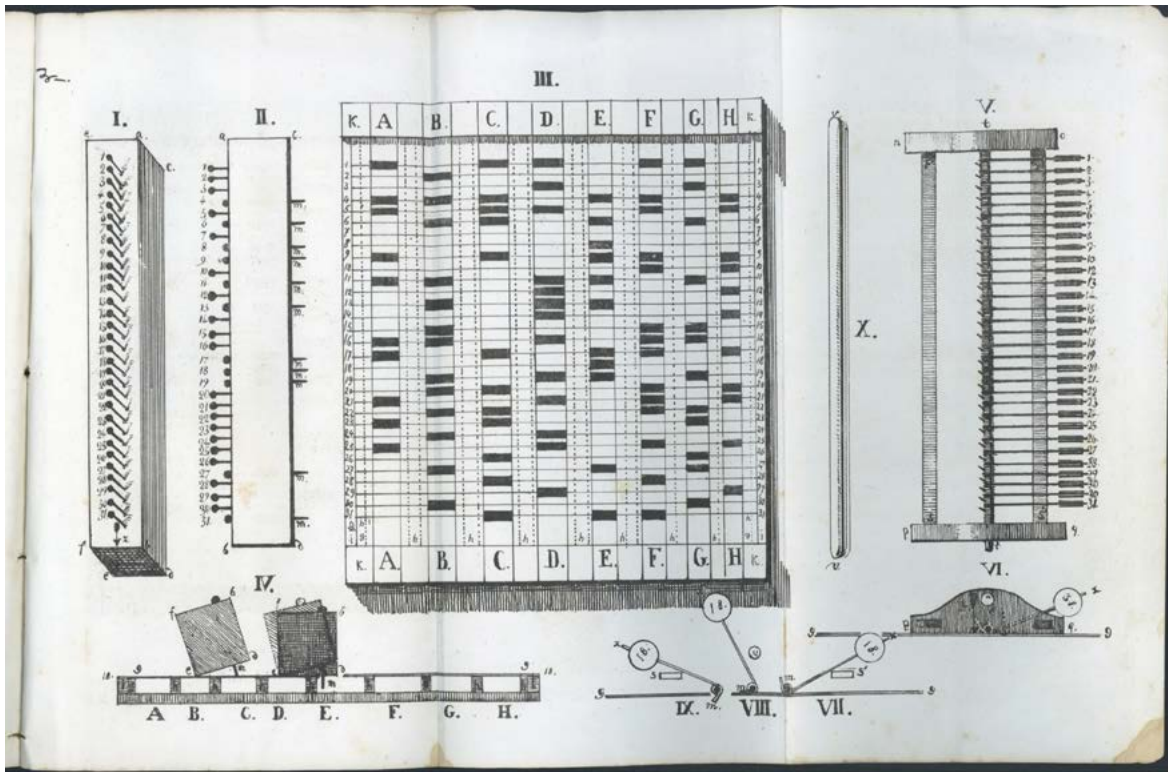
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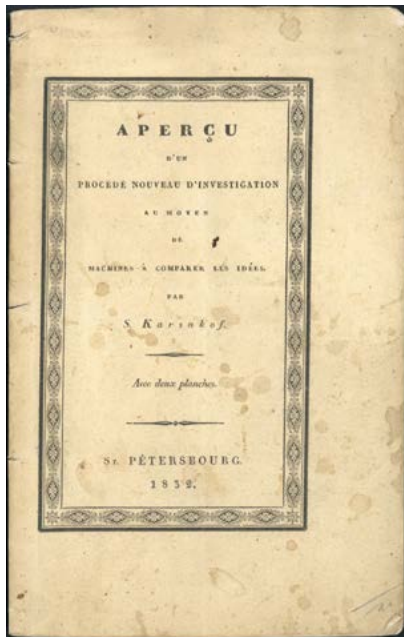
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Artificial Intelligence



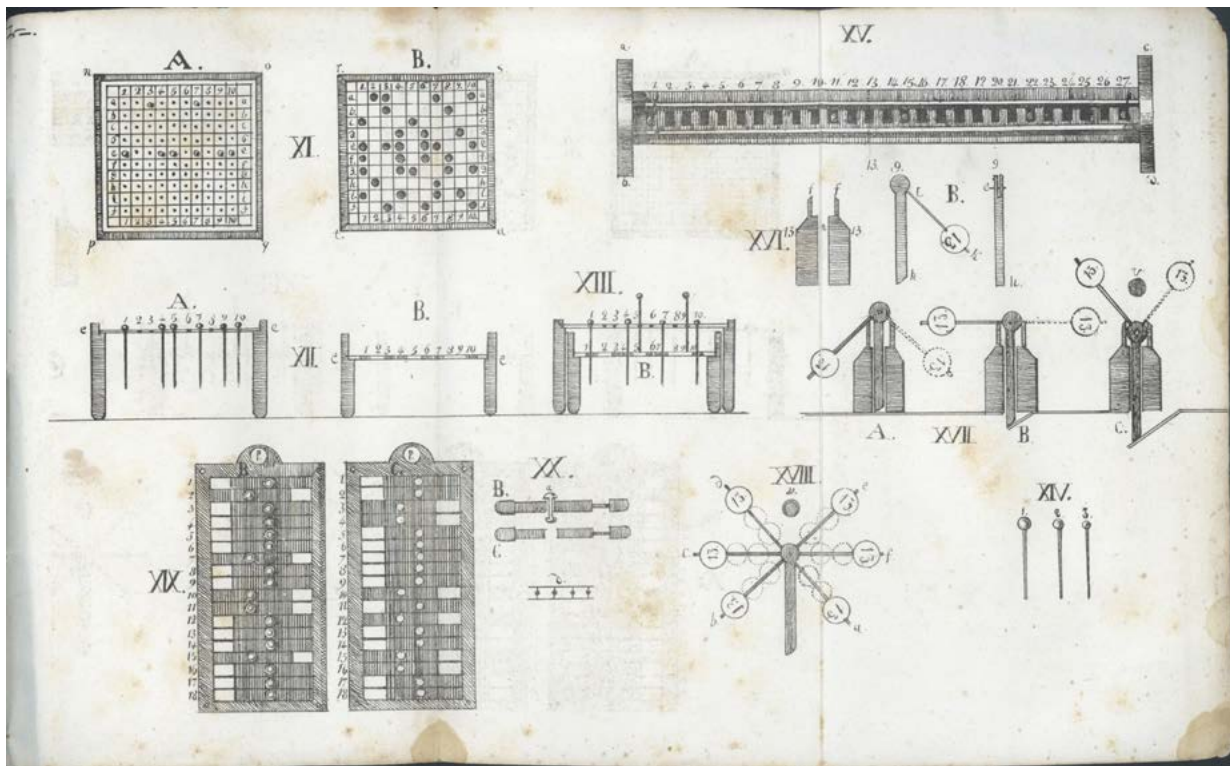
First Step Toward Artificial Intelligence; First Use of Punched-Card Technology to Store Information

1. Korsakov, Semyon Nikolaievich (1787-1853). *Aperçu d'un procédé nouveau d'investigation au moyen de machines à comparer les idées.* [2], 22pp. 2 folding plates. St. Petersburg: De l'imprimerie de la III-me section de la chancellerie privée de Sa Majesté Impériale, 1832. 213 x 135 mm. Original printed wrappers, vertically creased, some spotting. Minor foxing and dampstaining, but very good. \$35,000



First Edition, Extremely Rare, with no copies cited in North American or European libraries in OCLC and no auction records in Rare Book Hub. Korsakov, a statistician with the Russian Police Ministry in St. Petersburg, was a pioneer in the concept of “mechanized thought,” or artificial intelligence. His “machines for comparing ideas,” described and illustrated in the present pamphlet, can “be considered as the very first attempt to design a mechanical device capable to perform such intellectual operations as data analysis, comparison, and selection” (Shilov and Silantiev, p. 71).

While working in the statistics department of the Police Ministry, Korsakov became intrigued with the possibility of using machinery to ‘enhance natural intelligence.’ To this end, he devised several devices which he called ‘machines for the comparison of ideas.’ These included the ‘linear homeoscope with movable parts,’ the ‘linear homeoscope without movable parts,’ the



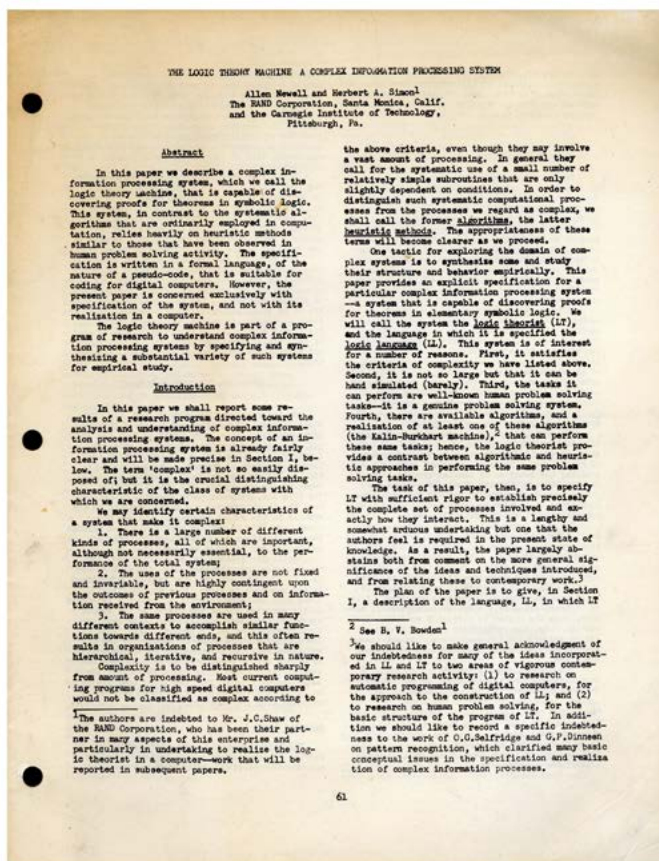
‘flat homeoscope,’ the ‘ideoscope,’ and the ‘simple comparator.’ The purpose of the devices was primarily to facilitate the search for information, stored in the form of punched cards or similar media (for example, wooden boards with perforations). Korsakov announced his new method in September 1832, and rather than seeking patents offered the machines for public use.

The punch card had been introduced in 1805, but until that time had been used solely in the textile industry to control looms. Korsakov was reputedly the first to use the cards for information storage (“Semyon Korsakov.” Revolv, www.revolv.com/page/Semyon-Korsakov [accessed 1/2/19]).

Korsakov’s work in this area has remained largely unstudied until fairly recently. Shilov and Silantiev, “‘Machines à comparer les idées’ of Semen Korsakov: First step towards AI,” in Tatnall and Leslie, eds., *International Communities of Invention and Innovation* (Cham: Springer-Verlag, 2016), pp. 71-86). 44771

“The First Heuristic Program Fully Realized on a Computer, the First Foray by Artificial Intelligence Research into High-Order Intellectual Processes”

2. **Newell, Allen** (1927-92); **Herbert Simon** (1916-2001). The logic theory machine: A complex information processing system. Reproduced typescript. Offprint from *IRE Transactions on Information Theory* IT-2 (September 1956). 61-79pp. 278 x 218 mm. Without wrappers as issued. Punched for a 3-ring binder. Boxed. Light toning, slight edgewear and creasing, but very good. \$20,000



One tactic for exploring the domain of complex systems is to synthesize some and study their structure and behavior empirically. This paper provides an explicit specification for a particular complex information processing system—a system that is capable of discovering proofs for theorems in elementary symbolic logic. We will call the system the logic theorist (LT), and the language in which it is specified the logic language (LL). This system is of interest for a number of reasons. First, it satisfies the criteria of complexity we have listed above. Second, it is not so large but that it can be hand simulated (barely). Third, the tasks it can perform are well-known human problem solving tasks—it is a genuine problem solving system. Fourth, there are available algorithms, and a realization of at least one of these algorithms (the Falkin-Burkert machine), that can perform these same tasks; hence, the logic theorist provides a contrast between algorithmic and heuristic approaches in performing the same problem solving tasks. The task of this paper, then, is to specify LT with sufficient rigor to establish precisely the complete set of processes involved and exactly how they interact. This is a lengthy and somewhat arduous undertaking but one that the authors feel is required in the present state of knowledge. As a result, the paper largely abstains both from comment on the more general significance of the ideas and techniques introduced, and from relating these to contemporary work. The plan of the paper is to give, in Section I, a description of the language, LL, in which LT

First Edition, Offprint Issue. *Extremely rare.* During 1955 and 1956 computer scientist and cognitive psychologist Allen Newell, political scientist, economist and sociologist Herbert A. Simon and systems programmer John Clifford Shaw, all working at the Rand Corporation in Santa Monica, California, developed the Logic Theorist, the first program deliberately engineered to mimic the problem-solving skills of a human being. They decided to write a program that could prove theorems in the propositional calculus like those in *Principia Mathematica* by Alfred North Whitehead and Bertrand Russell. As Simon later wrote, “LT was based on the system of *Principia mathematica*, largely because a copy of that work happened to sit in my bookshelf. There was no intention of making a contribution to symbolic logic, and the system of

Principia was sufficiently outmoded by that time as to be inappropriate for that purpose. For us, the important consideration was not the precise task, but its suitability for demonstrating that a computer could discover problem solutions in a complex nonnumerical domain by heuristic search that used humanoid heuristics” (Simon, “Allen Newell: 1927-1992,” *Annals of the History of Computing* 20 [1998]: 68).

The collaborators wrote the first version of the program by hand on 3 x 5-inch cards. As Simon recalled:

In January 1956, we assembled my wife and three children together with some graduate students. To each member of the group, we gave one of the cards, so that each one became, in effect, a component of the computer program . . . Here was nature imitating art imitating nature (quoted in the Wikipedia article on Logic Theorist).

The team showed that the program could prove theorems as well as a talented mathematician. Eventually Shaw was able to run the program on the computer at RAND’s Santa Monica facility. It proved 38 of the first 52 theorems in *Principia Mathematica*. For Theorem 2.85 the *Logic Theorist* surpassed its inventors’ expectations by finding a new and better proof. This was the “the first foray by artificial intelligence research into high-order intellectual processes” (Feigenbaum and Feldman, *Computers and Thought* [1963]).

Newell and Simon first described the Logic Theorist in Rand Corporation report P-868 issued on June 15, 1956, entitled *The Logic Theory Machine. A Complex Information Processing System*. As far as we know, no copy of that report has ever appeared in commerce. The report was first officially published in September, 1956 under the same title in *IRE Transactions on Information Theory* IT-2, 61-79. Newell and Simon demonstrated the program at the Dartmouth Summer Session on Artificial Intelligence (August-September 1956) in which AI was formally named Artificial Intelligence. *Origins of Cyberspace* 815 (journal issue) 45290

The First Technical Paper on Computer Chess

3. Shannon, Claude E. (1916-2001). Programming a computer for playing chess. Offprint from *Philosophical Magazine*, ser. 7, 41 (1950). 256-275pp. 253 x 173 mm. Original printed self-wrappers. Light toning, a few faint smudges but very good. From Shannon's library, with letter attesting to the provenance. \$10,000

First Edition, Offprint Issue of the first technical paper on computer chess. "Shannon pioneered computer chess as we know it today, and his ideas have been employed in almost every chess program ever written" (Levy, p. 1). Shannon's paper was first presented at the National IRE Convention on 9 March 1949; he submitted it to the *Philosophical Magazine* in November 1949, which published the paper in the March 1950 issue. The offprint has the misspelling "computer" on the front wrapper; the word is spelled correctly on the paper's first page.

In their paper on "Chess-playing programs and the problem of complexity," (1958) Newell, Shaw and Simon had this to say about Shannon's paper:

The relevant history [of chess-playing programs] begins with a paper by Claude Shannon in 1949. He did not present a particular chess program, but discussed many of the basic problems involved. The framework he introduced has guided most of the subsequent analysis of the problem . . .

The basic framework introduced by Shannon for thinking about chess problems consists of a series of questions:

1. Alternatives

Which alternative moves are to be considered?

2. Analysis

a. Which continuations are to be explored and to what depth?

b. How are positions to be evaluated strategically—in terms of their patterns?

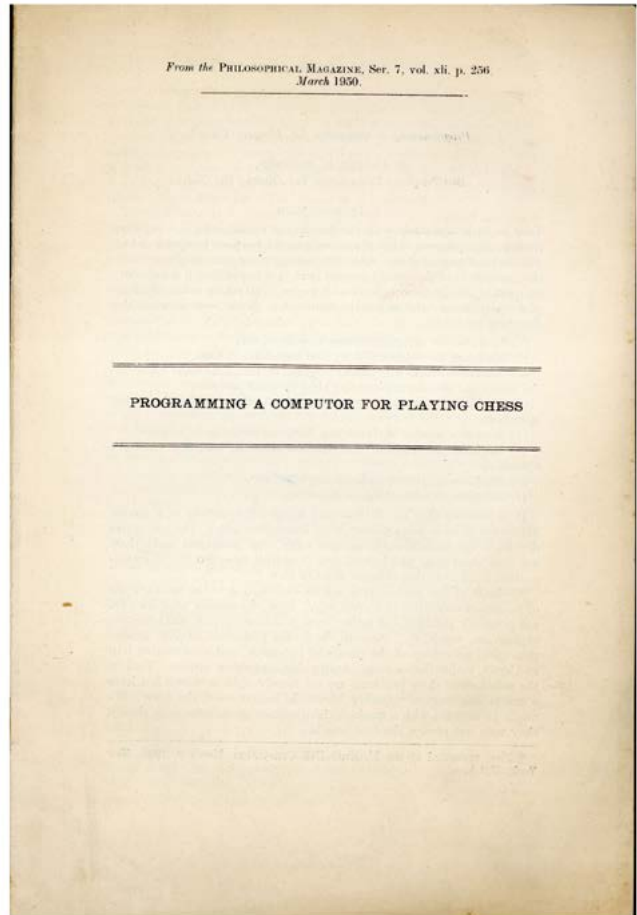
c. How are the static evaluations to be integrated into a single value for an alternative?

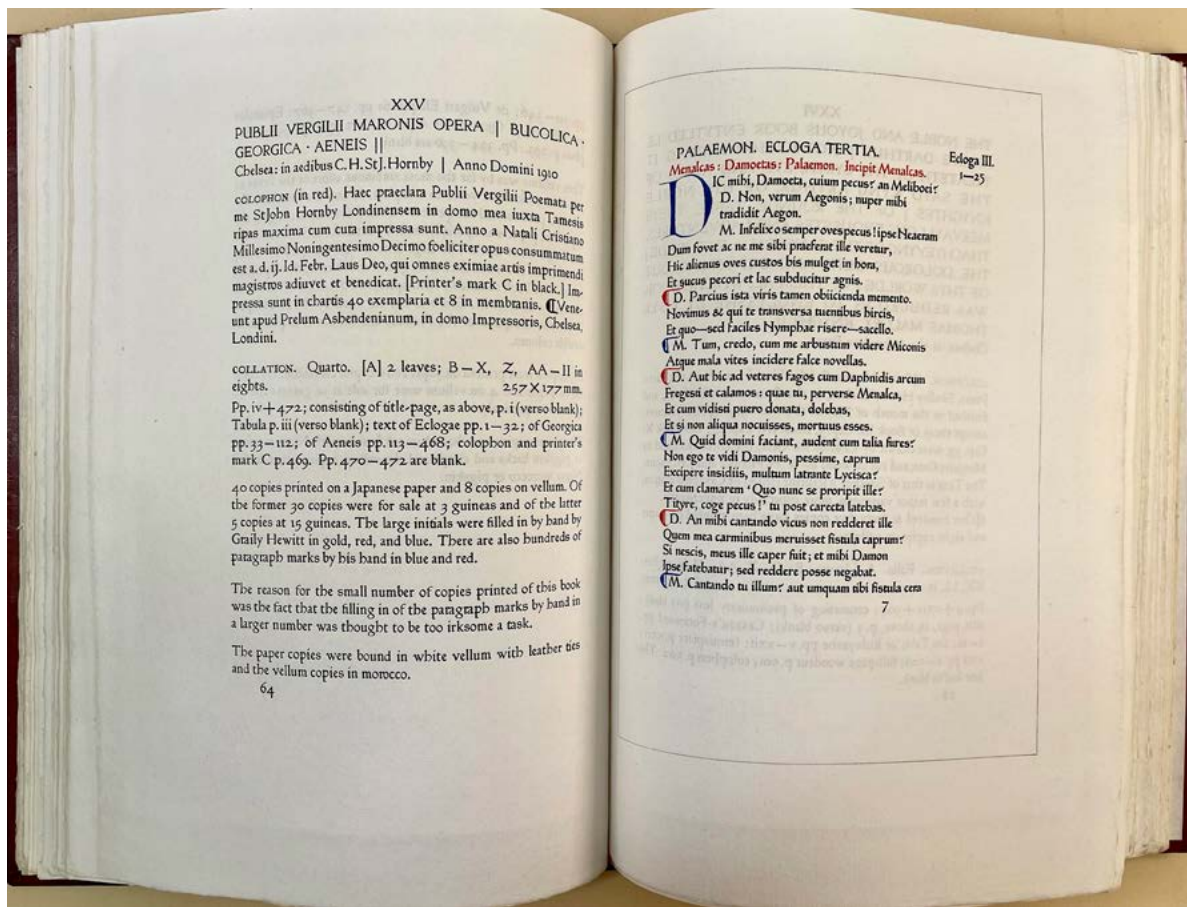
3. Final choice procedure

What procedure is to be used to select the final preferred move?

We would hazard that Shannon's paper is chiefly remembered for the specific answers he proposed to these questions: consider all alternatives; search all continuations to fixed depth, n ; evaluate with a numerical sum; minimax to get the effective value for an alternative; and then pick the best one (Newell and Simon, pp. 42–44).

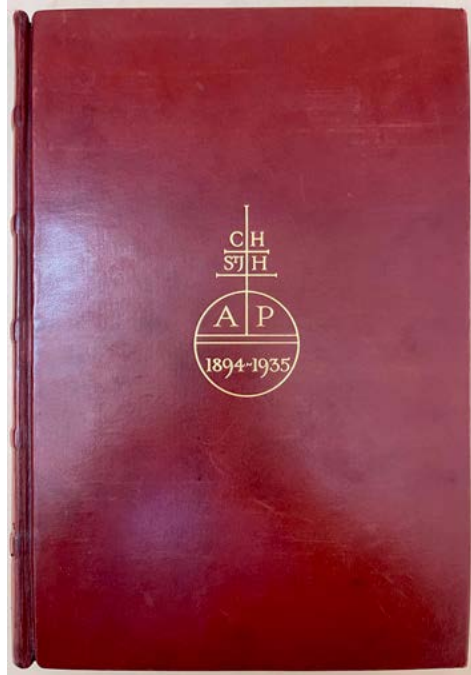
Newell and Simon, "Chess-playing programs and the problem of complexity" [1958], reprinted in Feigenbaum, E. A. and Feldman, J., *Computers and Thought* (New York: McGraw-Hill, 1963): 39–70. *Origins of Cyber-space* 882. Sloane and Wyner, *Claude Elwood Shannon: Collected Papers*, no. 54. 46526





Bibliography; History of Printing & Publishing

4. [Ashendene Press.] **Hornby, Charles Harold St. John** (1867-1946). A descriptive bibliography of the books printed at the Ashendene Press MDCCLXCV – MCMXXXV. [8], 172pp., plus errata slip. 18 plates (including specimen leaves), wood-engraved portrait, text woodcuts. Shelley House, Chelsea: [Ashendene Press,] 1935. 334 x 230 mm. Original full calf, top edges gilt, gilt-tooled spine and front cover by the W. H. Smith bindery, slight edgewear; in the original marbled board slipcase (some wear, portion of marbled paper torn from base). No. 348 of 390 copies, printed on Batchelor Ashendene “knight in armour” paper and signed by the author. Near fine. \$3000

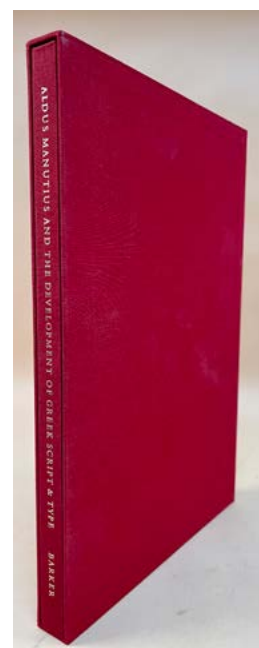
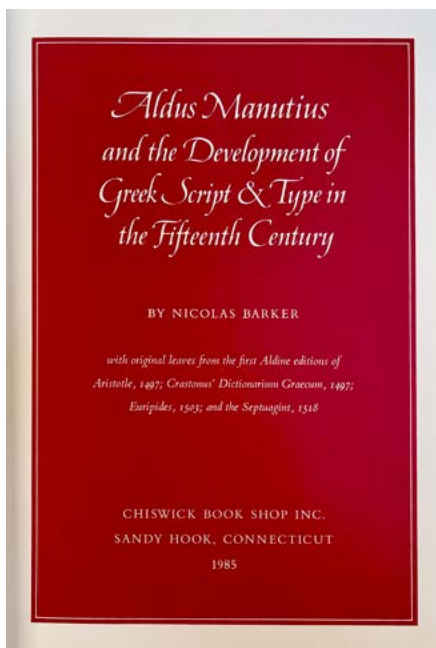


First Edition of the Ashendene Press’s final book, and one of the most decorative works by the Press in its own right. Printed in black, red and blue in the Press’s Ptolemy type, lavishly illustrated throughout with plates and sample leaves from the books, specimens of initial letters and a series of plates on japon of photographs of bindings (mainly by W. H. Smith) commissioned for Ashendene Press works. 41131

5. Barker, Nicolas (1932-). Aldus Manutius and the development of Greek script & type in the fifteenth century . . . with original leaves from the first Aldine editions of Aristotle, 1497; Crastonius's *Dictionarium graecum*, 1497; Euripides, 1503; and the Septuagint, 1518. xiv, 115pp. 4 plates facing each of the inserted Aldine leaves; text illustrations. Sandy Hook, CT: Chiswick Book Shop, 1985. 331 x 230 mm. Original red gilt-stamped cloth, slipcase. Fine. One of 200 copies printed.

\$1250

First Edition. A particularly fine example of this beautifully produced leaf book, with the leaf from the *Septuagint* bearing extensive early manuscript notes in Greek in the margins. Nicolas Barker's scholarly study includes chapters on "Robert Proctor's View"; "Greek Exiles in the West"; "Greek Types before Aldus and their Sources"; "The Aldine Greeks"; "The Technique of Typefounding"; and "The Achievement of Aldus." Designed by Stephen Harvard; printed and bound by Meriden-Stinehour Press. 41113

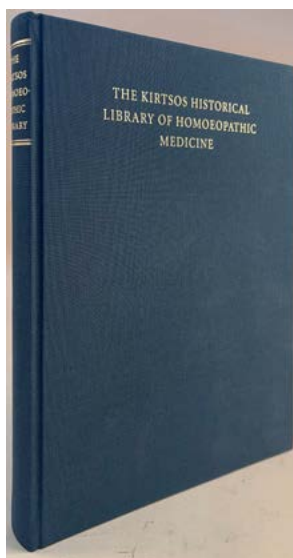
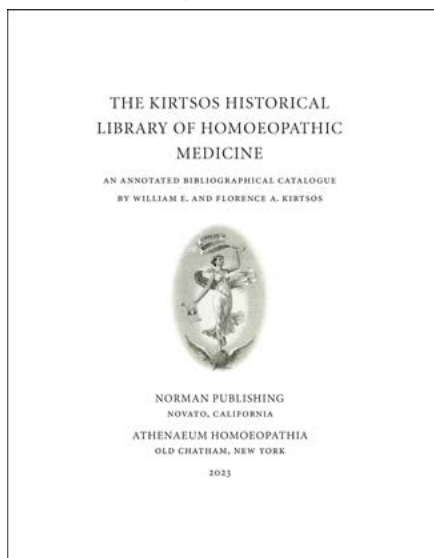


6. Hook, Diana H.; Jeremy M. Norman. The Haskell F. Norman library of science and medicine. Limited to 465 copies. 2 vols. lxxvii, 1005pp. 34 color plates & 396 black-&-white text illustrations. Cloth. ISBN 0-930405-17-X. 1991. \$750

The first bibliographical catalogue to offer complete annotated descriptions, with full collations, paginations, and plate counts for the first editions of the great classics of science and medicine from the fifteenth to the twentieth centuries. More than six years in the writing, this catalogue provides the most authoritative descriptions of the 2,595 works collected by Haskell F. Norman over four decades. Special attention has been paid to bibliographical variants and states, to association and presentation copies, and to bindings. There are comprehensive indexes to authors, subjects, artists, binders and provenance. 15990



7. Kirtsos, Willam E. and Florence A. The Kirtsos historical library of homoeopathic medicine: An annotated bibliographical catalogue. xxiii, 323pp. Cloth, acid-free paper. 11 x 8.5 inches. Indexed. ISBN 978-0-930405-92-2. \$375

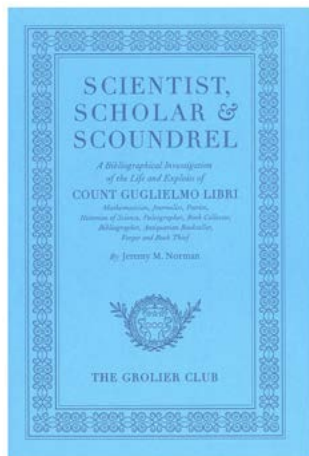


The Kirtsos historical library of homoeopathic medicine: An annotated bibliographical catalogue. xxiii, 323pp. Cloth, acid-free paper. 11 x 8.5 inches. Indexed. ISBN 978-0-930405-92-2. \$375

The Kirtsos Library of Homoeopathic Medicine describes the world's finest private historical library on the history of homeopathy, containing over four thousand rare books, periodicals, letters, manuscripts, ephemera and artifacts dating from the 18th to the mid-20th century, described in 2200 catalogue entries. Designed by noted book designer Jerry Kelly, set in Minion type and extensively illustrated in color, the finely printed catalogue contains 2200 annotated bibliographical listings interspersed with biographical sketches of 46 notable 19th- and

20th-century homeopathic physicians. Also included are a subject index; an index to periodicals, transactions and proceedings; a provenance index; and an index of inscribed copies. 51629

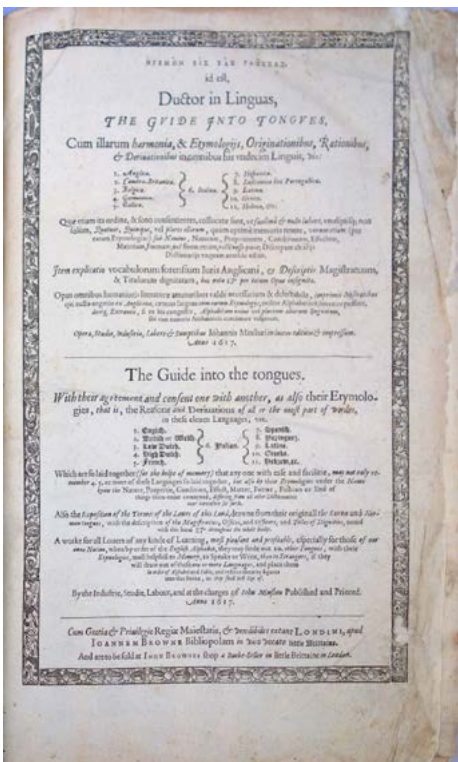
8. Norman, Jeremy M. Scientist, scholar & scoundrel: A bibliographical investigation of the life and exploits of Count Guglielmo Libri, 176pp. Illustrated. 9 x 6 inches. Soft cover, acid-free paper. ISBN 978-1-60583-041-4. \$35.00



First Edition. A bio-bibliographical account of the life and exploits of the notorious Count Guglielmo Libri (1802-69), mathematician, journalist, patriot, historian of science, paleographer, book collector, bibliographer, antiquarian book-seller, forger and book thief. The work includes an annotated timeline and various essays which place Libri's life and works and the "Libri Affair" in context. Finely designed by Jerry Kelly and printed on Mohawk paper. Includes an index of personal names. Published by The Grolier Club in connection with an exhibition held at the Grolier Club from March 14 - May 24, 2013. 42810

*First Book Published by Advance Subscription—
With the Very Rare List of Subscribers Laid In*

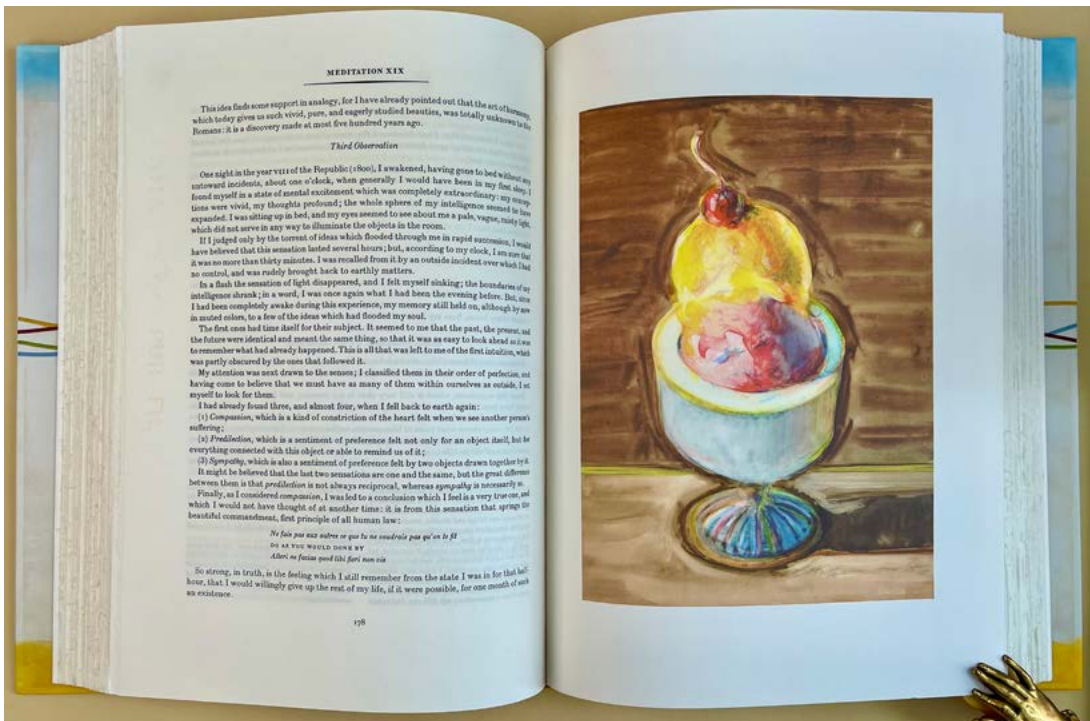
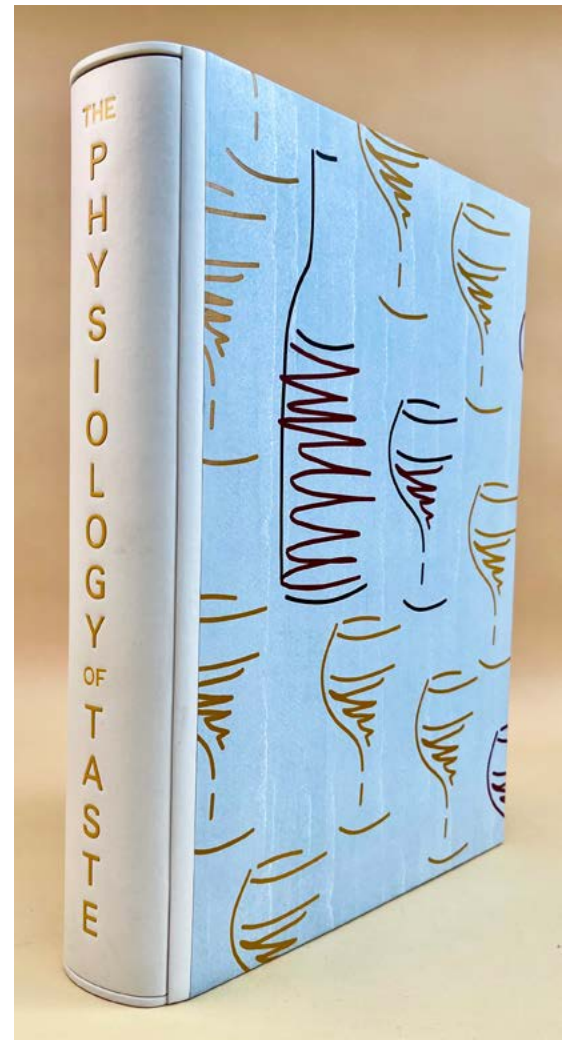
9. Minsheu, John (1560-1627). Hegemon eis tas glossas [in Greek], id est, ductor in linguas, the guide into tongues . . . [16], 543, [193]pp.; separate subscription leaf ("A catalogue and true note of the names of such persons . . .") laid in. London: John Brown, 1617. 400 x 257 mm. Calf ca. 1617, British royal coat of arms stamped in gilt on both covers, moderate wear. Marginal repair to a few leaves, margins of first and last leaves a bit frayed, occasional dampstaining, subscription leaf with some soiling and marginal fraying and one small repair, but very good. Engraved armorial bookplate of Thomas Stapleton; modern bookplate. \$7500

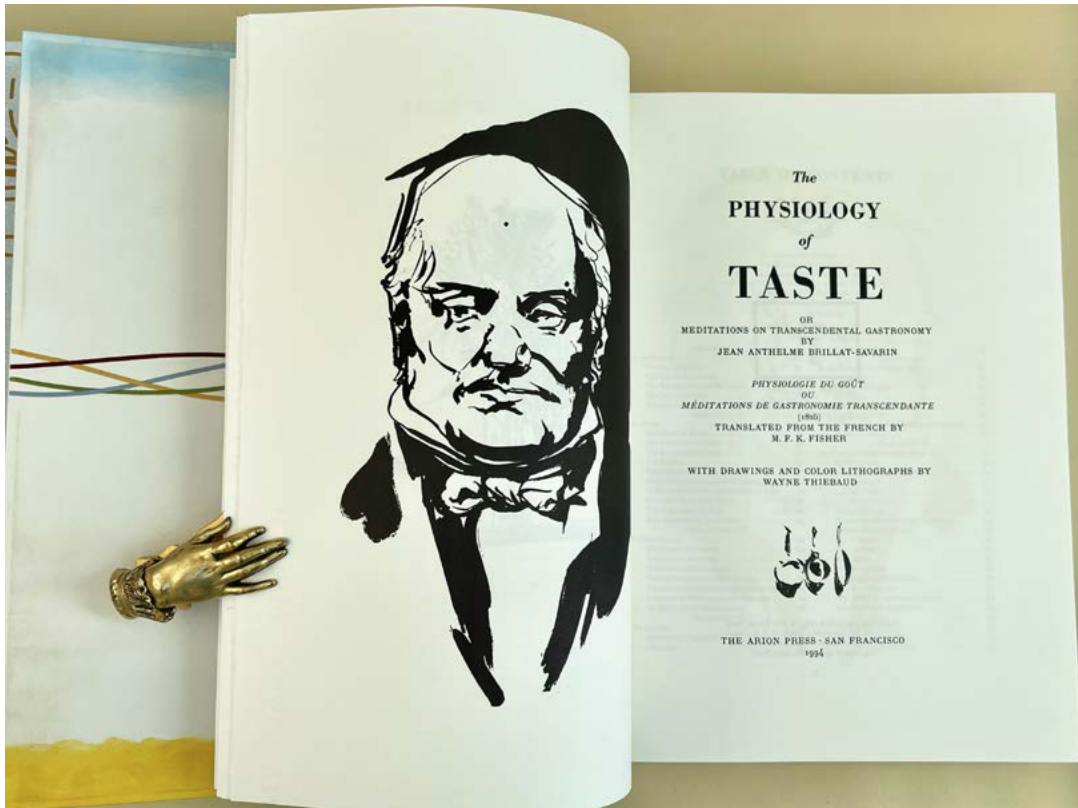


First Edition, with the **very rare single leaf of subscribers** laid in (STC 17944a, variant 6, including the names of Francis Bacon and John Donne). Minsheu's *Ductor in linguas* was the first book published by advance subscription using a printed prospectus, and the first book to include a list of subscribers. Minsheu worked for twenty years to produce this massive polyglot dictionary, which translates English words into Welsh, Dutch, German, French, Italian, Spanish Portuguese, Latin, Greek and Hebrew and gives their etymologies. The author's two decades of labor on his dictionary coincide with the last fifteen years of Shakespeare's career and thus provides a valuable record of the language of the period.

There is no doubt that the *Ductor in linguas* is a monumental work. No less impressive than the title are the size and the contents of this volume. On more than 500 closely printed folio pages English lemmata are followed by their etymologies and their equivalents in ten other languages, "British or Welsh, Low Dutch, High Dutch, French, Italian, Spanish, Portuguez, Latine, Greeke, Hebrew." In addition to Roman, black letter, and italics, the favorite triad around 1600, the compositors were also required to use Greek, Hebrew, and Anglo-Saxon letters. Long and learned prefaces in Latin and in English introduce the work, and there are two commendatory certificates, one by the University of Oxford and another by some of the leading scholars of the day. Both of these certificates are dated from the end of 1610 when the work had apparently been in progress for several years. In addition, a list of purchasers contains illustrious names from the court, as well as the study. Throughout his introductions Minsheu stresses the number of collaborators and the amount of time and money invested in the enterprise, and the extent of his labor seems stupendous. Learned etymologies, definitions, multilingual equivalents, illustrative quotations, and precise bibliographic references crowd the pages, and the fact that the work was published at all may be more noteworthy than the many years of preparation (Schäfer, p. 24).

Although some scholars disputed whether Minsheu actually issued the first edition of his dictionary by subscription, the survival of a single copy of the book's 1611 prospectus—preserved at the Bodleian Library—proves that he did. John Feather, who reproduced this unique document in his *English Book Prospectuses* (1984), regarded Minsheu's *Ductor in linguas* as "the first subscription book, and John Minsheu himself as the pioneer, and for all practical purposes the inventor, of the book prospectus" (Feather, p. 28). Schäfer, "John Minsheu, scholar or charlatan," *Renaissance Quarterly* 26 (1973): 23-35. 43367





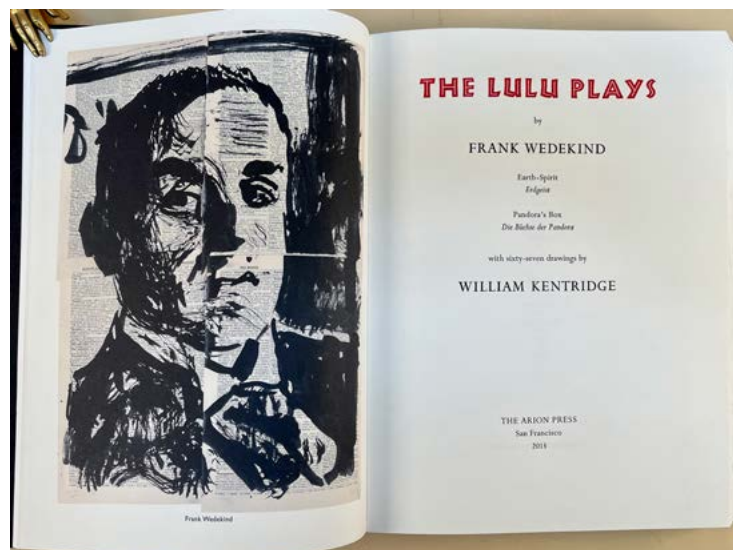
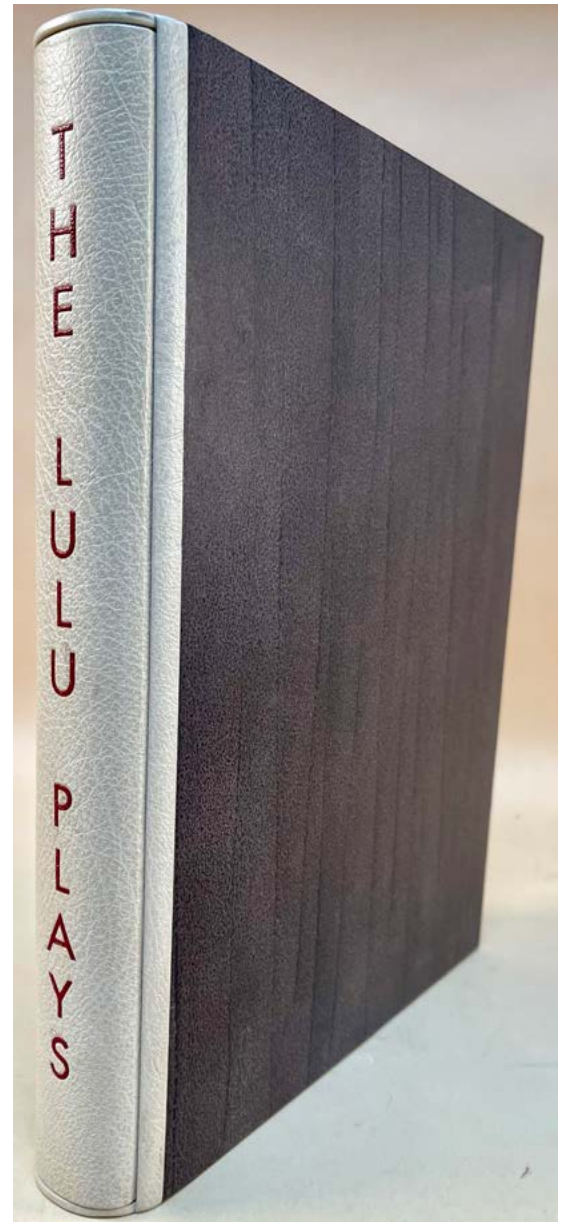
Bindings

10. [Castiglioni, Luigi, binder.] **Brillat-Savarin, Jean Anthelm** (1755-1826). The physiology of taste, or meditations on transcendental gastronomy. *Physiologie du gout ou meditations de gastronomie transcendante* (1826). Translated from the French by M. F. K. Fisher. With nine color lithographs and numerous black and white reproductions of drawings by **Wayne Thiebaud** (1920-2021). 356pp. San Francisco: The Arion Press, 1994. 355 x 275 mm. In a superb full-leather inlaid designer binding by **Luigi Castiglioni**, in matching chemise and slipcase. The book and binding are in mint condition. \$12,500

Copy number 5 of the edition, limited to 200 numbered copies for sale signed by the artist, and 26 lettered copies *hors de commerce*. Printed on French mouldmade Lana Royale paper.

Brillat-Savarin's work, published just before his death, is the most famous gastronomic essay ever written. This Arion Press edition is also the most significant book illustrated by Wayne Thiebaud, an American painter known for his colorful works depicting commonplace objects and objects of mass culture. Thiebaud is particularly famous for his paintings depicting food. 44326







Leni Riefenstahl as Countess Geschwitz

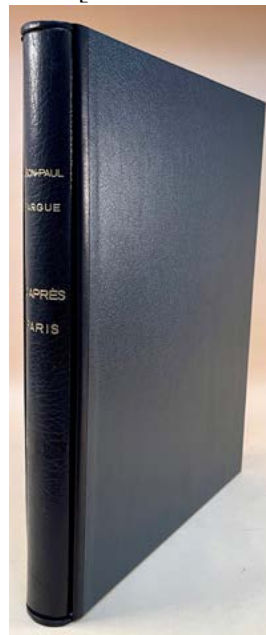
11. [Castiglioni, Luigi, binder.] Wedekind, Frank (1864-1918). The Lulu plays . . . with sixty-seven drawings by **William Kentridge**. 169, [3]pp. San Francisco: Arion Press, 2015. 341 x 260 mm. No. 353 of 400 copies signed by the artist. Custom binding by Luigi Castiglioni consisting of undyed and dyed pigskin, red suede endpapers, four cutouts in the front cover embellished with metal ornaments, half pigskin chemise with title in red leather onlay, custom slipcase; binder's name tooled in gilt on the inside front cover. Prospectus included. Fine. \$12,500

Printed on Hanemühle Biblio paper in Perpetua and Gill Sans types. William Kentridge is an internationally known South African artist, printmaker and filmmaker working in the satiric tradition of Daumier, Goya and Hogarth. Kentridge's drawings illustrating the Arion Press edition of the Lulu plays were used in the New York Metropolitan Opera's 2015 production of *Lulu*. 46501



Spectacular Large Art Deco Designer Binding

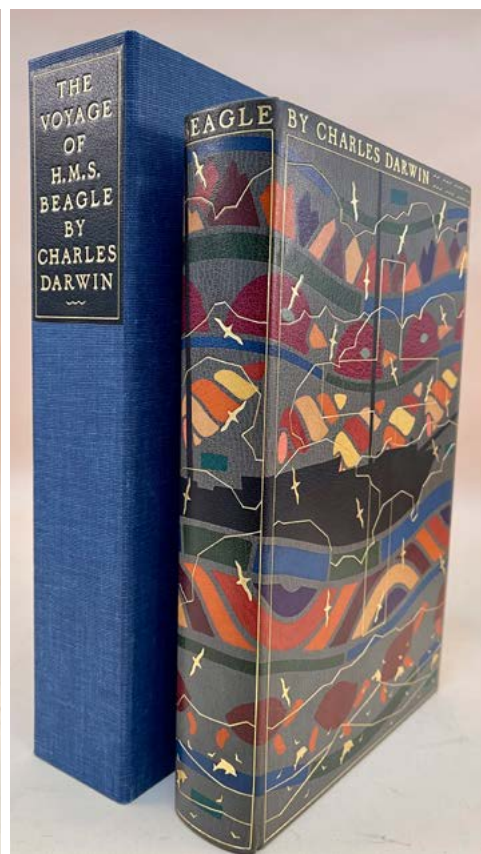
12. [Creuzevault, Henri (1925-71), binder.] Fargue, Léon-Paul (1876-1947). D'après Paris.



No. XIX of 50 copies reserved for subscribers, from a total edition of 170. Ca. 50 unnumbered leaves. Title vignette and 15 full-page lithographed plates by **Jean-Louis Boussingault** (1883-1943). Paris: Les amis d'amour de l'art, 1931. 457 x 353 mm. Full crushed black morocco by Creuzevault, in an abstract geometric design with inlaid multi-colored morocco and blue calf in a wrap-around design on both covers and spine; red suede doublures and blue suede endleaves, stamp-signed by the binder ("Creuzevault") on the upper turn-in, all edges gilt (spine very slightly darkened, a couple of tiny rubs); half morocco chemise with wood veneer onlays (expertly repaired, a few small nicks), new morocco-edged slipcase. Fine. Sold.

Monumental wrap-around binding by Henri Creuzevault, one of the leading designer binders in pre-War Paris. "[Creuzevault's] technical knowledge and experience in the craft, combined with his sensitivity and taste, have shaped his aesthetic concepts, which are resolutely focused on the freest expressions of contemporary art" (Docantic).

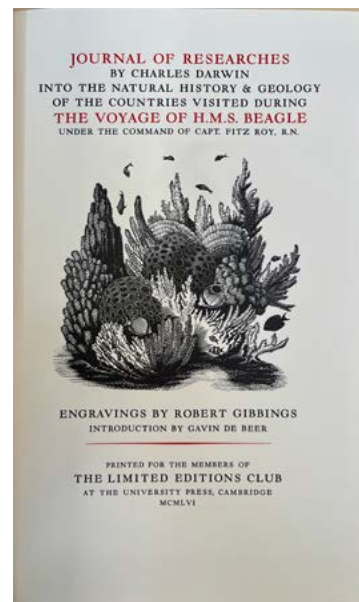
This is among the largest Art Deco designer bindings that we have encountered, the design measuring about 18 by 30 inches. It uses a variety of both colors and grains of leather to create a three-dimensional design of abstract shards. "Henri Creuzevault (1905-1971)." *Docantic* (web) Accessed 24 Jan. 2024. 51628



13. [Wilcox, Michael, binder.] **Darwin, Charles** (1809-82). Journal of researches into the natural history & geology of the countries visited during the voyage of H.M.S. Beagle under the command of Capt. Fitz Roy R.N. xvi, [2], 489, [3, including colophon]pp. Wood engravings by Robert Gibbings (1889-1958). Cambridge: Printed for members of the Limited Editions Club at the University Press, 1956. 305 x 190 mm. No. 946 of 1500 copies, signed by the artist on the colophon page. Bound by Michael Wilcox in full gray morocco with multi-colored onlays, gilt-tooled, top edges gilt; in a custom-made velvet-lined cloth box. Two letters from Wilcox to Garrett Herman, including one explaining the binding's design, laid in. Very fine. \$25,000

“In my design for your *Voyage of H.M.S. Beagle* I have been as much concerned with the consequences of Darwin’s discoveries as with his experiences during the voyage itself. The clouds in gold line serve as a symbol for the traditional Judaic/Christian view of creation. Behind this screen I have tried to suggest strata representing the earth’s constant motion and continuing evolution: shells which change their sequence of patterns; a particular kind of finch and tortoise, each diverging to produce more and distinctly different species; and the convolutions of the earth’s crust, its seas, lands and mountains, all responding to time in wave-like formations. The silhouette of the ship was taken from a contemporary drawing done more or less to scale and which appeared in Alan Moorehead’s *Darwin and the Beagle* . . . (Wilcox’s letter of June 14, 1999).

Wilcox retired about twenty years ago; his production was never large, and his bindings have become very scarce and sought after. 44408

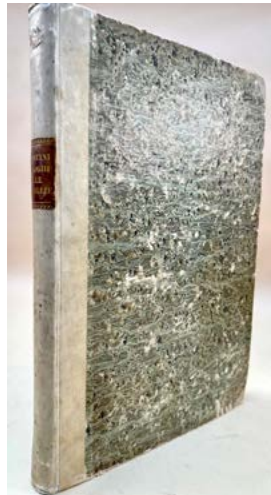


Early Humanism & Classical Studies



Probably the Earliest Known Book Illustrated by a Woman

14. Agustín, Antonio (1517-86). *Dialoghi di Don Antonio Agostini archieuescovo di Tarracona intorno alle medaglie inscrittioni et altre antichita tradotti di lingua Spagnola in italiana da Diogini Ottaviano Sada*. [26, incl. engraved title], 318, [38]pp., 6ff. Woodcut text illustrations. Rome: Apresso Guglielmo Faciotto, 1592. 322 x 225 mm. 19th-century half vellum, light rubbing and wear. Several leaves supplied from another (smaller) copy, engraved title starting, some foxing and toning, marginal repairs to the last few leaves. Very good. \$3000



First Edition in Italian of Agustín's treatise on coins, inscriptions and other antiquities, translated from the Spanish edition of 1587. Among the over 1200 woodcut illustrations in this edition are several by Geronima Parasole, one of very few identified female artists and illustrators of the 16th century.

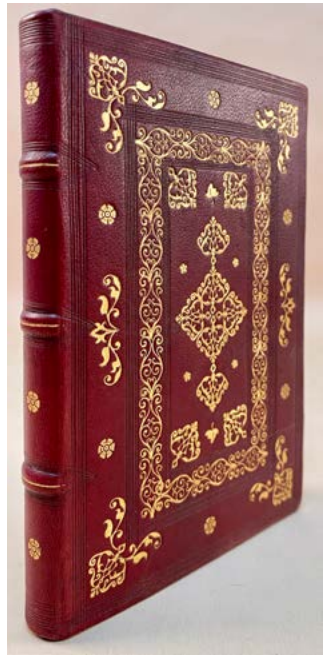
Some of the large woodcuts bear the monograms P.M.F. (e.g. on the title border) or G.A.P. (e.g. on p. 124) attributed to Geromina [Cagnaccia] Parasole (fl. end of the 16th century), a Roman artist, cousin of Isabetta Parasole, who was with Vinciolo and Cesare Vecellio, the most important lace designer of the late 16th century. Apart from Geronima's

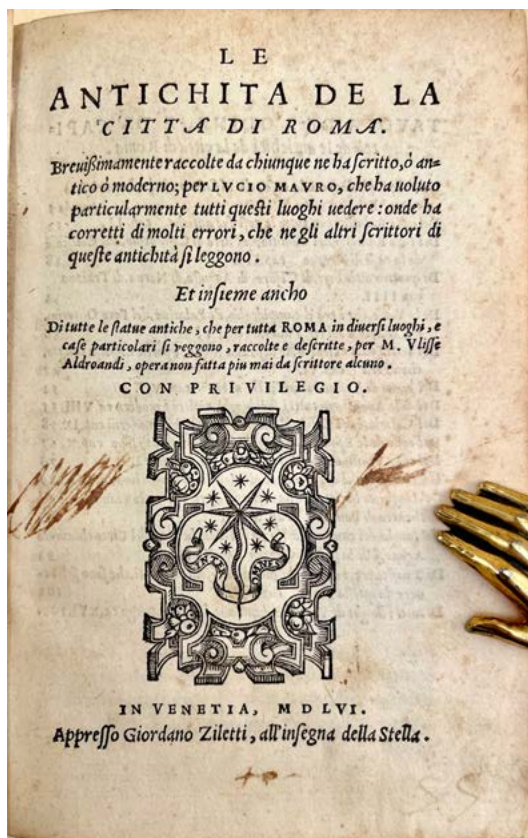
contribution to the present work, only a few woodcuts by her after designs of Antonio Tempesta are known (cf. G.K. Nagler, *Die Monogrammisten*, München, 1919, II p. 968, no. 2715; IV, p. 926, no. 3141). It seems very likely that this is the earliest known book in which illustrations by a woman are found. In the sixteenth century only thirty-five women are known to have been artists, and according to our researches Geronima and Isabetta Parasole were the only women who contributed to book illustration in that period (Erdmann, *My Gracious Silence*, p. 130).

Agustín's book, intended for a general readership, is written in the form of eleven dialogues between an experienced antiquarian and a pair of beginners eager to learn about coins, inscriptions, and other antiquities. It includes instructions on identifying coins and medals, discussions of Roman, French, African and Spanish medals, and methods for identifying fakes. 43477

15. Albertini, Francesco (fl. 1493-1510). *Opusculū d[e] mirabilibus noue [et] veteris urbis Rome . . .* 103ff. Woodcut title border. Rome: Jacobus Mazochius, 1515 [colophon]. 208 x 139 mm. Full morocco gilt in antique style. Minor dampstains and soiling on first few leaves, but very good. \$7500

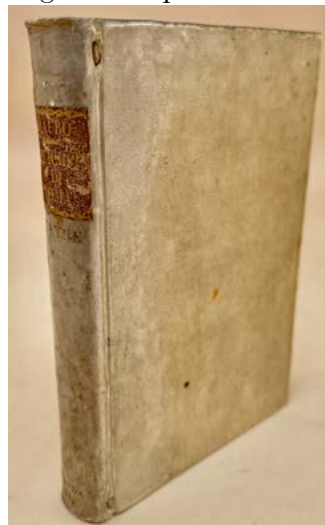
Second edition. Albertini's *Opusculum de mirabilibus novae & veteris urbis Romae*, originally published in 1510, was the first guidebook to ancient and modern Rome. Albertini based his *Opusculum* on the 12th-century *Mirabilia urbis Romae* ("Marvels of the city of Rome"), but replaced the former work's medieval legends with new knowledge gained from nearly a century of humanist investigation. "Albertini did not hesitate to summon to his aid all the sources on which could lay his hands, thus relaying the considerable range of his reading. Classical texts used by him included not only the better known authors and the catalogues of the regions . . . but also Festus, Vitruvius and Frontinus, on whom he of course relied for his section on aqueducts. He was obviously at home with inscriptions, and besides relying on the evidence they supplied, he often quoted them in full, not hesitating to include some discovered only very recently" (Weiss, *The Renaissance Discovery of Classical Antiquity*, pp. 84-86). To his account of ancient Rome, Albertini added discussions of the churches and buildings commissioned by Pope Julius II and the artists who decorated them, including Botticelli, Ghirlandaio, Lippi and Michelangelo; this last reference represents one of the earliest printed notices of that artist. The third section of Albertini's work contains one of the earliest descriptions of the Vatican Library. 42790





Landmark in the Documentation of Works of Art

16. [Aldrovandi, Ulisse (1522-1605).] Mauro, Lucio. Le antichità della città di Roma . . . et insieme anch di tutti le statue antiche in diversi luoghi . . . per M. Ulisse Aldrovandi . . . [24], 316pp. Venice: Giordano Ziletti, 1556. 149 x 97 mm. Old vellum, gilt-lettered leather spine label. Edges a bit spotted but very good. \$3000



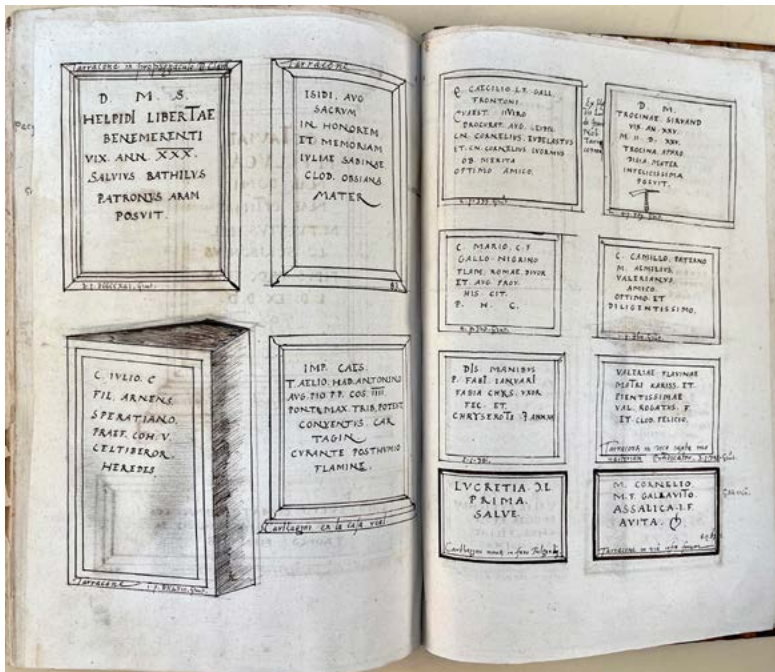
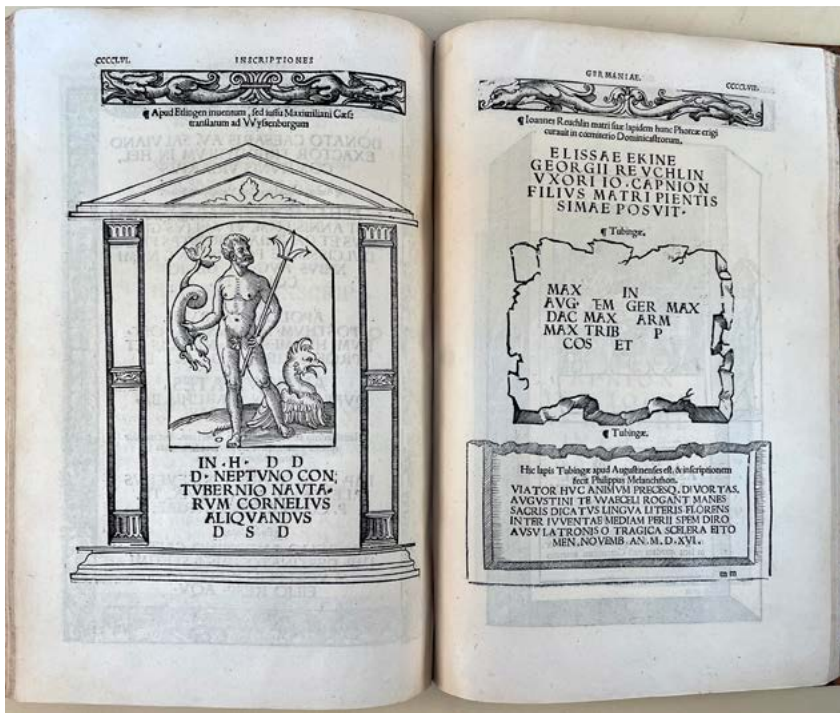
First Edition. Mauro's guidebook to the topography and antiquities of Rome is best known for its supplementary survey by the young Ulisse Aldrovandi of the region's antique sculpture. This survey, titled "Delle statue antiche che per tutta Roma in diversi luoghi . . . raccolte e descritte," has been called the first lengthy and detailed guidebook to the antiquities in the city of Rome; it represents a landmark in the scientific recording and documentation of works of art. It was also Aldrovandi's first publication.

Though primarily remembered for his studies of natural history, Aldrovandi was also a classical scholar, well versed in the literature and archaeology of antiquity. His *Delle statue antiche* is one of the earliest works on statuary and sculpture in general, a topic treated by relatively few treatises. It is an essential work for documenting the sculpture gardens and collections of antiquities that existed in Rome in the mid-16th century, for reconstructing the contents and the appearance of individual collections, and for establishing the provenance and history of individual statues. 43099



First Published Collection of European and North African Epigraphic Inscriptions, with Eight Additional Leaves of Early Drawings

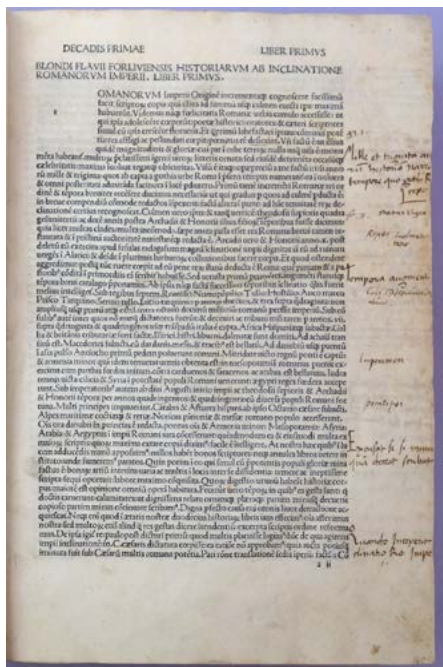
17. Apianus, Petrus (1495-1552); Bartolomaeus Amantius (1505-76). *Inscriptiones sacrosanctae vetustatis non illae quidem romanae, sed totius fere orbis summo studio ac maximis impensis mariq[ue] conquistatae feliciter incipiunt. Magnifico viro domino Raymundo Fuggero invictissimorum caesaris Caroli Quinti ac Ferdinandi Romanorum regis a consiliis, bonarum litararum mecaenati incomparabili . . .* [40], ccccxii, [8]pp. Woodcut illustrations, woodcut title and initials by Hans Borosamer (ca. 1500-1554); woodcut arms of Raimund Fugger by Michael Ostendorfer (1492-1559). With 8 leaves of early pen-and-ink drawings of inscriptions bound in after the text. Ingolstadt: In aedibus P. Apiani, 1534. 285 x 194 mm. Old mottled calf, rebaked, lacunae in back cover repaired,



front hinge cracked, light wear. Some dampstaining on first 20 or so leaves, light toning but very good. Bookplate. \$8000

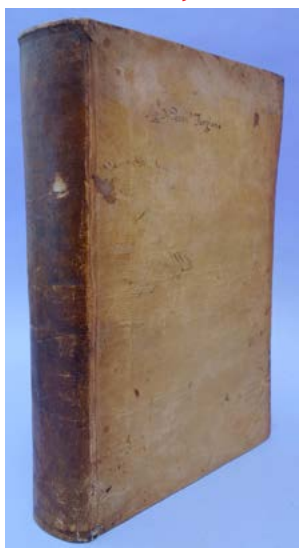
First Edition of the first published collection of epigraphic inscriptions from Europe, Asia Minor and North Africa, based on the collection of classical antiquities amassed by Raimund Fugger (1489-1535), a powerful German businessman and counselor to Holy Roman Emperor Charles V. The inscriptions—"not just those of Rome but of almost the entire world," according to the book's title—are organized geographically, "beginning in Spain, and moving eastwards through the former empire, to Greece, Asia Minor, and then back west along the southern shore of the Mediterranean" (Stenhouse, p. 42).

Our copy is enhanced by the addition of eight leaves of early (probably 16th-century) drawings of Latin and Greek inscriptions with notes on their sources. W. Stenhouse, "Roman colonies and the distribution of land before Sigonio," in J. Pelgrom and A. Weinstein, eds., *The Renaissance of Roman Colonial Discourse: Carlo Sigonio and the Making of Legal Colonial Discourse*, pp. 25-47. Adams, *Catalogue of Books Printed on the Continent of Europe 1501-1600 in Cambridge Libraries*, A-1291. 42786



The "Middle Ages"

18. Biondo, Flavio (1392-1463). *Blondi Flavii Forliviensis historiarum ab inclinatione Romanorum imperii [decades]*. Folio. 301 unnumbered leaves (lacking blank a1). Venice: Thomas de Blavis de Alexandria, 1484. 304 x 211 mm. 18th century vellum, spine darkened, early owner's name in ink on front cover. Very good copy. Early marginal annotations (some trimmed) throughout the first two-thirds of the volume, stopping at leaf C2. \$12,500

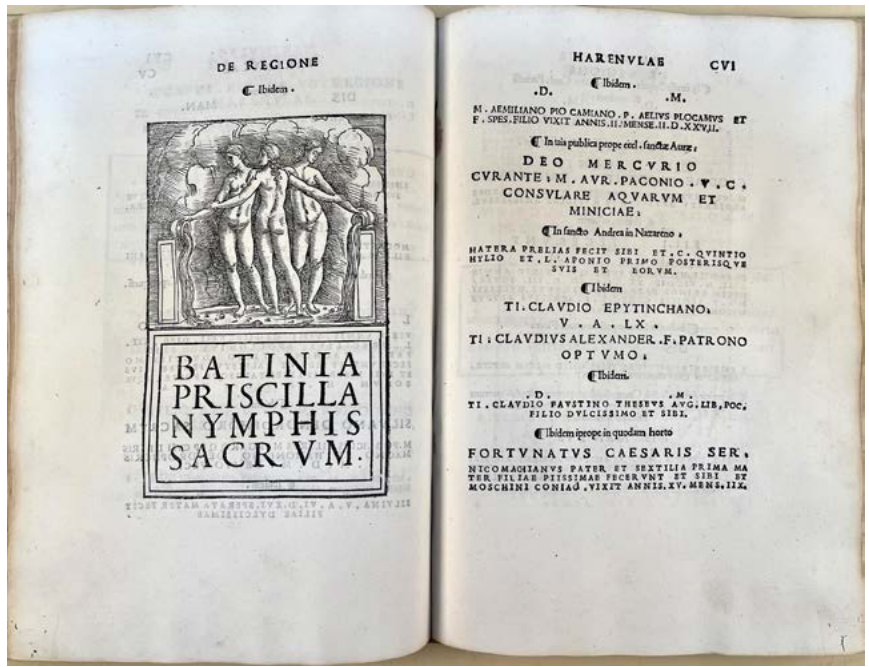
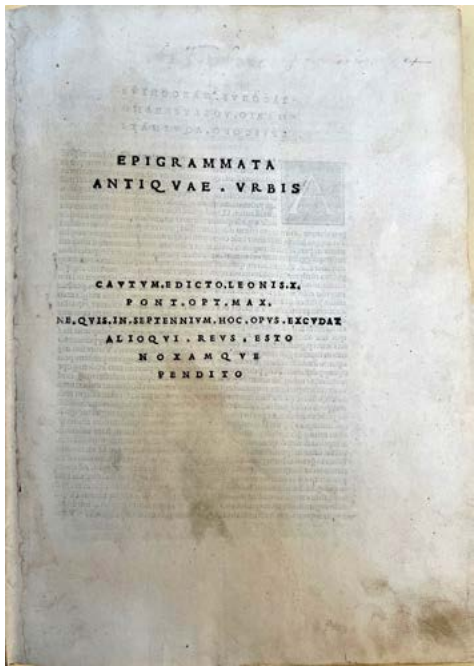


Second edition, the first to contain Pope Pius II's epitome of the first two *decades* (10-book sections) of Biondo's *Historiarum*. In this work Biondo, one of the great humanists of the early Renaissance, chronicled the history of Rome from the fall of the Empire (410 A.D.) to his own day, using a three-period framework that strongly influenced the later division of historical times into the Classical, Middle and Modern Ages. Biondo "was the first to devise a general history of Italy, showing a continuity since the fifth century, and to conceive a 'media aetas' [middle age] standing between antiquity and his own times" (Weiss, p. 66). In his scholarly essay on Biondo and the *Historiarum*, Denys Hay calls Biondo "the first medieval historian" (p. 54) and notes that "recognizing and chronicling the *medium aevum*, even if not using the phrase, constitutes a major claim to the esteem of posterity" (p. 55).

Biondo wrote his *Historiarum* between 1439 and 1452, and manuscript copies circulated widely throughout Europe prior to the work's first printing in 1483. The 1484 edition, which we are offering here, was the first to contain Pope Pius II's abridgement of the *Historiarum*'s first two sections, a work that

had considerable influence, not least because in this form Biondo became one of the prime sources of Platina's *Lives of the Popes*, the most generally influential and long-lived of all humanist Latin histories. What may be described as the most influential of the vernacular histories, Machiavelli's *Florentine History*, equally depends greatly on the *Decades*. Practically every sixteenth-century scholar must have turned to the *Decades* for factual information and when Pius II's epitome appeared in the Italian translation of Lucio Fauno [1543-44] Biondo's work was made available to a much wider public (Hay, p. 61).

Hay, "Flavio Biondo and the Middle Ages," in Hay, *Renaissance Essays* (London: Continuum Publishing Group, 1951), pp. 35-66. Weiss, *The Renaissance Discovery of Classical Antiquity* (1969), pp. 66-72. ISTC ib00699000. 42789



19. Mazzocchio, Giacomo [Jacobus Mazochius] (fl. 1505-27). *Epigrammata antiquae urbis*. [10], clxxx, [8]ff. 21 text woodcuts. Rome: In aedibus Iacobi Mazochii romanae acad. bibliopolae, 1521. 302 x 211 mm. Old vellum, ink decoration on spine. First two leaves remargined, corner of leaf P4 repaired, minor toning, a few small wormholes, but very good.

\$10,000

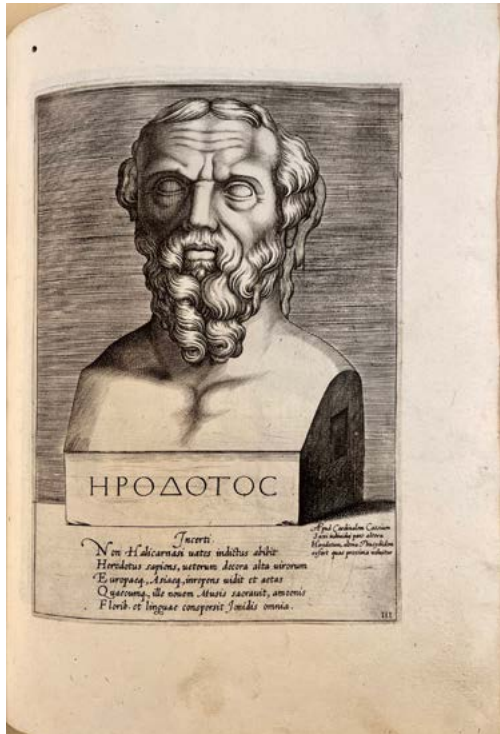
First Edition of the first substantial collection of Roman inscriptions to appear in print. Mazzocchio was a learned bookseller, printer and antiquarian active in Rome during the early 16th century; the *Epigrammata* represents his major work as a printer and antiquarian. The work preserves circa 3000 inscriptions—many now lost—from Roman churches, temples, palaces, public spaces and private collections, ranging from Republican times to the age of Justinian I; among the most famous of these are the relief of the Three Graces in the house of Paulus de Plancis, and the Roman fasces that decorated the façade of Pietro Santacroce’s house. “The *Epigrammata* is a key monument in the history of early Renaissance guide books to Roman antiquities—it was itself a guide, frequently carried by antiquarians and humanists who visited and explored the ruins, architecture and art that all held important information useful to the imagined reconstructions of the City and the reawakening of classical letters and literature” (OCLC).



The Charles I copy of this work, in condition inferior to this one, and in a 19th-century Rivière binding, sold for over \$80,000 at Christie’s in February 2024. Adams, *Catalogue of Books Printed on the Continent of Europe, 1501-1600*, in *Cambridge Libraries*, E-236. Mortimer, *Italian Sixteenth Century Books*, 297. 43457



20. Orsini, Fulvio (1529-1600). *Imagines et elogia virorum illustrium et eruditorum ex antiquis lapidibus et nomismatibus expressa cum annotationibus ex bibliotheca Fulvi Ursini*. 111 pp. Engraved architectural title-page by Andrea Marelli, signed with his monogram; 58 engraved illustrations; 17 woodcut illustrations. Venice: In aedibus Petri Dehuchino, Galli, 1570 [colophon]. Bound with:



Estaço, Aquiles [Achilles Staius] (1524-81). *Inlustrium virorum ut exstant in urbe expressi vultus*. [8] pp., including engraved title-page, plus 52 engraved plates. Rome: Antoine Lafréry, 1569. Additional impression of plate 13, printed on paper with a different watermark and trimmed to the borders, laid in loosely.

Together 2 works. 308 x 217 mm. Gilt-tooled calf over limp boards ca. 1570, holes for ties (not present) in both covers, some rubbing and scuffing, extremities worn. Both title-pages somewhat soiled, a few small wormholes, minor soiling and staining. Very good. Modern bookplates and pencil notes.

\$10,000

First Editions of these two important early studies of classical portraiture. Orsini's *Imagines* was the first critically assembled collection and edition of ancient portraiture. Unlike previous works on the subject, Orsini emphasized the original physical state of the portraits illustrated rather than modifying his reproductions of the portraits to fit them into a uniform format. He also illustrated the marbles and coins as objects, sometimes

presenting one or more examples of each subject. A special feature of Orsini's work was the large number of headless herms (sculpted heads above a plain lower section) illustrated with inscriptions on their pedestals, making the work first a corpus of epigraphical testimonia to famous and not so famous Greeks and Romans, and secondly a repertory of portraits.

Not only did Orsini have access to the most extensive epigraphical and iconographic collections in Rome but, more importantly, the critical method he employed in editing texts of classical authors and inscriptions served him well in the authentication of portraits. In making an identification, Orsini sought the evidence of an ancient inscription either directly on the marble or on a coin or medal that could be associated with a marble. He also collected ancient literary sources relating to the physical appearance or to the existence of ancient portraits of individual subjects. He did not hesitate to reject modern inscriptions whether on marble statuary or on gems, and he similarly rejected numismatic forgeries which by the late sixteenth century had flooded the Roman antiques market.

In the majority of cases, Orsini (or his patron) owned the ancient coins, gems, busts, and statues that served his identifications. Hence, unlike virtually all of his predecessors, Orsini relied on "autopsy" or first-hand experience as a critical method, anticipating the rigorous method of nineteenth-century epigraphers like Theodor Mommsen. Orsini has been called the "father of ancient iconography," and, indeed, a glance at Gisela Richter's authoritative *Portraits of the Greeks* suffices to demonstrate the modern archaeologist's indebtedness to Orsini for the identification of a surprising number of heads of famous Greeks and Romans (Dwyer, p. 469).

Estaço's work, published the year before Orsini's, is a compilation of notable portraits from antiquity, illustrated with engravings that reproduce sculptures found in collections in and around Rome, each identified by the collection in which the sculpture was found. Estaço was a Portuguese humanist who spent most of his adult life in Rome in the service of various church prelates, including Popes Pius V and Gregorius XIII. He is best known for his extensive Latin commentary on the poems of Catullus. There are two states of this edition of Estaço's work, with and without letterpress text on p. 111; this copy has the text present. E. Dwyer, "André Thevet and Fulvio Orsini: The beginnings of the modern tradition of classical portrait iconography in France," *The Art Bulletin* 75 (1993): 467-480. Mortimer, *Italian Sixteenth Century Books*, 330 (Orsini), 173 (Estaço). 43360



21. Panvino, Onofrio (1529-68). *Reipublicae romanae commentariorum libri tres*. [16], 947, [11]pp. Venice: Ex officina Erasiana apud Vincentium Valgrisium, 1558. 173 x 112 mm. Limp vellum ca. 1558, title in ink on the spine, spine darkened and with 2 small tears in the upper extremity. Minor toning but very good. \$2000



First Edition. Panvino, a noted antiquary and archeologist, was librarian to Cardinal Alessandro Farnese, the great 16th-century collector and patron of the arts. Panvino's history of the Roman republic is divided into three books. "In Book I, on topography, he treated the 'image of the old city—that is, the ancient buildings' ('priscae urbis imago, id est, vetusta aedificia'). He included the origin, location, boundary, gates, streets, hills, and regions of the city. Book II dealt with institutions; it had a separate title-page and was called 'The Roman state' ('Civitas romana'). It was original in that it aimed to present not an organizational

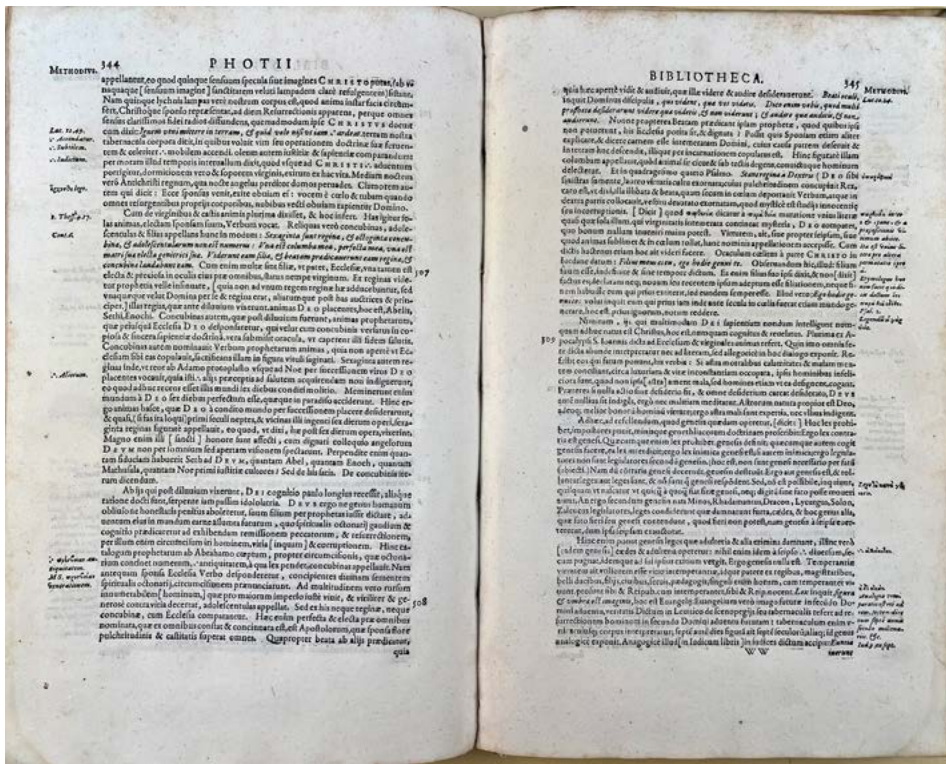
plan but a history—sacred and secular—of Roman institutions . . . Book III was concerned with the Empire outside of the city of Rome ("Imperium romanum")—that is, the provinces" Bauer, *The Invention of Papal History*, p. 57). Panvino is best known for his great archeological map of Rome, produced in 1565. 43561

22. Photius I, Saint, Patriarch of Constantinople (ca. 810 – 893). *Bibliotheca*; sive, *lectorum a Photio librorum recensio, censura atque excerpta*. Latin translation with notes by Andreas Schott, S.J. [28], 555, [37] pages, including final blank. Augsburg: Christoph Mang, 1606. 312 x 201 mm. Vellum ca. 1606, spine ends restored, inner hinges cracking, vellum over covers wrinkled. Infrequent light marginal dampstaining, but very good. Booklabel of Frederic Huidekoper on rear pastedown. \$3000

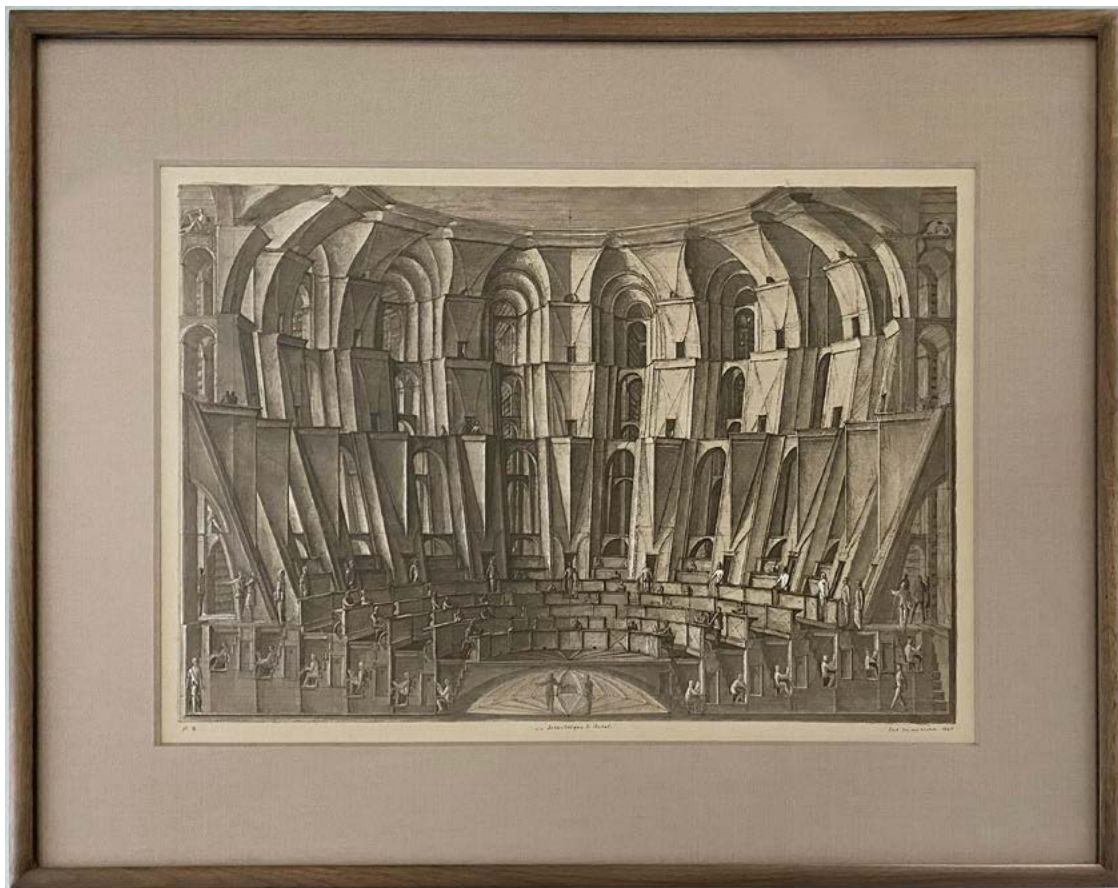


1606. 312 x 201 mm. Vellum ca. 1606, spine ends restored, inner hinges cracking, vellum over covers wrinkled. Infrequent light marginal dampstaining, but very good. Booklabel of Frederic Huidekoper on rear pastedown. \$3000

First Edition in Latin of the chief work by this 9th-century Byzantine scholar and Eastern Orthodox church leader, consisting of a critical account of 280 works read by him, many of which are now lost. The Greek original text was first published in 1600. "To Photios, we are indebted for almost all we possess of Ctesias, Memnon of Heraclea, Conon, the lost books of Diodorus



Siculus, and the lost writings of Arrian. Theology and ecclesiastical history are also very fully represented, but poetry and ancient philosophy are almost entirely ignored. It seems that he did not think it necessary to deal with those authors with whom every well-educated man would naturally be familiar. The literary criticisms, generally distinguished by keen and independent judgment, and the excerpts vary considerably in length. The numerous biographical notes are probably taken from the work of Hesychius of Miletus” (Wikipedia article on Photius). Hoffmann III, 91; Sarton I, 594. 43456



Fine Art

23. Desmazières, Érik (1948-). *La bibliothèque de Babel [Grand hémicycle]*. Etching and aquatint, hand-colored and extended by the artist in gouache and ink. 1997. 355 x 533 mm. Archivaly framed. Signed, titled and dated by the artist; annotated indistinct “pl. 7” modified to “pl. 8” [sic] in ink by the artist. Mint. \$12,500

Early State of the eighth plate from the *First Suite* of Desmazières’s *Bibliothèque de Babel* series of plates, extensively hand-colored and reworked by the artist to create a unique image. This example was made before reduction of the plate size to the dimensions given in Fitch-Febvrel. Fitch-Febvrel Gallery, *Erik Desmazières: Etchings 1991-2001*, 163. For additional works from Desmazières’s *Bibliothèque de Babel*, see our [Catalogue 80](#). 40206

Medicine, Science, Technology, Economics

Only Full-Color Portrait of Babbage Drawn from Life

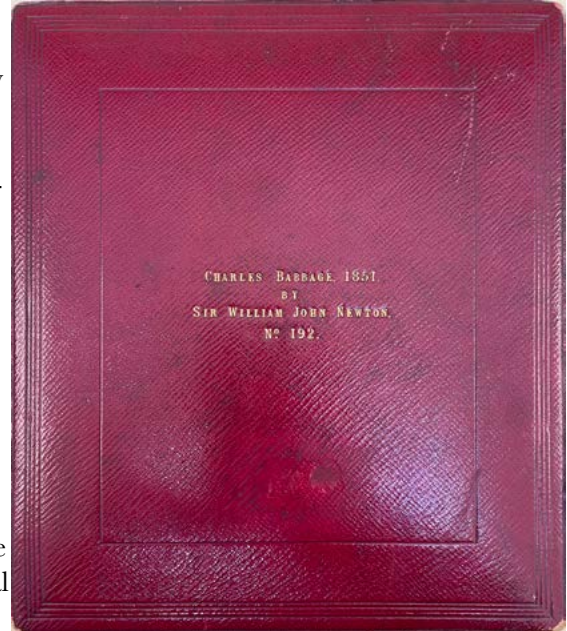
24. Babbage, Charles (1791-1871). Oval portrait in color by Sir William John Newton (1785-1869), signed and dated on the obverse by Newton (“W J Newton 1851”; obscured by the mat), inscribed “Mr. Babbage” on the reverse. 162 x 140 mm. (visible portion). Set in rectangular morocco hinged case measuring 214 x 189 mm., with tooled inscription on the front cover: “Charles Babbage. 1851./by/Sir William John Newton./No. 192” (light edgewear). Fine.
\$75,000

Excellent portrait of Babbage, and, to our knowledge, the **only full-color image of him drawn from life**. The portrait is by William John Newton, miniature-painter in ordinary to Queen Victoria and one of the most fashionable miniature-painters of his day. Newton was also a pioneer in photography, devising an improved method of producing calotype negatives and promoting soft-focus photography as a means of producing artistic images.

Babbage is, of course, best known as one of the first pioneers of computing: He invented a Difference Engine for automatically generating mathematical tables, and originated the concept of a programmable computer in his design for what he called the Analytical Engine, a theoretical device possessing all the essential logical features of a modern general-purpose computer. A man of wide interests, he also published works on mathematics, economics and geology, and was a vocal critic of Britain’s scientific establishment.

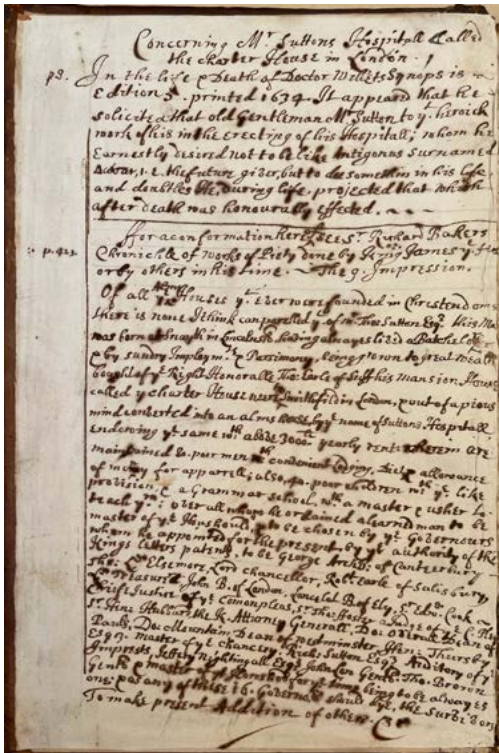
Newton’s portrait captures Babbage at an interesting time in his life, as it was completed in 1851, the year of London’s famous Great Exhibition celebrating progress in the world’s arts and manufactures. Babbage had wanted to enter his Difference Engine no. 1 into the exhibition, but was rejected by the Exhibition’s organizers, even though the Difference Engine was arguably the finest product of British precision mechanical engineering at that time. Angered at this slight, Babbage published *The Exposition of 1851; or, Views of the Industry, the Science and the Government of England* (1851), a vitriolic account in which he skewered the insularity and snobbism of the Exhibition’s organizers, put forth his own ideas about how the exhibition should have been run, and sounded off on the corrupt state of science in England.

Newton’s portrait of Babbage was exhibited at the Royal Academy in 1851 and again at the New Gallery in 1892. 43130





25. Bacon, Francis (1561-1626). Of the advancement and proficiencie of learning or the partitions of sciences . . . Interpreted by Gilbert Wats. [34], 477, [21]pp. Engraved portrait frontispiece and engraved title by Will. Marshall. Oxford: Leon Lichfield for Robert Young and E. Forrest, 1640. 282 x 186 mm. Blind-ruled calf ca. 1640, rebaked, free endpapers renewed, later spine label, a few minor scratches. Tear in leaf C1 repaired, occasional light dampstaining but very good. Early ownership signatures on the front and back pastedowns on various subjects in one or more early hands. \$10,000



First Edition in English of Bacon's *De augmentis scientiarum* (1623); second issue as usual, with the colophon dated 1640; variant reading on p. 21: "Scala Intellectus, or the method of the mind in the comprehension of things explained" (see Gibson, p. 123).

In 1605 Bacon published *The Twoo Bookes . . . of the Proficiencie and Advancement of Learning*, a work that marked the beginning of his "massive plan for the reorganization of the scientific method." Over the next twenty years Bacon greatly reworked his ideas, expanding them from "two books" into nine and publishing them in Latin in *De augmentis scientiarum*. "In *De augmentis scientiarum*, which is concerned primarily with the classification of philoso-

phy and the sciences, Bacon develops his influential view of the relation between science and theology. He distinguishes in traditional fashion between knowledge by divine revelation and knowledge by the senses, and divides the latter into natural theology, natural philosophy and the sciences of man" (*Dictionary of Scientific Biography*). Bacon saw both theoretical and applied science as religious duties, the first for a greater knowledge of God through his creation, and the second for the practice of charity to one's fellows by improving their

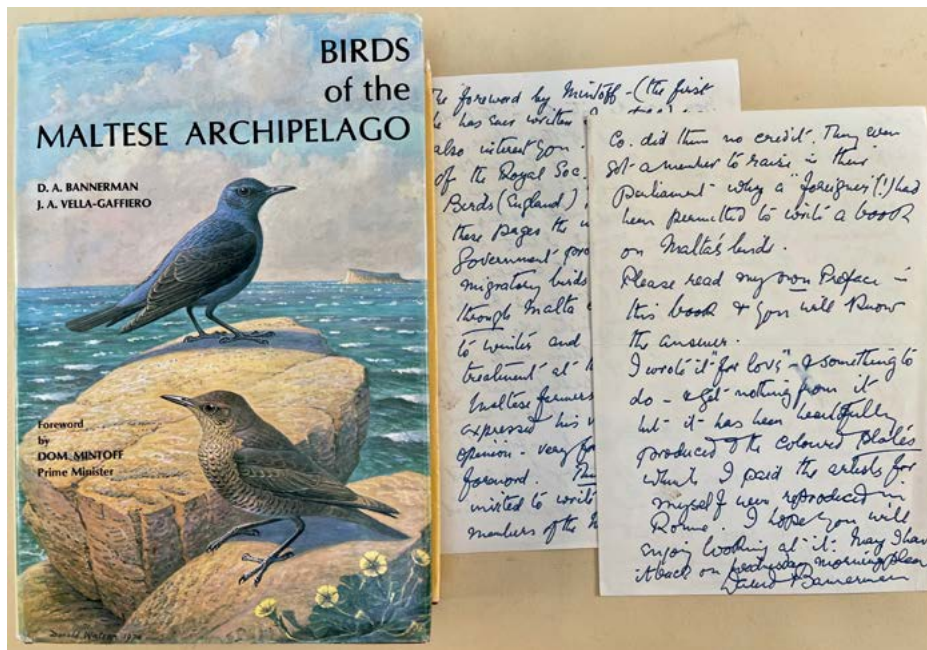
condition. This view of science as a religious function maintained its authority throughout the seventeenth and early eighteenth centuries, and was an important factor in the public success of the scientific movement.

The pastedown endpapers in this copy contain extensive manuscript notes or extracts in one or more early hand on various subjects:

Concerning Mr. Suttons Hospitall called the Charter House in London. In the life & death of Doctor Willets synopsis edition 5 printed 1637 it appeared that he solicited that old gentlemen Mr. Sutton to yt heroic work. . . (front pastedown).

In the 3. yeare of King Charles I^o reign there were apprehended a company of Jesuits in Clarkenwell at a house designed for a colledge of that order . . . In 1634 A Parl^t & Synod was calld in Ireland . . . The insolent deportment of ye Queens french attendants . . .” (rear pastedown).

Gibson, *Francis Bacon: A Bibliography*, 141b. 42314



26. Bannerman, David A. (1886-1979). Autograph letter signed to an unidentified correspondent. 4pp. on 2 sheets. N.p., n.d. [ca. 1976]. 211 x 148 mm. Small ink smear on last page. Laid into:

Bannerman and Joseph A. Vella-Gaffiero. *Birds of the Maltese archipelago*. Foreword by Dom Mintoff. xix, [3], 550pp. 22 plates, folding map, text illustrations. Valletta [Malta]: Museums Department, 1976. 230 x 155 mm. Original cloth, dust-jacket (slightly worn and soiled).

Together 2 items. Very good to fine.

\$475

An excellent letter from the noted British ornithologist, author of numerous definitive works on the birds of Europe, Africa and the Atlantic islands. The letter is laid into the above-listed **First Edition** copy of Bannerman's *Birds of the Maltese Archipelago*, a work that contains the first full description of the hundreds of different species of birds recorded in the Maltese islands and stresses the crucial role the Maltese archipelago plays in bird migration between Europe and Africa.

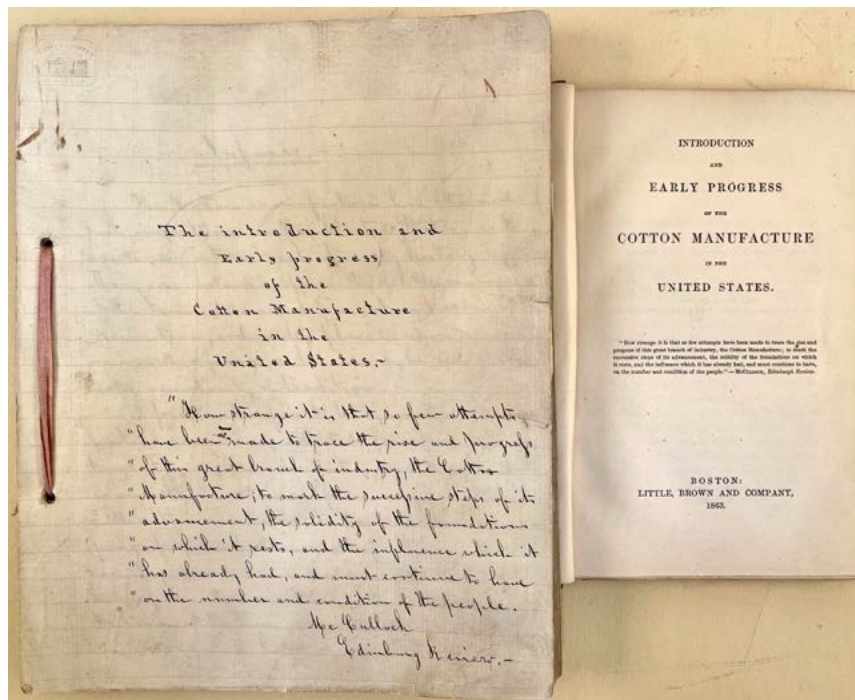
Bannerman's letter bears no salutation but is complete, as the second leaf is numbered "2"; it was undoubtedly written to the recipient of this copy. The letter contains intriguing details about the book's publication and reception:

You may be interested in the photograph inside the cover of this volume [not present], which was sent to me by Francis Mallia, Director of Malta's museums. It shows Dom Mintoff [Prime Minister of Malta] reading the inscription which I wrote when he was presented with a copy of my book . . .

The foreword by Mintoff (the first he has ever written I am told) may also interest you. As a Vice-President of the Royal Society for the Protection of Birds (England), I had stressed in these pages the importance of more government protection for the migratory birds which pass through Malta en route to Africa to winter and receive abominable treatment at the hands of ignorant Maltese farmers. Mintoff has expressed his views—and my opinion—very forcefully in his foreword. This book which I was invited to write by some resident members of the Malta Ornithological Society for which they had raised a substantial sum to pay for the publication, among themselves, was finally take over as an official Museums Dept. publication & the entire cost of publication authorized by Dr. Cossar & Mintoff on behalf of Government . . .

The Secretary of the M.O.S. opposed the publication as he was secretly writing a book himself which he never divulged to me & which you all have. It's quite good in its way, but the jealousy displayed by the authors Saltana [*sic*] & Co. did them no credit. They even got a member to raise in their parliament why a “foreigner” (!) had been permitted to write a book on Malta's birds . . .

Dom Mintoff (1916-2012) was Prime Minister of Malta from 1971 to 1984. “Saltana” refers to Maltese ornithologist Joe Sultana (1939-2018), author of *Guide to the Birds of Malta* (1975). 51634



27. Batchelder, Samuel (1784-1879). (1) The introduction and early progress of the cotton manufacture in the United States . Manuscript (probably autograph) on lined paper. 114 [i.e. 118], [20] ff., plus several added slips. N.p., n.d. [1863]. 251 x 201 mm. Unbound; tied with linen tape through holes in the left margin. First and last leaves a bit soiled and worn, but very good. A few manuscript additions in another hand throughout. With:

(2) The introduction and early progress of the cotton manufacture in the United States. iv, 108pp. Boston: Little, Brown and Co., 1863. 192 x 125 mm. Original cloth, spine faded, upper and lower extremities chipped, small splits in outer hinges. Very good.

Together two items, preserved in a single drop-back box.

\$4500

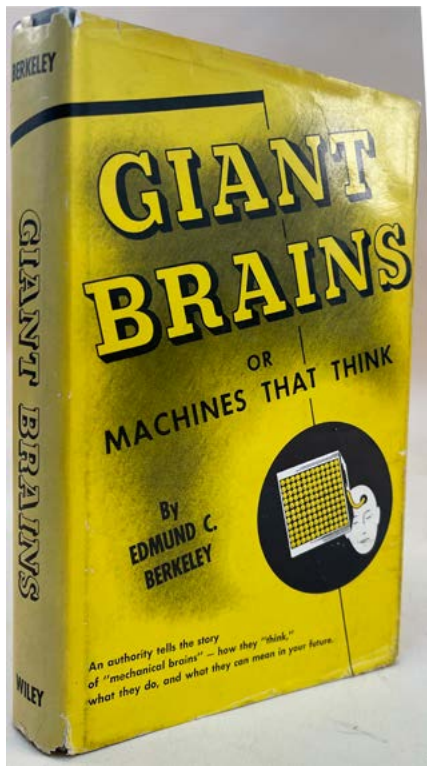
The original manuscript draft of pioneering industrialist Samuel Batchelder's important work on the history of the cotton industry in America, along with a copy of the first edition with a few annotations in Batchelder's hand. The manuscript contains a number of cross-outs, corrections, and emendations by Batchelder and others, providing insight into the composition of this significant Civil War-era study on the American cotton industry.

Samuel Batchelder, a pioneering American industrialist, was an inventor and manufacturer and one of the leading figures in the industrialization of the cotton industry in the Northeast. His innovative mills were some of the first factories in the United States, and he was responsible for a number of inventions for improving production, including a dynamometer used to determine the power required to move any of the machines used in cotton factories. Batchelder's work serves as a valuable case study of early industrial capitalism in America. It includes details of the different components of the machines, along with their inventors and patent dates, and notes how patents frequently overlapped as inventors laid claims to different features; and how new inventions, not immediately appreciated, are later incorporated into existing designs. Batchelder also detailed how the international cotton trade (especially with Great Britain) had changed over the years as American production capacity increased.



Writing in 1863, Batchelder noted that the combination of the progress of cotton manufacturing in the North and the massive disruption in cotton production in the South due to the Civil War made it almost impossible to speculate on the future of cotton, though he was confident that slavery would not continue to feature prominently in the industry. Nevertheless, at the time of writing, he noted that prices had increased fivefold in the past two years, an unsustainable rate. Either because of, or in spite of, his prominence in the cotton industry, Batchelder was a longtime abolitionist. He was a regular contributor on the topic in regional newspapers, and well before the war published *The Responsibility of the North in Relation to Slavery* (1856), in which he explained how Northern states had been complicit in slavery from the earliest days of the country.

This manuscript and book were previously part of the estate of Charles Foster Batchelder III of upstate New York, formerly of Natick, Massachusetts. 46389



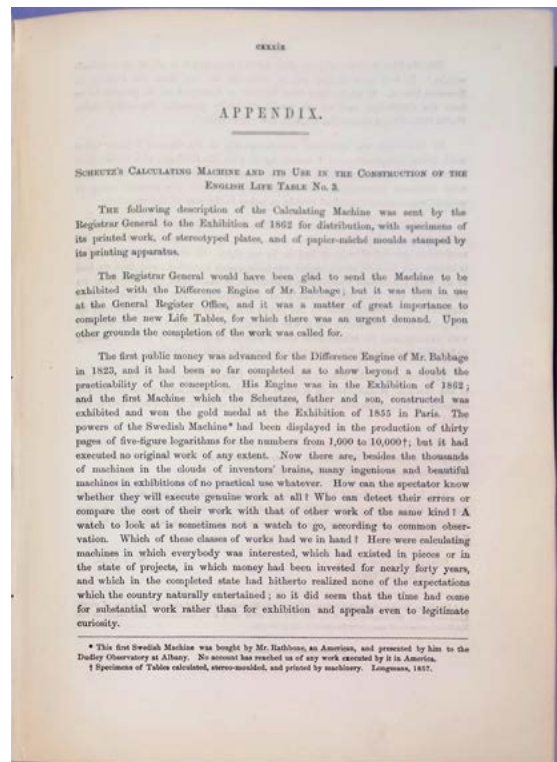
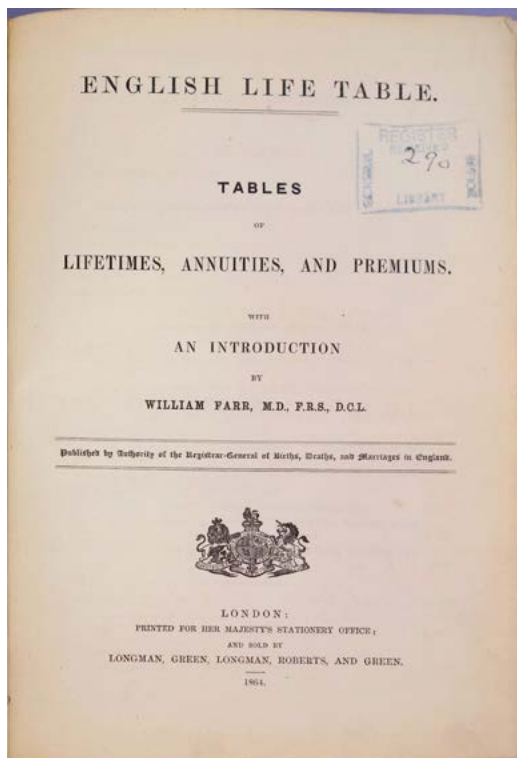
The Author's Copy, Corrected in his Hand

28. Berkeley, Edmund Callis (1909-88). Giant brains or machines that think. xvi, 270pp. Text illustrations. New York: John Wiley & Sons; London: Chapman & Hall, ©1949. 212 x 140 mm. Original gray cloth, yellow pictorial dust-jacket (a bit soiled, small chips in spine). Very good. *The Author's Copy*, with his signature and note "Copy II" on the front free endpaper; date-stamped "Nov 22 1949." Author's notes of errata and broken fonts on the rear free endpaper in red pencil; corrections of these errors in his hand on the relevant pages. \$6500

First Edition of the first popular work on electronic digital computers. When *Giant Brains* was published, electronic computers were virtually unknown to the general public. The few that existed were unique machines that belonged to the government; UNIVAC, the first commercial mainframe, was still in early stages of development. Apart from occasional newspaper and magazine articles, there was virtually no information on electronic computers available for the nonspecialist reader. Berkeley's book was intended to explain a difficult subject to curious people, most of whom would probably never see an actual electronic digital computer.



Berkeley's book is written in a clear, easy-to-read style that remains quite accessible even after the passage of over sixty years. It includes chapters on the Harvard Mark I and ENIAC, as well as notices of the Harvard Mark II, the IBM Selective-Sequence Electronic Calculator, and Eckert and Mauchly's BINAC, which were then under construction. Punched-card machines and Bush's Differential Analyzer are also discussed, and the final chapters deal with the future impact of computers on society. Pages 229-60 contain the first attempt at a comprehensive annotated bibliography of computer literature, which listed a high percentage of the very small number of publications then available on the subject. *Giant Brains* also contains the earliest description of Berkeley's own "Simon" machine, which has been called the first personal computer. *Origins of Cyberspace* 463. 51710



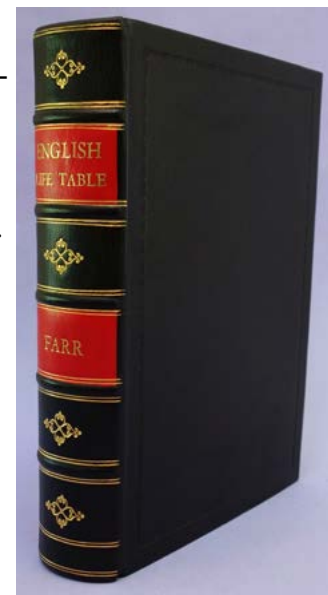
“The Soul of the Machine”—First Lengthy Working Tables Produced by the Scheutz Printing Calculator

29. Farr, William (1807-83). English life table. Tables of lifetimes, annuities, and premiums . . . Published by authority of the Registrar-General of births, deaths and marriages in England. London: H.M.S.O. & Longman, Green, Longman, Roberts and Green, 1864. Modern full morocco, gilt spine. Library stamp on title. [4], clv, 605pp. Text diagrams. 267 x 185 mm. The colophon leaf of this book indicates that 500 copies were printed.

\$7500

First Edition. Farr, a pioneer in the quantitative study of morbidity and mortality, was chief statistician of the General Register Office, England’s central statistical office. Influenced by Babbage, he had long been interested in the use of a calculating machine such as Babbage’s Difference Engine to compute life tables. It was at Farr’s recommendation that the British government authorized in 1857 the sum of £1200 for the Scheutz Engine no. 3, a machine based on the Difference Engine, to be constructed by the firm of Bryan Donkin, a manufacturer of machines for the color printing of bank notes and stamps.

The *English Life Table* contains a tremendous amount of data—6.5 million deaths sorted by age. Included in it are the first lengthy working tables produced by the Scheutz printing calculator—the first instance of such a machine being used extensively to do original work. However, none of the hoped-for benefits of mechanizing the calculation of the tables were realized, since the Scheutz machine failed to include any of Babbage’s security mechanisms to guard against mechanical error, and it required constant maintenance. Of the 600 pages of printed tables in the book, only 28 pages were composed entirely by the machine; a further 216 pages were partially composed by the machine, and the rest were typeset by hand.

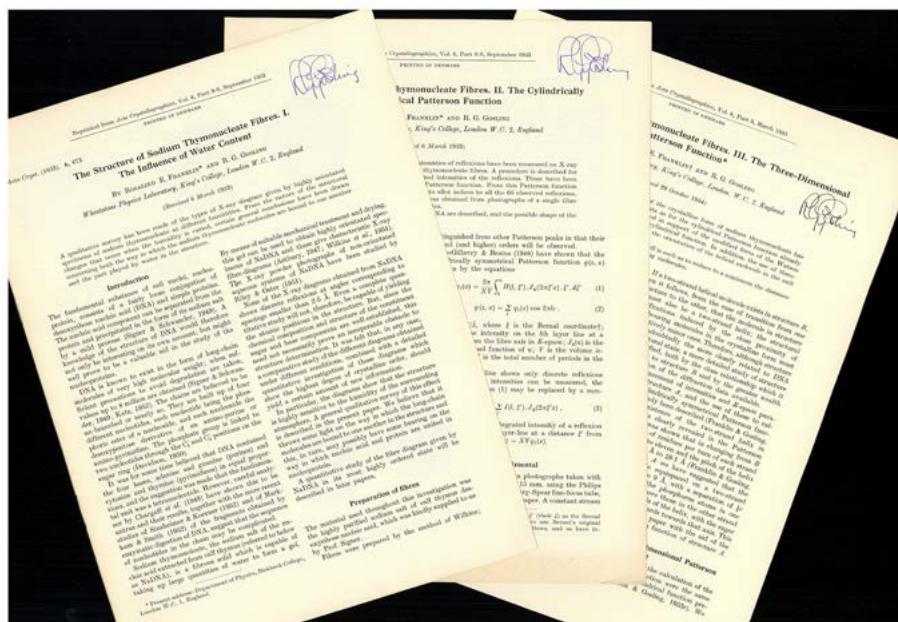


Pages cxxxix-cxliv contain Farr's appendix entitled "Scheutz's calculating machine and its use in the construction of the English life table no. 3," in which he emphasized the usefulness of the new machine, but also the delicacy and skill necessary for its operation:

The Machine required incessant attention. The differences had to be inserted at the proper terms of the various series, checking was required, and when the mechanism got out of order it had to be set right. Of the first watch nothing is known, but the first steam-engine was indisputably imperfect; and here we had to do with the second Calculating Machine as it came from the designs of its constructors and from the workshop of the engineer. The idea had been as beautifully embodied in metal by Mr. Bryan Donkin as it had been conceived by the genius of its inventors; but it was untried. So its work had to be watched with anxiety, and its arithmetical music had to be elicited by frequent tuning and skilful handling, in the quiet most congenial to such productions.

This volume is the result; and thus—if I may use the expression—the soul of the Machine is exhibited in a series of Tables which are submitted to the criticism of the consummate judges of this kind of work in England and in the world (p. cxl)

Farr also noted Babbage's contribution to the venture—it was Babbage who "explained the principles [of the Scheutz calculator] and first demonstrated the practicability of performing certain calculations, and printing the results by machinery" (p. xiii). *Origins of Cyberspace* 85. 39027

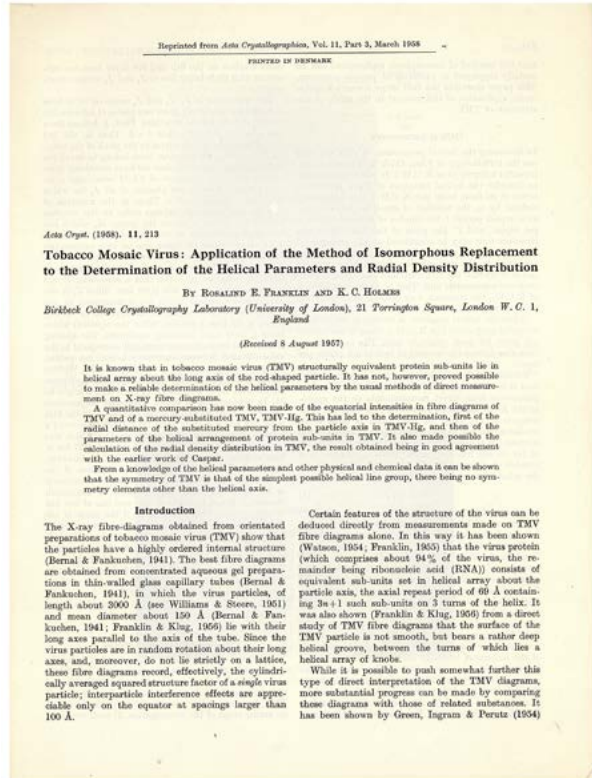
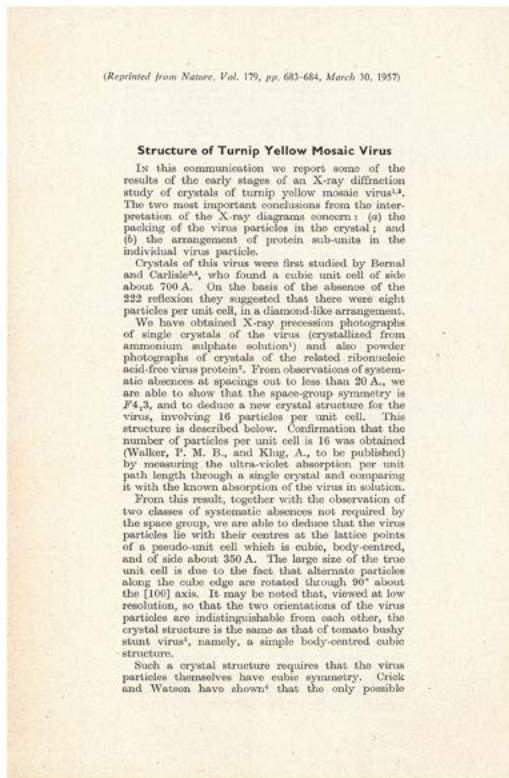


Rosalind Franklin Offprints on DNA Structure and Tobacco Mosaic Virus

30. Franklin, Rosalind (1920-58); **Raymond G. Gosling** (1926-2015). (1) The structure of sodium thymonucleate fibres. I [-III]. Offprints from *Acta Crystallographica* 6 (1953) and 8 (1955). 673-677; 678-685; 151-156pp. 268 x 202 mm. Without wrappers as issued. Each offprint signed by Gosling on the first page. With:

(2) (with R. G. Gosling). Evidence for 2-chain helix in crystalline structure of sodium deoxyribonucleate. Offprint from *Nature* 172 (1953). 5pp. Text illustrations. 212 x 141 mm. Without wrappers as issued. Signed by Gosling on the first page. With:

(3) Structural resemblance between Schramm's repolymerised A-protein and tobacco mosaic virus. Offprint from *Biochem. et Bioph. Acta* 18 (1955). 2pp., on single unbound sheet. Text illustration. 245 x 166 mm. With:



- (4) (with Aaron Klug [1926-2018] and John T. Finch [1930-2017]). Structure of turnip yellow mosaic virus. Offprint from *Nature* 179 (1957). 3pp. 212 x 141 mm. Without wrappers as issued. With:
- (5) (with Kenneth C. Holmes [1934-2021]). Tobacco mosaic virus: Application of the method of isomorphous replacement to the determination of the helical parameters and radial density distribution. Offprint from *Acta Crystallographica* 11 (1958). 213-220pp. Plate, text diagrams. 267 x 202 mm. Without wrappers as issued. With:
- (6) Ribonucleic acid in the TMV particle. Extract from unidentified periodical, tipped to blank sheet. N.p., n.d. (ca. 1958). 159 x 152 mm. With:
- (7) (with A. Klug, J. T. Finch and K. C. Holmes). On the structure of some ribonucleoprotein particles. Offprint from *The Faraday Society Discussions* (1958). 197-198pp., on single unbound sheet (corners lightly creased). 246 x 154 mm. Ms. correction in margin.

Together 7 works in offprint or extract form. 1953-58. Fine. \$20,000

First / First Separate Editions. The collection includes examples of Franklin's work on DNA (Nos. 1 and 2); tobacco mosaic virus (nos. 3, 5 and 6); and turnip yellow virus (no. 4).

In January 1951, after having learned X-ray crystallography techniques in Paris, Rosalind Franklin arrived at the MRC Biophysics Unit at King's College, London, to pursue research on the structure of DNA. The head of the MRC, John T. Randall, arranged for Raymond Gosling, a graduate student previously associated with Maurice Wilkins, to work with her. At the same time, James Watson and Francis Crick were pursuing their own DNA investigations at the Cavendish Laboratory at Cambridge, which culminated, in April 1953, in the publication of their famous double-helix model of DNA structure (based in part on information derived from one of Franklin's X-ray photographs).

In March 1953, before they were aware of the Watson-Crick model, Franklin and Gosling submitted two papers on DNA structure for publication in *Acta Crystallographica*. "The first describes the observations on

Structural resemblance between Schramm's repolymerised A-protein and tobacco mosaic virus

SCHRAMM has shown that rod-shaped particles of the protein of tobacco mosaic virus (TMV) freed from ribonucleic acid (RNA) may be prepared by breaking down the virus in weak alkali, separating the protein by electrophoresis, and subsequently repolymerising the protein by lowering the pH. In this way, a protein of molecular weight about 100,000, which SCHRAMM has called A-protein, can be built up into particles of form similar to that of the original virus.

Good X-ray fibre-diagrams of repolymerised A-protein have now been obtained, and show unequivocally that the reconstituted rods have a structure closely similar to that of the protein part of TMV. The greater part of the diagram of orientated gel of repolymerised A-protein is indistinguishable from that of the complete virus. The two diagrams are compared in Fig. 1.

The distribution of intensity on the equator of the diagrams is, however, very different in the two cases. This means that the axial projection of the electron density of the particles is different. This is to be expected since the RNA forms a central core in TMV^{1,2} and the repolymerised A-protein therefore presumably has a hollow, or water-filled core. Since the structure of the protein is clearly closely similar in the two substances, the difference in equatorial intensities must be directly related to the structural arrangement of the RNA in the virus. Quantitative measurements of equatorial intensities for the two substances are therefore being made with a view to obtaining information about the structure of the RNA.

Two other differences between the X-ray diagrams of repolymerised A-protein and of TMV are observed. In the former the intensity maxima fade out more rapidly at large angles (this is not due to less good orientation), and the central regions of the 3rd and 6th layer-lines show stronger streaking along the layer-lines and less pronounced sharp maxima. Both these effects may be attributed to a small degree of disorder in the structure of the polymerised A-protein.

In spite of the streaking mentioned above, the maxima close to but not on the meridian, which are characteristic of the helical structure of TMV protein^{3,4} are clearly visible in the repolymerised A-protein. This it appears that a helical arrangement of the protein sub-units about the particle axis persists even in the absence of the RNA core.

The repolymerised A-protein shows a much more highly ordered structure and a much closer resemblance to TMV than does the B8 protein examined by FRANKLIN AND CORMACK.⁵ The latter is a repolymerised protein prepared from an abnormal protein of low molecular weight (B1) found in the sap of plants infected with TMV. The repolymerised A-protein resembles B8, however, in certain important respects. The gel has a lower positive birefringence than TMV gel of the same concentration, while the birefringence of dry orientated polymerised A-protein is weakly negative. This shows once again (cf. ref. 7) that the RNA makes a positive contribution to the birefringence of TMV, and therefore has a structure very unlike that of DNA, which under most conditions⁸ is strongly negative.

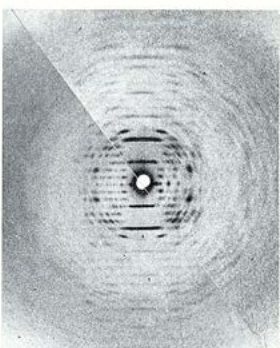


Fig. 1. X-ray fibre diagram of orientated gel of repolymerised A-protein (bottom left) compared with similar diagram given by the TMV from which the A-protein was prepared (top right).

ON THE STRUCTURE OF SOME RIBONUCLEOPROTEIN PARTICLES

By ROSALIND E. FRANKLIN, A. KLUG, J. T. FINCH AND K. C. HOLMES
Birkbeck College, Crystallography Laboratory, London, W.C.1

Received 18th February, 1958

A comparative study of X-ray powder diagrams indicates that the structure of the RNA in both microsomal particles and small viruses is very different from that of isolated RNA. The conclusion is that in these particles the RNA is not segregated, but takes on a molecular configuration determined by the form of the protein matrix.

The greater part of the ribonucleic acid (RNA) in cells is in the form of nucleoprotein particles in the cytoplasm. These particles are found in the microsomal fraction and so are referred to as microsomal particles. Crick and Watson¹ and Crick² have pointed out that the microsomal particles resemble the small viruses in size and chemical composition, and have suggested that they might be similar in structure. Since the microsomal particles are now known to be a principal site of protein synthesis³ it is of particular interest to enquire in what form the RNA is present in them.

With the small viruses it is possible to obtain X-ray diffraction photographs of crystalline or liquid-crystalline preparations and from these to deduce a considerable amount of information concerning the structural arrangement of the protein and nucleic acid in the particle.^{4,5} From preparations of microsomal particles, only X-ray powder diagrams can be obtained, and these contain much less information. However, from a comparison of these powder diagrams with powder diagrams of other substances—in particular, of the small viruses, of isolated RNA, and of pure proteins—it is possible to draw certain conclusions.

Preparations of microsomal particles from rat liver and from yeast have one important feature in common with the three small viruses which we have investigated (tobacco mosaic, turnip yellow, and tomato bushy stunt). Their X-ray powder diagrams bear no resemblance to diffraction by a mixture of RNA and protein and, in particular, show none of the diffraction characteristics of isolated RNA. That this should be so in spite of the fact that the preparations contain about 40% by weight RNA can only mean that the RNA in the particles has a structure different from that of isolated RNA.

Our only direct knowledge of the *in vivo* structure of RNA comes from our X-ray studies of tobacco mosaic virus.⁶ Here we have shown that the RNA, which forms only 6% by weight of the particle, is in the form of a single strand which lies along a large and rather flat helix 4.6 of diameter 80 Å and pitch 23 Å. It is supported in this position by the helical array of protein sub-units of the virus, and clearly could not be expected to maintain the same configuration when isolated. The virus protein, on the other hand can, in the absence of RNA, be made to take up the same structure as in the complete virus.⁷ Thus, it follows that the configuration of RNA in tobacco mosaic virus must be one which is imposed upon it by the virus protein.

That this should be true in a particle consisting of 94% protein and 6% RNA is perhaps not surprising. But the same appears to be true of turnip yellow mosaic virus, which consists of 40% RNA and 60% protein. Here again the protein structure is one which can exist in the absence of RNA,⁸ and the RNA,

RIBONUCLEIC ACID IN THE TMV PARTICLE

By R. FRANKLIN
Birkbeck College, Crystallography Laboratory, 21 Torrington Square, London, W.C.1
(read by Dr. A. KLUG)

X-ray diffraction studies have shown that the phosphatase backbone chain of the RNA in TMV lies at a radial distance of approximately 40 Å from the particle axis. The RNA is thus deeply embedded in the virus protein, and the RNA molecules meet therefore in along helical paths defined by the helical arrangement of the virus protein sub-units. It is not yet known whether the RNA in TMV is in the form of a single chain following the primary protein helix or whether there is a number of co-axial helical chains following paths more nearly parallel to the particle axis.

Optical properties show that the planes of the bases are more nearly parallel than perpendicular to the particle axis.

the types of X-ray diagram given by highly orientated specimens of sodium DNA at different humidities. Two forms of DNA fibres, named A and B, are described and the conditions are given for producing them. In this paper are reproduced the beautiful X-ray photographs which were used in the subsequent analysis of both forms. The accompanying paper describes quantitative measures on the X-ray pattern of the A form . . ." (Klug, "Rosalind Franklin" [1968], p. 808). Two years later Franklin and Gosling submitted their final paper in the series, "contain[ing] an interpretation of the three-dimensional Patterson function of the A structure in which the orientation of the helical molecules in the unit cell of the crystal is analysed and a detailed picture of the arrangement of the phosphate groups is proposed." (Klug, p. 808).

Franklin began researching tobacco mosaic virus after moving from King's College to Birkbeck College in mid-1953. Regarding Franklin's groundbreaking work on TMV, J. D. Bernal, her supervisor at Birkbeck College, wrote the following:

[James] Watson had put forward the hypothesis that the large rod-shaped virus particle was composed of a helical arrangement of small protein molecules (or subunits). Franklin showed that this was, in essence, correct. Using her improved techniques, she was able to obtain spectacular, and beautiful X-ray patterns of the virus, of such clarity that she could begin a quantitative analysis of the structure. In four short years, together with a small devoted group of students and collaborators, she determined the precise helical geometry of the protein units, and above all showed that the ribonucleic acid (RNA) of the virus, the carrier of the infectivity, in other words of the genetic information, formed a long single chain embedded deeply within the protein framework (Bernal, "Obituary notice of Rosalind Franklin," *Nature* 152 [1958]: 154).

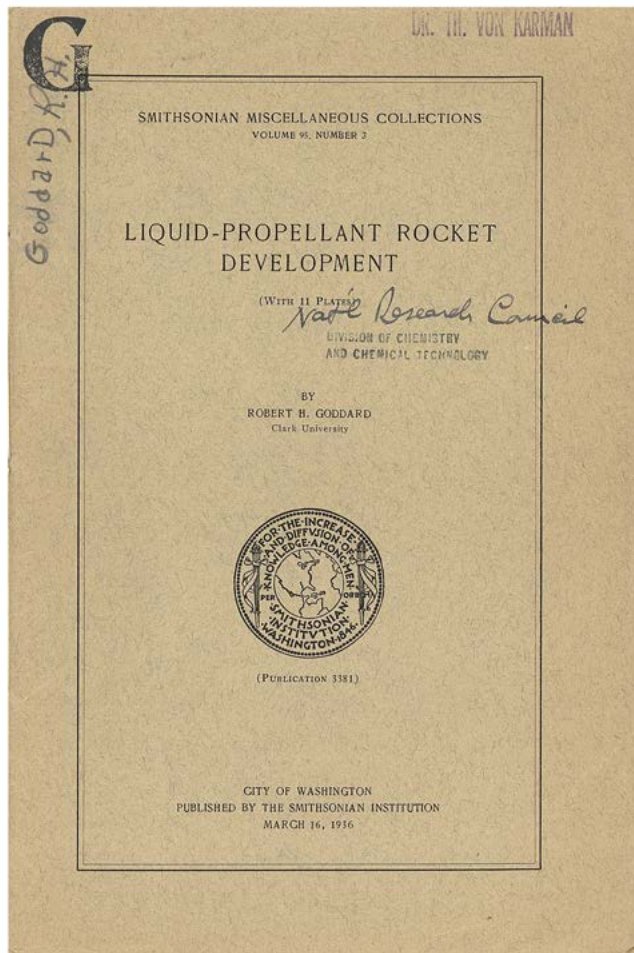
Aaron Klug, who worked closely with Franklin on the TMV virus at Birkbeck, notes that Franklin “determined the precise helical geometry of the protein units, and above all showed that the ribonucleic acid (RNA) of the virus, the carrier of the infectivity, in other words of the genetic information, formed a long single chain embedded deeply within the protein framework” (Klug, “Rosalind Franklin obituary,” *The Times* [London], 19 April 1958). Klug, “Rosalind Franklin and the discovery of the structure of DNA,” *Nature* 219 [1968]: 808-810. 50740

Theodore von Kármán's Copy

31. Goddard, Robert H. (1882-1945). Liquid-propellant rocket development. 10pp. 6 plate leaves. Washington, DC: Smithsonian Institution, 1936. 246 x 163 mm. Original printed wrappers; preserved in a cloth drop-back box. Fine copy. From the library of aviation and aerospace pioneer **Theodore von Kármán** (1881-1963), with his stamp and docketing on the front wrapper. Front wrapper inscribed “Nat'l Research Council,” with stamp beneath reading “Division of Chemistry and Chemical Technology.” \$3000

First Edition. “Like the Russian hero Konstantin Tsiolkovsky and the German pioneer Hermann Oberth, Goddard worked out the theory of rocket propulsion independently . . . Having explored the mathematical practicality of rocketry since 1906 and the experimental workability of reaction engines in laboratory vacuum tests since 1912, Goddard began to accumulate ideas for probing beyond the Earth’s stratosphere. His first two patents in 1914, for a liquid-fuel gun rocket and a multistage step rocket, let to some modest recognition and financial support from the Smithsonian Institution . . . With an eye toward patentability of demonstrated systems and with the aid of no more than a handful of technicians, Goddard achieved a series of workable liquid-fuel flights starting in 1926. Through the patronage of Charles A. Lindbergh, the Daniel and Florence Guggenheim Foundation, and the Carnegie and Smithsonian institutions, the Goddards and their small staff were able to move near Roswell, New Mexico. There, during most of the 1930s, Goddard demonstrated, despite many failures in his systematic static and flight tests, progressively more sophisticated experimental boosters and payloads, reaching speeds of 700 miles per hour and altitudes above 8000 feet in several test flights” (*Dictionary of Scientific Biography*). The secretive Goddard published only two papers on rocketry: “A Method of Reaching Extreme Altitudes” (1919) and the present work.

This copy is from the library of aeronautics pioneer Theodore von Kármán, who in addition to directing the Jet Propulsion Laboratory at Caltech was also the founder of the Aerojet Engineering Corporation, one of the industrial giants of the jet age. “At Caltech, Karman and his students laid the foundations for aerodynamic design leading to supersonic flight” (*Dictionary of Scientific Biography*). 43705



Exceptionally Rare Inscribed Presentation Copy

32. Hertz, Heinrich Rudolf (1857-1894). (1) Untersuchungen ueber die Ausbreitung der elektrischen Kraft. vi, [2], 295pp. Presentation slip bound in before title. Text diagrams. Leipzig: Johann Ambrosius Barth, 1892. 229 x 146 mm. Original cloth, gilt-lettered spine. Fine copy. *Presentation Inscription from Hertz to Édouard Sarasin* (1843-1917) on the front free endpaper: “Herrn Ed. Sarasin in aufrichtiger Verehrung gewidmet vom Verfasser, H. Hertz.” Sarasin’s signature on the title. With: (2) **Sarasin, Édouard** (1843-1917); **Lucien de la Rive** (1834-1924). Interférences des ondulations électriques par réflexion normale sur une paroi métallique. Égalité des vitesses de propagation dans l’air et le long des fils conducteurs. Offprint from *Archives des sciences physiques et naturelles*, 29 (1893). Geneva: Imprimerie Aubert-Schuchardt, 1893. 67pp. 4 folding plates. 230 x 148 mm. Original printed wrappers, spine split, some chipping and a few marginal tears, approx. 6 x 4 cm. piece torn from upper corner of back wrapper. Internally very good. *Presentation Copy*, inscribed on the title: “Monsieur Lambert hommage de Ed. Sarasin.” Sold.

First Editions; Extremely Rare Presentation Issue of no. (1), bound in cloth and with the presentation slip inserted before the title. This copy is especially significant in that Hertz presented it to Swiss physicist Edouard Sarasin, one of the scientists Hertz relied on to repeat, test and elaborate on his own experimental results pertaining to electromagnetic wave radiation. *This is the only signed and inscribed presentation copy of Hertz’s work that has appeared on the market in the past 50 years.*

Hertz was the first to demonstrate experimentally that electromagnetic waves radiate in space at the speed of light, just as Maxwell had predicted in *his Treatise on Electricity and Magnetism* (1865). Hertz determined that electromagnetic waves were longer than light waves and showed that they were in complete correspondence with the waves of light and heat in the transverse nature of their vibration and their susceptibility to reflection, refraction and polarization.

Hertz presented this copy to Edouard Sarasin, who, together with fellow Swiss Lucien de la Rive, published a series of papers between 1890 and 1893 documenting their investigation into an anomalous result produced during one of Hertz’s experiments. “In his celebrated 1888 experiment on standing waves, Hertz found the velocity of transmission along a wire line to depend on wavelength and to differ from that of wireless transmission, a result that was in contradiction to theory. Hertz called on others to repeat the experiments and verify or refute his results. The call was heard by two groups of scientists. In Dublin, George Francis Fitzgerald and associates repeated and elaborated Hertz’s experimental discoveries. For wire transmission, their results were in good agreement with those of Hertz. On the other hand Édouard Sarasin and Lucien de la Rive of Geneva obtained the results required by theory” (O’Hara, p. 545). Sarasin and de la Rive’s “Égalité des vitesses de propagation dans l’air et le long des fils conducteurs” (no. 2 above) was the last in this important series of papers; see O’Hara, p. 559. J. G. O’Hara, “A ‘horrible conflict with theory’ in Heinrich Hertz’s experiments on electromagnetic waves,” *European Review* 15 (2007): 545-559. Norman 1061. *Printing and the Mind of Man* 377. 51701



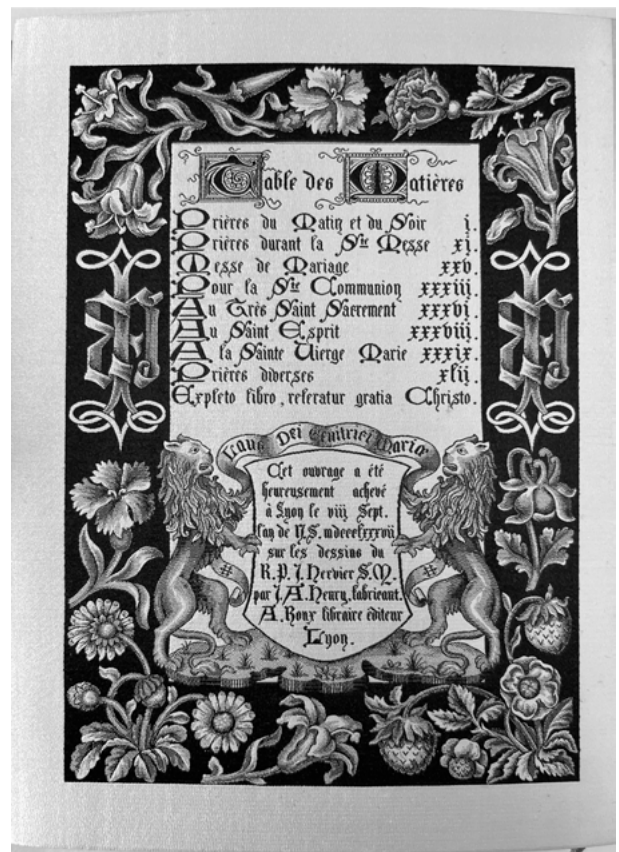
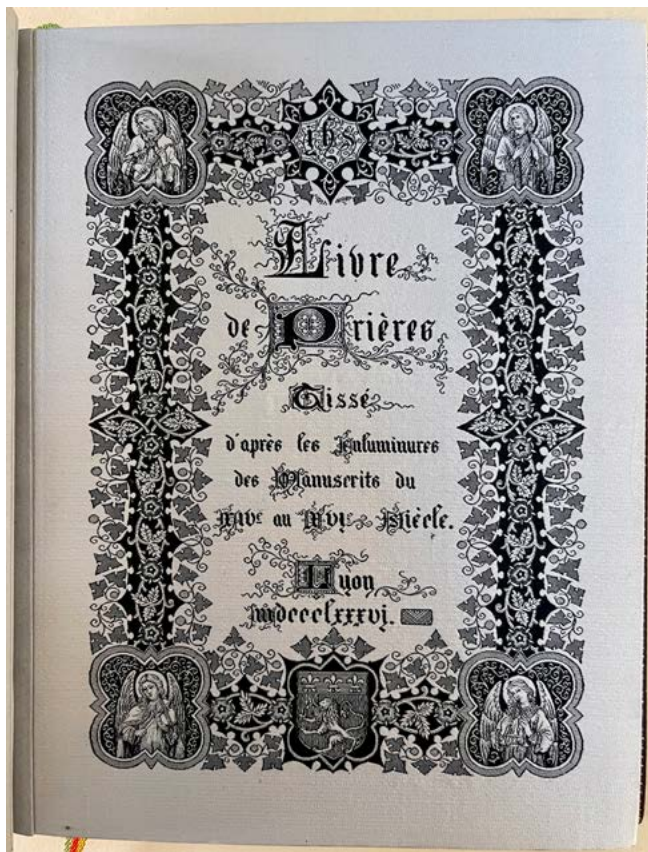
Signed by Herschel and Cameron

33. Herschel, John (1792-1871). Carte-de-visite photograph by Julia Margaret Cameron (1815-79). N.p., n.d. (ca. 1867). 100 x 64 mm. Some spotting, slight edge-wear, but very good. *Signed by both Herschel and Cameron* in the lower margin. Archivaly framed (frame measures 243 x 207 mm.).

\$4500



Rare carte-de-visite version of one of Cameron's most famous photographs—her iconic portrait of British scientist John Herschel, known for his contributions to astronomy, mathematics and photography. Carte-de-visite photographs by Cameron are very rare, and this example is especially noteworthy in that it bears the signatures of both Cameron and Herschel. From the collection of Marvin Sadik, former curator of the National Portrait Gallery in Washington, DC. 42713

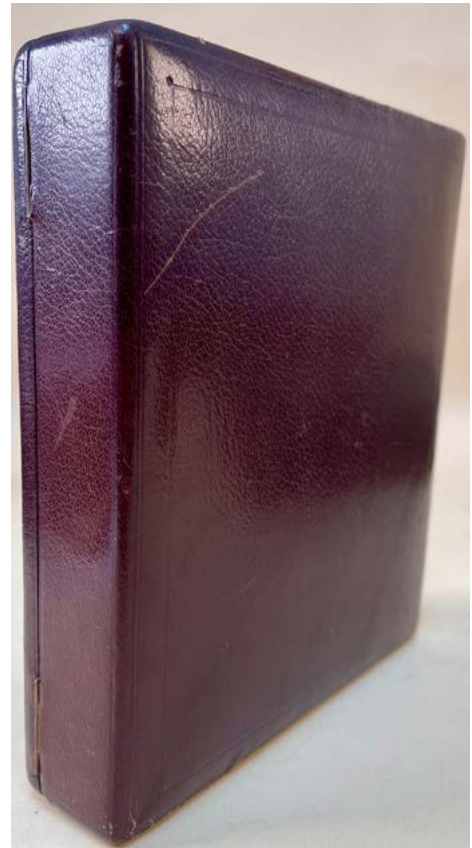


First Digitally Produced Book?

34. [Jacquard Automated Loom.] Livre de prières tissé d'après les enluminures des manuscrits du XIV^e au XVI^e siècle. 25 leaves woven in silk on the Jacquard automated loom by the firm of J. A. Henry after designs by R. P. J. Hervier, plus 3 leaves of plain silk, mounted on thin card. Lyon: A. Roux, 1886 [colophon dated 1887; our copy issued in 1889]. 170 x 135 mm. Full crushed morocco, elaborate inlaid "endpapers" in colored leather and gilt inside the front and back covers signed "Hauptmann-Petit" and "Maillard"; in a custom full morocco case lined in velvet and silk. Woven for Noé(?) Delaitre in 1889, as indicated on the page facing the half-title. Fine. \$45,000

One of the true marvels of nineteenth-century technology in the service of the "Book Arts," which absolutely must be seen to be fully appreciated—a spectacular neo-Gothic Book of Prayers woven in silvery-grey and black silk thread by the Jacquard automated loom, which used a series of punched cards to produce elaborate woven patterns in cloth. Because the book was produced entirely from Jacquard cards, in which the punched holes or lack thereof are analogous to the digital logic of zeros and ones, this entirely woven book could be considered the first book produced by what we call a program, or the first digitally produced book. An estimated 50 or 60 copies were issued.

The technical virtuosity and degree of finesse achieved in this production represents a high point in the application of the Jacquard loom to the weaver's art. It is not known how many punched cards it took to produce the book, but estimates are between 200,000 and 500,000 cards to weave 400 wool threads per 2.5 cm. (approximately one square inch), demanding machine movements of not more than a tenth of a millimeter. Fine quality gray and black silk threads were used.



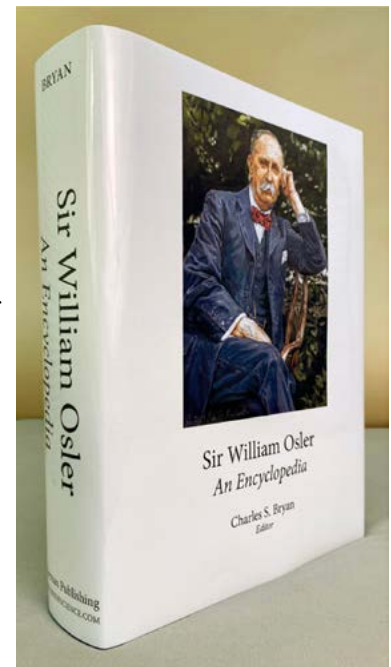
The prayer book's pages, which include elaborate borders, decorative initials, and three miniatures of the Virgin and Child, Crucifixion and Nativity, were all taken from Gruel and Engelmann's *Imitation de Jésus-Christ* (1874), which contains reproductions of a variety of illuminated manuscripts from the 14th to the 16th centuries. The original designs for the book are held by the Musée des Tissus et des Arts décoratifs de Lyon.

Matthew J. Westerby, in *The Woven Prayer Book: Cocoon to Codex* (2019), points out that the *Livre de prières* could be customized with an owner's name on the verso of the half-title. In our copy, the escutcheon in the designs on that leaf contains the letters ND, and beneath that the name Noe [?] Delaitre is woven in the banderole, with the date 1889, indicating most probably that the copy was woven and bound to order in 1889. In copies that were not customized those spaces were left blank. L. M. C.

Randall, "A nineteenth-century 'medieval' prayerbook woven in Lyon," in M. Barasch and L. F. Sandler, eds., *Art the Ape of Nature: Studies in Honor of H. W. Janson* (1981), pp. 651-668. 44570

35. Osler, William (1849-1919). *Sir William Osler: An encyclopedia*. Edited by Charles S. Bryan. 970 pages plus 22 pages of front matter, 8.5 x 11 inch format, two-sided color frontispiece, 624 images, full cloth binding, laminated dust jacket. Novato: Norman Publishing in association with the American Osler Society, 2020. ISBN 978-0-930405-91-5. \$125

Sir William Osler (1849–1919) was the most famous and best loved physician in the English-speaking world during the early twentieth century. Osler was voted “the most influential physician in history” in a 2016 survey of North American doctors, but his interests and influence transcend medicine. This volume offers the first comprehensive reference to Osler’s personality, character, life, times, and thinking about a broad range of issues relevant to the human condition. 45472



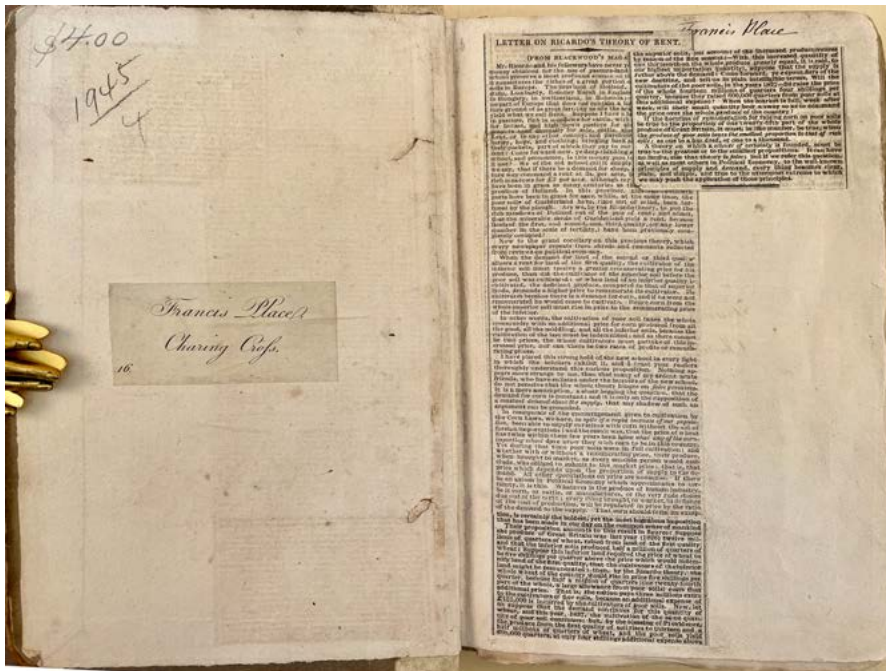
With the Rare Original Box

36. Ravenstein, Friedrich August (1809-81). *Plastischer Schul-Atlas für die erste Stufe des Unterrichts in der Erdkunde*. Set of 8 colored relief maps printed on light pasteboard, in the original cardboard drop-side box (expertly repaired) with polychrome paper label, preserved in a cloth drop-side box with acetate window in the lid. Frankfurt am Main: B. Dondorf, 1854. 235 x 282 mm. (maps); 245 x 295 mm. (box). Raised areas of maps a bit worn, box label a bit soiled and rubbed, but a very good set of this fragile atlas. \$4000



Third edition, complete with the rare original box featuring a highly decorative polychrome label on the lid, with inner label serving as the set’s “title-page” and key to the maps. Ravenstein, an innovative German cartographer, was the first to produce and publish commercially viable relief maps, issuing the first edition of his “Plastic” (i.e., relief) atlas in 1838. The atlas, intended as a teaching tool, was a considerable success, going through several editions up until the late 19th century; it was also issued in English and French versions. The set includes maps of Germany, Europe, Asia, Africa, North and South America, and Australia, together with an “Ideal-Bild” illustrating the maps’ various cartographic features. Due to their fragility, examples of this atlas are scarce. 45321





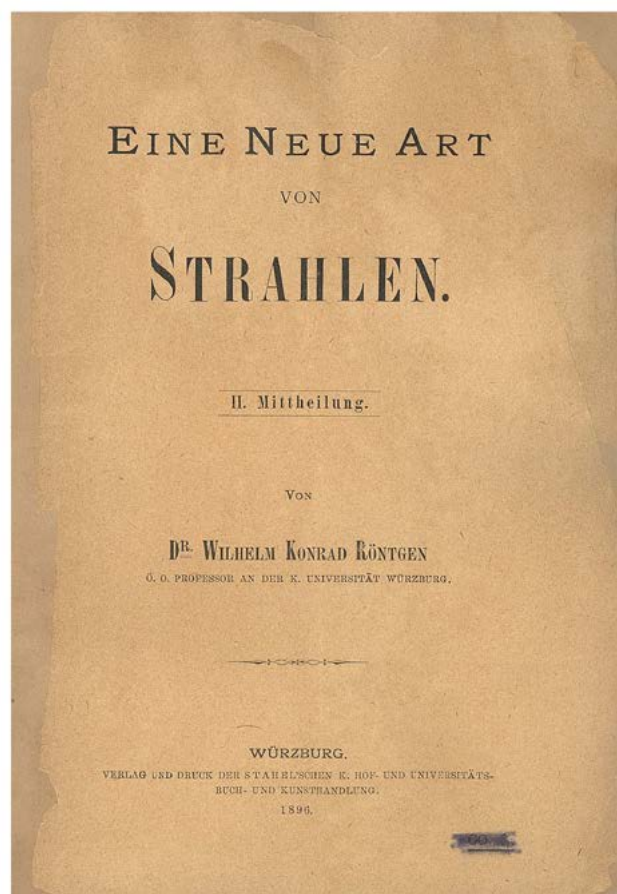
Francis Place's Copy

37. Ricardo, David (1772-1823). On the principles of political economy, and taxation. xii, 538pp. London: John Murray, 1821. 231 x 144 mm. (uncut). Original boards, rebaked, corners worn, light rubbing and staining; preserved in quarter morocco drop-back box. Light toning, edges a bit frayed, but very good. From the library of **Francis Place** (1771-1854), founder of the modern birth-control movement, with his signature and bookplate on the front endpapers and manuscript notes on the rear flyleaf; a few pencil notes probably his in the margins; 19th-century newspaper clippings on relevant topics tipped to the recto and verso of the front free endpaper. \$6500

Third edition. David Ricardo is one the most important figures in the development of economic theory. He was one of the founders of the “Classical school” of economics, based on the idea that free markets can regulate themselves. He formalized the principles of the Classical system in his landmark *Principles of Political Economy and Taxation* (1817), which took the science of “political economy” to an unprecedented level of theoretical sophistication. Ricardo’s work dominated economic thought throughout the nineteenth century.

This copy of Ricardo’s classic work is from the library of his friend Francis Place, author of *Illustrations and Proofs of the Principle of Population* (1822), a work of great significance in economics, social history and population theory, and the founding document of the modern birth-control movement. “Though many preceded Francis Place in discussing the technique of contraception, he seems to have been the first to venture, at first alone and unaided, upon an organized attempt to educate the masses. *Place, holds, therefore, the same position in social education on contraception that Malthus holds in the history of general population theory . . . it was Place who first gave birth control a body of social theory*” (Himes, *Medical History of Contraception*, pp. 212-13; emphasis ours).

Place’s *Illustrations and Proofs* was a direct response to Malthus’s *Essay on the Principle of Population* (1798), a copy of which Ricardo had sent him; Place in turn sent the manuscript of his book to Ricardo for comments, and Ricardo replied in a lengthy letter to Place dated 9 September 1821 (Ricardo, *Works and Correspondence*, vol. 9 [1973], pp. 49-57). 46520



The X-Ray

38. Röntgen, Wilhelm Konrad (1845-1923). 1. Ueber eine neue Art von Strahlen. (Vorläufige Mittheilung.) Offprint from *Sitzb. Würzb. Phys.-med. Gesells.* (1895), no. 9, 132-41. 8vo. 10pp. Würzburg: Stahl, 1895. 229 x 151 mm. Original wrappers, a little stained and chipped, expertly restored. Slight foxing. 2. Eine neue Art von Strahlen. II. Mittheilung. Offprint from *Sitzb. Würzb. Phys.-med. Gesells.* (1896) nos. 1-2, 11-19. 8vo. 9, [3]pp. (adverts.). 218 x 152 mm. Original wrappers, somewhat chipped, expertly repaired. Text a little browned & chipped. *Ibid.*, 1896. Together 2 offprints, in a cloth case. Very good. 1895-96. \$12,500

1. **First Separate Edition** of Röntgen's original communication of the discovery of the X-ray. G-M 2683. The most important contribution to medical diagnosis in a century, and the key to modern physics, Röntgen's paper was in immediate demand; there were five separate printings, in six issues, in the space of two months. Dibner 162. Horblit 90. *Printing and the Mind of Man* 380.

2. **First and Only Separate Edition** of Röntgen's follow-up communication, published in March of 1896, in which he introduced a scale for measuring X-ray intensity and an improved tube. These original papers are extremely difficult to obtain today. [Le Fanu], *Notable medical books* 239. Gernsheim 517-18. Klickstein, *Roentgen*, pp. 24-30 & entries III.2, III.10. Cushing R 193-94. Osler 1700. Waller 8078 & 8083. 38525



39. Valier, Max (1895-1930). *Raketenfahrt*. viii, 252pp. Text illustrations. Munich & Berlin: R. Oldenbourg, 1928. 216 x 137 mm. Text illustrations. Original pictorial soft covers, slightly worn. Very good. Inscribed by Valier on the title: "Frl. Dr. Gertie Guckenheimer in Hochschätzung und Freundschaft zugeeignet. Mit Kameradschaftlichen Grüßen Max Valier Berlin 11.11.1928."

\$950

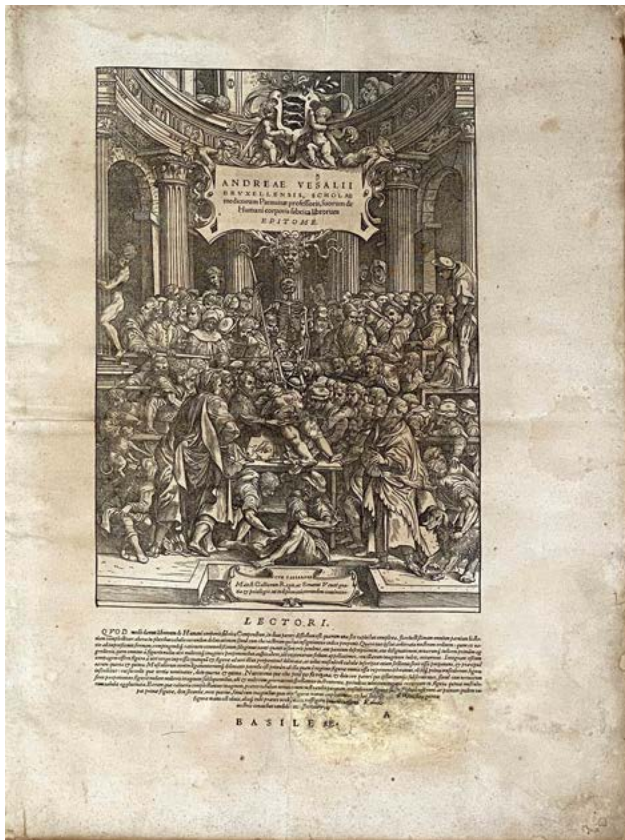
Fifth printing; originally published in 1924 under the title *Der Vorstoss in den Weltenraum* (Advance into interplanetary space). "From 1925 to 1929 this book went through five printings without important changes; in 1930 a revised and greatly enlarged edition was published" (Ley, p. 421). Valier, a writer of popular science books, was one of the first champions of Oberth's work in rocketry and space flight; his 1924 book and its subsequent printings / editions were "enormously successful in popularizing Oberth's ideas" (Winter, *Founders of Spaceflight Theory*, p. 25). Valier went on to design his own spacecraft and rocket cars; in 1930 he was killed when one of his rocket car engines exploded. Ley, *Rockets, Missiles and Space Travel*, pp. 115, 135. Ordway, *Blueprint for Space*, pp. 62-63. 50268



Completely Unrestored Copy of the Extremely Rare “Epitome”

40. Vesalius, Andreas (1514-64). *Suorum de humani corporis fabrica librorum epitome*. Broad-sheet folio. [14]ff. signed A-M [N-O], with woodcut title, large woodcut portrait of Vesalius, 9 full-page anatomical woodcuts, 2 full-page figures of a nude male and female, 2 sheets of woodcut anatomical details for cutting out & mounting, and several woodcut initials. Basel: Oporinus, June 1543. 553 x 407 mm. Original limp vellum creased horizontally and vertically, some staining; preserved in a cloth folding case. All sheets with horizontal fold-marks across center (as in all copies) as well as vertical fold-marks, repair on title-page affecting several words in the “Lectoris” paragraph and the “Basileae” at the foot, with a few letters in ink facsimile, a few lacunae in the title-leaf and one or two other leaves, some staining and toning. Overall a very good, well-preserved and complete copy with large margins, completely unrestored. \$225,000

First Edition of the extremely rare *Epitome*. “[Vesalius’s] *Fabrica* may be the only masterwork in the history of medicine and science that was published simultaneously with a synopsis prepared by the author. Vesalius designed his *Suorum de humani corporis fabrica librorum epitome* to serve as a more affordable outline key to the encyclopedic and expensive *Fabrica*. In his dedication to Prince Philip, Vesalius stated that ‘I have made [the *Epitome*] to be as if it were a foot-path beside the larger book, and as an index of what is set forth in it.’ Unlike the *Fabrica*, however, which begins with the skeletal system and works outward, the *Epitome*’s approach to anatomy is topographical: That is, the muscles are first discussed, followed by a combined study of the vessels, nervous system and viscera. The various parts of the anatomy are illustrated in nine woodcuts, divided into two skeletal, four muscular, and two circulatory charts, plus a neurological chart. The skeletal, muscular and

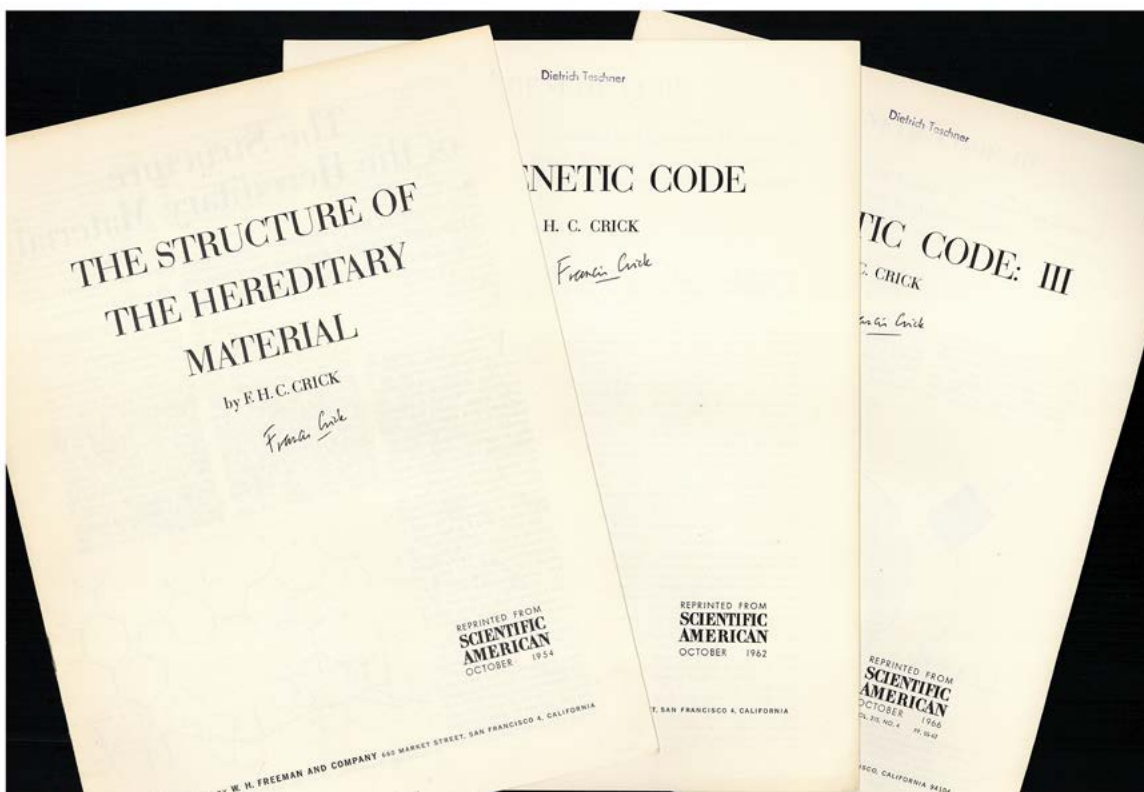


one of the circulatory plates are similar, but not identical, to plates found in the *Fabrica*: the *Epitome's* plates are some sixty millimeters taller, the figures are in slightly different attitudes and less space is devoted to background scenery (leaf K1 duplicates the *Fabrica's* thinking skeleton, but with the inscription on the pedestal changed). The remaining circulatory plate and the neurological plate are reproduced, with different text, on the two folding plates found in the *Fabrica* . . . In addition to these nine anatomical plates, the *Epitome* includes two woodcuts of a nude male and nude female figure, accompanied by long descriptions of the surface regions of the body; nothing like them appears in the *Fabrica*. The *Epitome's* title-page woodcut and portrait of Vesalius are from the same blocks used in the larger work.



“Published in a larger format than the *Fabrica*, in the form of separate sheets to be used for wall charts, and not necessarily bound, the *Epitome* is considerably rarer than the *Fabrica* today. Many copies of the *Epitome* are incomplete, and the last two unsigned sheets ([N]1 and [O]1), printed with individual parts of the body to be cut out and assembled into two figures, male and female, are especially rare” (Norman / Grolier, *100 Books Famous in Medicine*, 18).

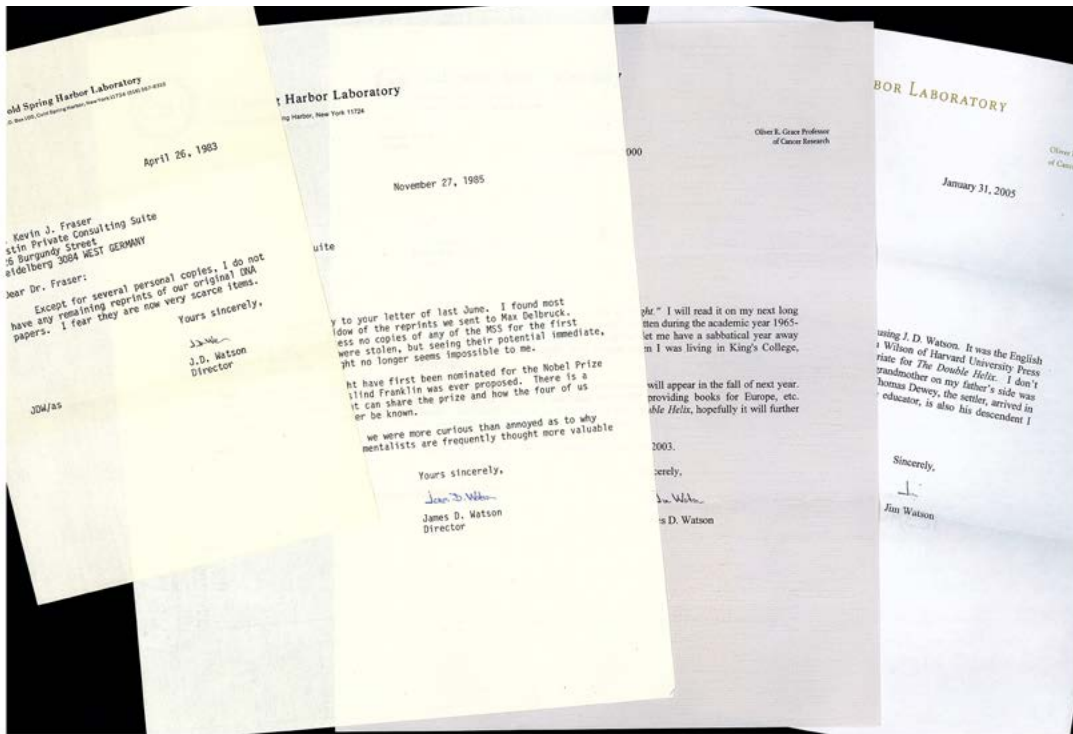
Cushing traced only 22 copies of the *Epitome* (2 of them printed on vellum), without, however, commenting on their completeness or otherwise. To these are to be added the three copies listed in Grolier, *Heirs of Hippocrates*, and Cockx Indestege’s Belgian census. All copies of the *Epitome* (including the vellum copy in the British Museum) have sheets that bear traces of having been folded in half horizontally, as this is how the publisher sent the work’s oversize single sheets to their recipients. Adams V607. Choulant-Frank, pp. 180-81. Cockx Indestege, *Vesalius*, 46 (“leaves L with the female nude and [O] with one set of figures to be cut out, wanting”). Cushing, *Vesalius*, VI B-1. Garrison-Morton.com 376. 45492



41. Watson, James D. (1928-); **Francis H. C. Crick** (1916-2004). Collection of published papers (including four **signed by Crick**), **four typed letters signed by Watson**, and other items relating to their contributions to molecular biology, as listed below. 1954 – 2005. Overall very good; see below for individual condition statements. \$12,500

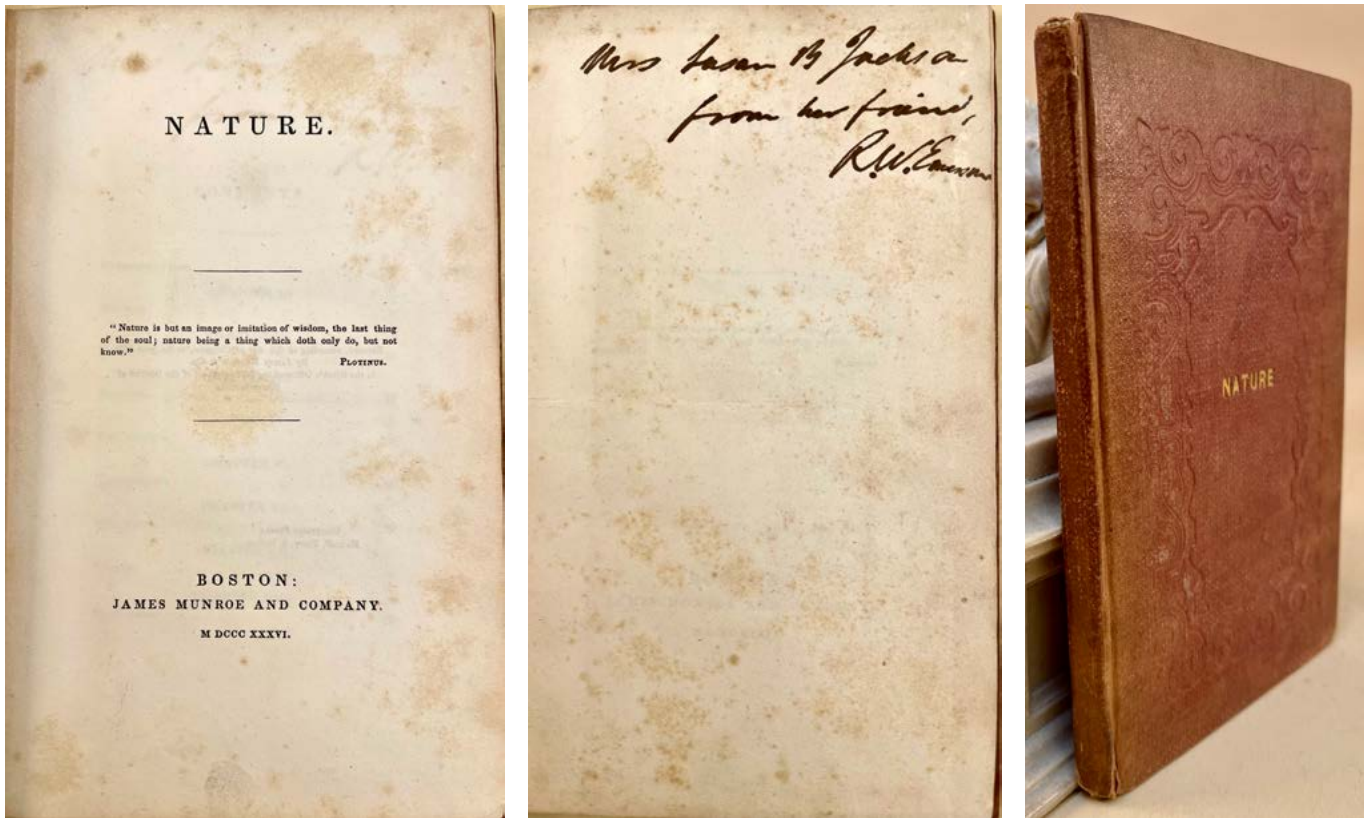
First Editions, Offprint Issues of the papers, except as noted below. Watson and Crick's discovery of the double-helical structure of DNA is generally considered the most important medical and biological discovery of the second half of the twentieth century. We are offering here a selection of their later papers on topics in molecular biology, along with a series of correspondences between Watson and Australian physician and collector Kevin J. Fraser, written between 1985 and 2005.

1. **Crick.** The structure of the hereditary material. Offprint from *Scientific American* (October 1954). 7, [1]pp. 278 x 212 mm. Without wrappers as issued. Signed by Crick on the first leaf. A few marginal pencil annotations.
2. **Crick.** The structure of the hereditary material. In *Scientific American* (October 1954): 54-61. Whole number. 295 x 220 mm. Original printed wrappers, some wear and soiling. Signed by Crick on the first page of the article.
3. **Crick.** The genetic code. Offprint from *Scientific American* (October 1962). 9, [1]pp. 278 x 212 mm. Without wrappers as issued. Signed by Crick on the first leaf. Ownership stamp.
4. **Crick.** The genetic code: III. Offprint from *Scientific American* (October 1966). 9, [3]pp. 278 x 212 mm. Without wrappers as issued. Signed by Crick on the first leaf. Ownership stamp.
5. **Crick and Aaron Klug** (1926-2018). Kinky helix. Offprint from *Nature* 255 (1975). [4]pp. 280 x 214 mm. Without wrappers as issued.
6. **Watson.** Genetic evidence in *Escherichia coli* K12: Evidence for three linkage groups. Offprint from *Proceedings of the National Academy of Sciences* 39 (1953). 416-426pp. 258 x 175 mm. Original printed wrappers. Stamp of molecular biologist Rollin D. Hotchkiss (1911-2004) on the front wrapper.
7. **Watson.** The structure of tobacco mosaic virus. I. X-ray evidence of a helical arrangement of sub-units around the longitudinal axis. Offprint from *Biochemica and Biophysica Acta* 13 (1954). 10-19pp. Original printed self-wrappers. Light creasing, small tear in front wrapper.
8. **Watson and A. Tissières.** Ribonucleoprotein particles from *Escherichia coli*. Offprint from *Nature* 182 (1958). 6, [1] pp. 212 x 141 mm. Original printed wrappers. Stamp of molecular biologist Gunther Stent (1924-2008) on the front wrapper.



9. **Watson et al.** Molecular and biological characterization of messenger RNA. Offprint from *Cold Spring Harbor Symposia on Quantitative Biology* 26 (1961). 111-132pp. 273 x 199 mm. Original printed wrappers, horizontally creased. Stamp of molecular biologist Rollin D. Hotchkiss (1911-2004) on the front wrapper.
10. **Watson.** DNA 50 years ago and today. Computer-generated typescript. 13ff. N.p., 28 April 2003. 298 x 213 mm. Text of Watson's address delivered at "A Celebration of the DNA Double Helix at 50," held at Trinity College, Dublin.
11. **Watson.** Four typed letters signed to Australian physician and collector Kevin J. Fraser, together with Fraser's file copies of four typed letters to Watson. 14 April 1983 – 31 January 2005. Topics discussed include the offprint of Watson and Crick's 1953 paper; the 1962 Nobel Prize shared by Watson, Crick and Wilkins; Watson's *The Double Helix* (1968) and its sequel, *Genes, Girls and Gamov* (2001).

Philosophy & Literature

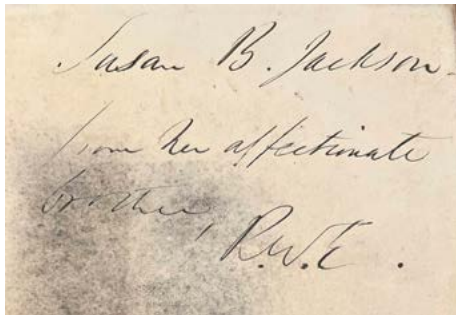
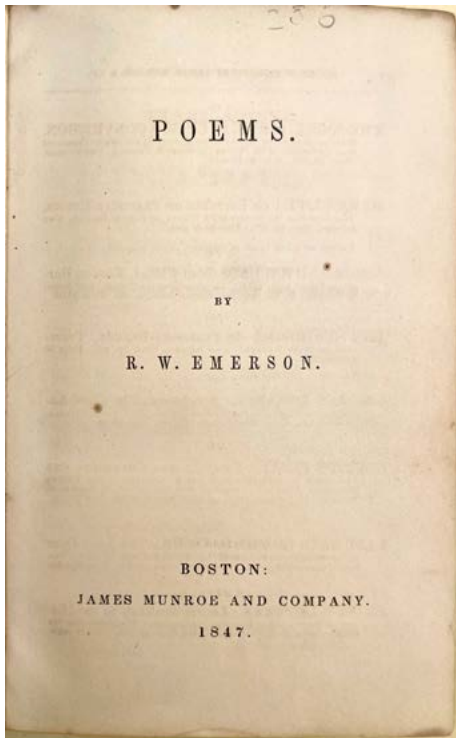


Foundation Document of Transcendentalism— Inscribed Presentation Copy of the Rare First State

42. Emerson, Ralph Waldo (1803-82). *Nature*. 95pp. Boston: James Munroe & Co., 1836. 188 x 117 mm. Original blindstamped cloth, title stamped in gilt on the front cover, front hinge cracking, extremities chipped; later cloth slipcase. Light foxing and toning but very good. *Presentation Copy*, inscribed by Emerson on the front free endpaper to Susan B. Jackson, wife of Charles T. Jackson (1805-80): “Mrs. Susan B. Jackson from her friend, R. W. Emerson.” Sold.

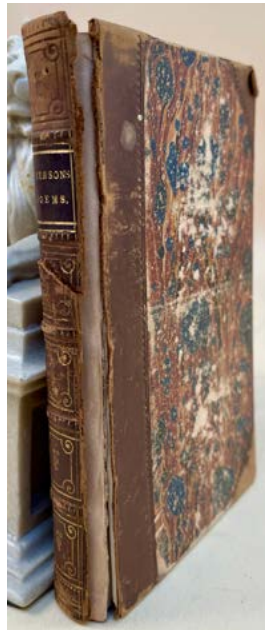
First Edition, Rare First State, with page 94 incorrectly numbered “92.” Foundation document of transcendentalism, the influential philosophical, literary and spiritual movement that developed in New England during the 1820s and 1830s; ‘if the movement had a manifesto it would have been Emerson’s 1836 essay ‘Nature’ (“Note,” p. iii). Transcendentalism, one of the first philosophical currents to emerge in the United States, posited the inherent goodness of people and nature, and prioritized intuition and self-reliance over objective empiricism. Transcendentalism became a coherent movement in 1836 with the foundation of the Transcendental Club, which numbered Emerson, Thoreau, Margaret Fuller, Bronson Alcott and Elizabeth Peabody among its members.

Emerson inscribed this copy to Susan Jackson, wife of his brother-in-law Charles T. Jackson, famous in his own right as the discoverer of ether anesthesia. The only other presentation copy of the first issue in the auction records is the Doheny copy, inscribed to Thomas Carlyle, which sold for \$25,300 in 1988. “Note,” in Emerson, *Nature and Other Essays* [2009], pp. iii-vi). 51707



43. Emerson, Ralph Waldo (1803-82). *Poems*. [2], 251pp. Boston: James Munroe & Co., 1847. 168 x 103 mm. Half calf, marbled boards ca. 1847, front cover detached, tear in spine, some rubbing and wear; later cloth slipcase (worn at top extremity). Endpapers stained, light toning but good to very good. *Presentation Copy, Inscribed by Emerson* to Susan B. Jackson, wife of his brother-in-law Charles T. Jackson (1805-88) on the front free endpaper: "Susan B. Jackson from her affectionate brother, R. W. E." \$7500

First Edition. Although better known as an essayist, Emerson is also an important American poet, whom one critic praised as "a poetry theorist of profound reach, a revolutionary committed to the introduction of a radical aesthetics" (Porter, p. 1). Emerson published two major poetry collections in his lifetime, of which *Poems* was the first. "Dated 1847 (it actually was printed in December 1846), [*Poems*] contains 256 pages, with 56 poems and two translations . . . [it] contains the majority of his most famous pieces—works such as 'The Sphinx,' 'The Rhodora,' 'Uriel,' 'The Snow-Storm,' 'Bacchus,' 'Hamatreya,' 'Threnody,' and the Concord 'Hymn'" (Morris, pp. 219-220).



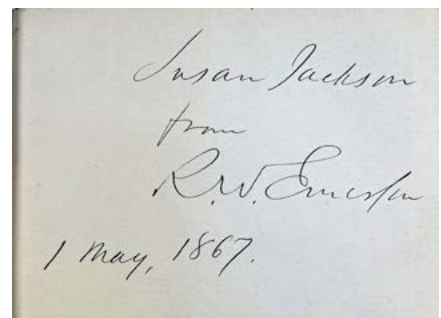
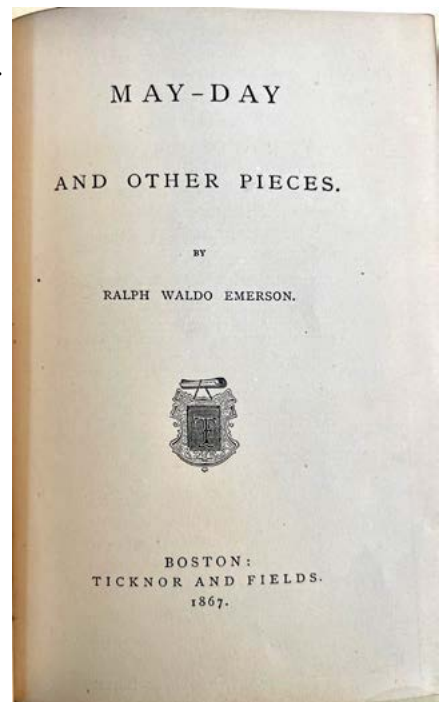
Emerson inscribed this copy to Susan Jackson, wife of his brother-in-law Charles T. Jackson, famous in his own right as the discoverer of ether anesthesia. S. Morris, "'Metre-making' arguments: Emerson's poems," in J. Porte and

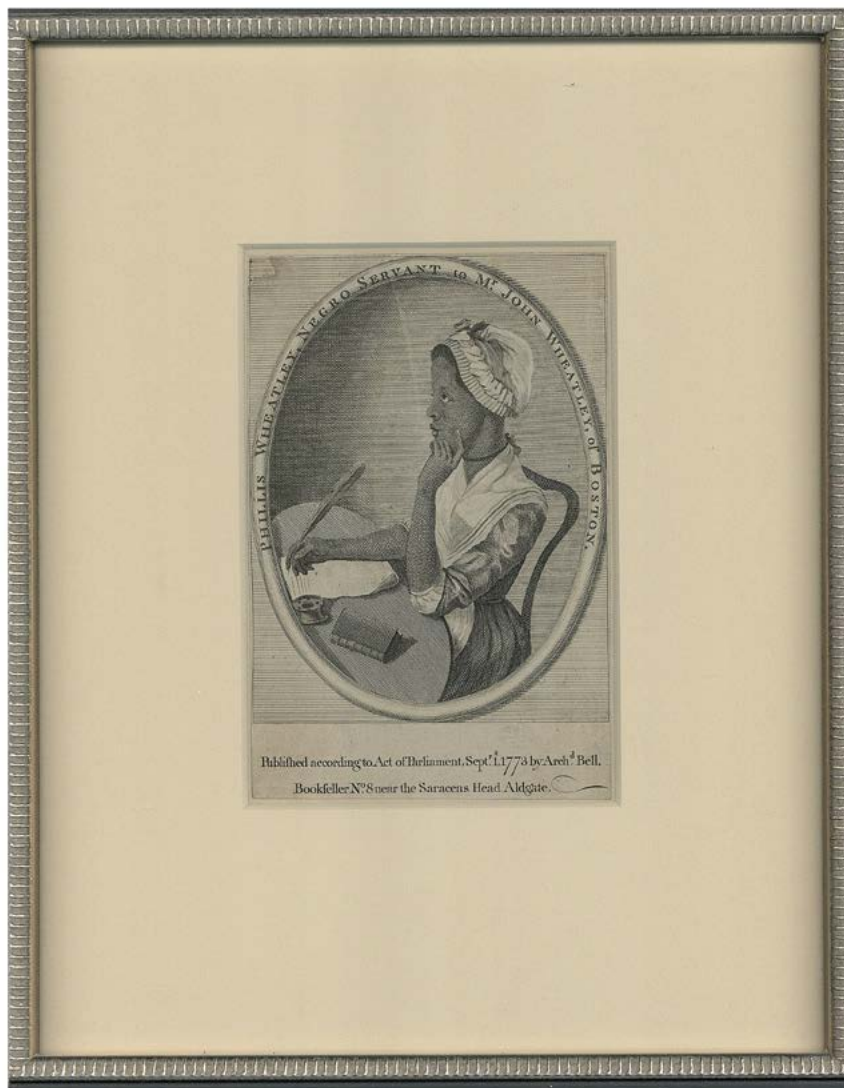
S. Morris, eds., *The Cambridge Companion to Ralph Waldo Emerson*, pp. 218-242. D. Porter, *Emerson and Literary Change*, p. 1. 51705

44. Emerson, Ralph Waldo (1803-82). *May-day and other pieces*. iv, 205pp. Boston: Ticknor and Fields, 1867. 177 x 120 mm. Original cloth, gilt-stamped on the spine and front cover, top edges gilt, spine darkened, some soiling, small splits in hinges but sound. Light toning but very good. *Presentation Copy, Inscribed by Emerson* on the front flyleaf to Susan B. Jackson, wife of Charles T. Jackson (1805-88): "Susan Jackson from R. W. Emerson 1 May, 1867."

\$7500

First Edition of Emerson's second and final collection of poetry. "Emerson collected his verse into two major volumes, both published at the urging of his admirers and after his enshrinement as an important literary figure . . . [*May-Day*] contains a substantial number of important texts, among them 'Brahma,' 'Days,' 'Voluntaries,' and 'Terminus'" (Morris, pp. 219-220). Emerson inscribed this copy to Susan Jackson, wife of his brother-in-law Charles T. Jackson, famous in his own right as the discoverer of ether anesthesia. S. Morris, "'Metre-making' arguments: Emerson's poems," in J. Porte and S. Morris, eds., *The Cambridge Companion to Ralph Waldo Emerson*, pp. 218-242. 51708





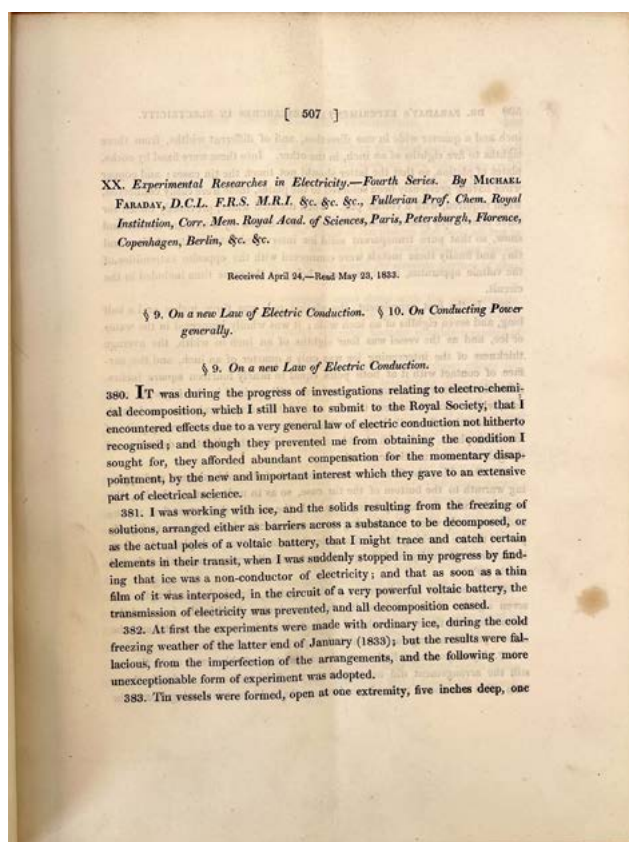
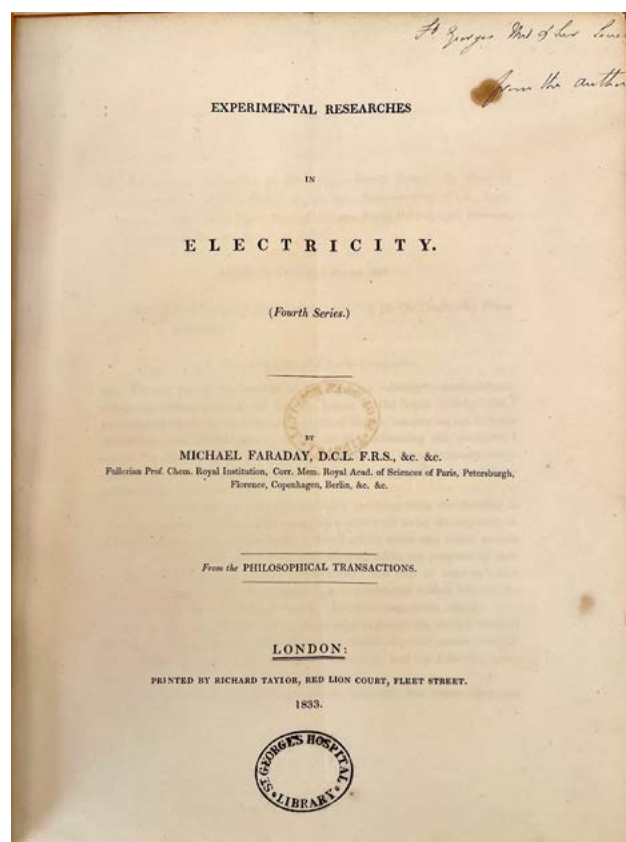
45. Wheatley, Phillis (1753-84). Phillis Wheatley, Negro servant to Mr. John Wheatley, of Boston. Engraved portrait attributed to Scipio Moorhead (fl. 1773-after 1775). [London:] Published according to Act of Parliament . . . by Archd. Bell, 1 September 1773. 150 x 103 mm. A few small lacunae skillfully restored, otherwise very good. Archivaly framed (frame measures 308 x 249 mm.).

\$4500

Rare Example of the frontispiece to Phillis Wheatley's *Poems on Various Subjects, Religious and Moral* (1773), the first book of poetry published by an African-American author. This iconic portrait of Wheatley is *often lacking* from copies offered on the market. The portrait is attributed by some to the African-American artist Scipio Moorhead, to whom Wheatley dedicated one of her poems.

Wheatley, most likely a native of Senegal or Gambia, was captured at a young age and sold into slavery; in 1761 she was purchased by the Wheatley family of Boston, who educated her and encouraged her poetic gifts. "Although she was an enslaved person, Phillis Wheatley Peters was one of the best-known poets in pre-19th century America. Educated and enslaved in the household of prominent Boston commercialist John Wheatley, lionized in New England and England, with presses in both places publishing her poems, and paraded before the new republic's political leadership and the old empire's aristocracy, Wheatley was the abolitionists' illustrative testimony that Blacks could be both artistic and intellectual. Her name was a household word among literate colonists and her achievements a catalyst for the fledgling antislavery movement" (O'Neale). O'Neale, Sondra A. "Phillis Wheatley." Poetry Foundation, 2024. 41919

History of Physics



Faraday Discovers the Semiconductor Effect—Inscribed Copy

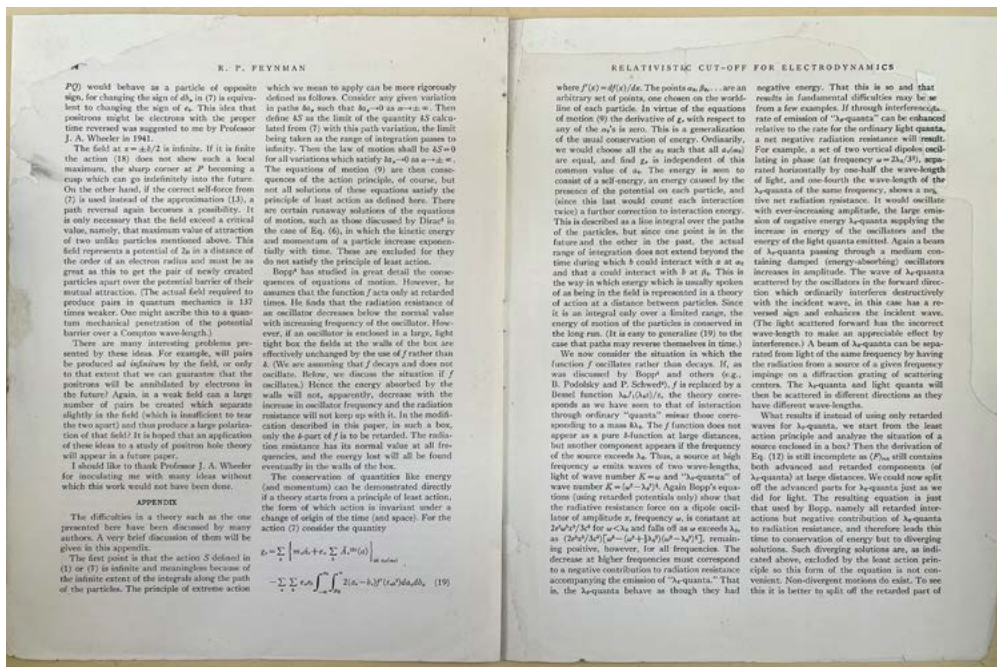
46. Faraday, Michael (1791-1867). Experimental researches in electricity (fourth series). 9. On a new law of electric conduction. 10. On conducting power generally. Offprint from *Philosophical Transactions* (1833). [2], 507-522pp. London: Printed by Richard Taylor, 1833. 280 x 215 mm. Modern wrappers. Vertically creased, occasional spotting, but very good. *Presentation Copy*, inscribed on the title in Faraday's hand: "St. Georges Med[ical] & Sur[gical] Society from the author." St. George's Hospital library stamps on the title and last page . \$12,500

First Edition, Offprint Issue. In the section titled "On conducting power generally" Faraday presented the first documented observation of what we now call a semiconductor; i.e., a substance with an electrical conductivity value falling between conductors (such as copper) and an insulator (such as glass). Contrary to metals, a semiconductor's electrical conductivity increases with increasing temperature, and its conductivity can be altered by various means. The enormous advances in electronics made in the 20th century would not have been possible without semiconductors.

Faraday's groundbreaking observation appears on page 519:

I have lately met with an extraordinary case . . . which is in direct contrast with the influence of heat upon metallic bodies . . . The substance presenting this effect is sulphuret of silver [silver sulfide] . . . When a piece of this sulphuret . . . was put between surfaces of platin[um], terminating the poles of a voltaic battery, a galvanometer being also included in the circuit, the needle was slightly deflected, indicating a feeble conducting power . . . On applying a lamp under the sulphuret between the poles, the conducting power rose rapidly with the heat, and at last . . . the sulphuret was found conducting in the manner of a metal.

Jeffreys, *Michael Faraday: A List of his Lectures and Published Writings*, 215. 51123



QED

47. Feynman, Richard (1918-88). A relativistic cut-off for classical electrodynamics. Offprint from *The Physical Review* 74 (1948). 939-946pp. 265 x 202 mm. Without wrappers as issued. Upper corners and last leaf repaired with loss of a few letters on the last leaf (not affecting legibility), last leaf a bit soiled, fore-edges a little frayed. Good copy. \$7500

First Edition, Rare Offprint Issue of Feynman's paper proposing a modification of classical electrodynamics to a form suitable for quantization. Feynman received the Nobel Prize for physics in 1965 (sharing it with Shinichiro Tomonaga and Julian Schwinger) for his fundamental work in quantum electrodynamics.

In the spring of 1948, prior to publishing any of his work on quantum electrodynamics, Feynman was invited to give a talk at the Pocono Conference on the problems of fundamental physics, which afforded him the first opportunity to present his ideas on QED to an audience of fellow physicists. By this time "Feynman had reworked almost all of quantum electrodynamics by his new technique of space-time diagrams. He had reached the most important part of his new results: namely, the relativistic formulation of quantum electrodynamics and, especially, perturbation theory, the relativistic cutoff and the renormalization of mass, closed expressions for the transition of amplitudes and causal propagators, a new operator calculus . . . However, before the Pocono Conference, Feynman had not published anything on quantum electrodynamics and he did not have the mathematical proofs of all his results" (Mehra & Rechenberg, 6, p. 1051).

Unsurprisingly, Feynman's unorthodox approach to QED baffled the attendees of the Pocono Conference, which included such titans of quantum physics as Niels Bohr and Paul Dirac. Feynman had such difficulty explaining his ideas that, as he recalled later "I said to myself, I'll just have to write it all down and publish it,

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A Relativistic Cut-Off for Classical Electrodynamics

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Ordinarily it is assumed that interaction between charges occurs along light cones, that is, only when the four-dimensional interval $s^2 = 0$ or $s^2 = \text{infinity}$. We discuss the modifications of the theory of F. Rohrbaugh and others in which the interaction of charges which are distant from one another by several electron radii. The action of a charge on itself is finite and behaves as electromagnetic mass for accelerations which are not excessive. These also results a classical representation of the phenomena of pair production in sufficiently strong fields.

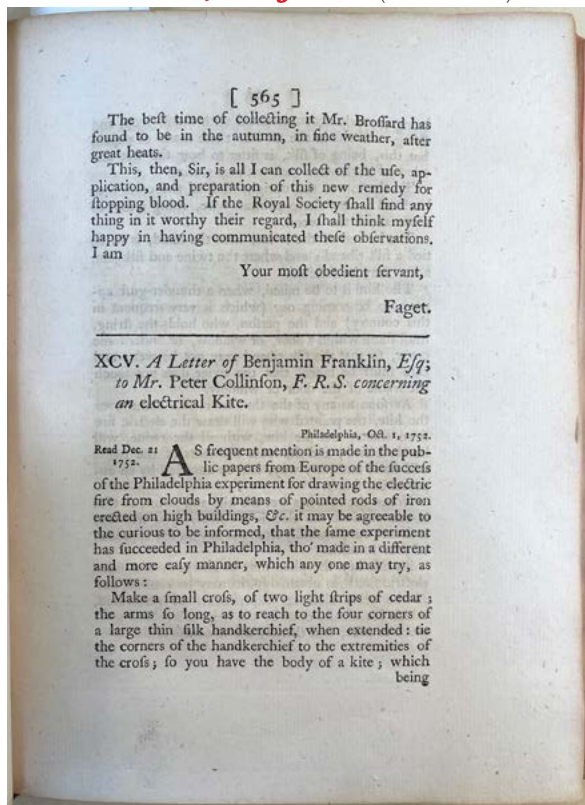
QUANTUM electrodynamics is built from a theory that already contains serious difficulties which remain upon quantization. It has been hoped that if a classical electrodynamics could be devised which would not contain the difficulty of infinite self-energy, and this theory could be quantized, then the problem of a self-consistent quantum electrodynamics would be solved. For this reason many successful attempts have been made to produce such a classical theory. The field equations can be made non-linear; the fields produced by or acting on an electron can be relativistic¹ or one may resort to some averaging of the fields over space or time.² These theories have, however, either considerable difficulties when set at the time of arrival of a signal of amount of order d/c . For charges separated by many electron radii there is, therefore, essentially no effect of the modification. For the action of an electron on itself, however, there is a considerable modification. The result is to reduce the infinite self-energy to a finite value. For accelerations which are not excessive, the action of an electron on itself appears simply as an electromagnetic mass. If instead in the classical theory, all the mass of an electron may be represented as electromagnetic. (In the quantum theory this cannot be done in a reasonable way as the electromagnetic mass comes out quite small under reasonable assumptions for α .) We have, therefore, a consistent classical theory which does not disagree with classical experience.

In the remainder of the paper we formulate this idea mathematically, and draw out one or two simple consequences. We then discuss a curious

so that they can read it and study it, because I know it's right!" (quoted in Mehra & Rechenberg, 6, p. 1057). In June 1948 Feynman published the present paper, which "dealt largely with the action-at-a-distance formulation he had worked on before getting involved with the war effort, but now with a density of field quanta playing the role of a regulator, so that the energy of a particle was made finite" (Mehra & Rechenberg, 6, p. 1092). Ezhela et al., *Particle Physics: One Hundred Years of Discoveries*, pp. 99-100. Mehra & Rechenberg, *Historical Development of Quantum Theory*, 6, pp. 1051-1093. 50966

Franklin and his Fellow "Electricians"—Franklin's Famous "Kite" Paper, Together with 47 Other 18th-Century Papers on Electricity

48. Franklin, Benjamin (1706-990). A letter of Benjamin Franklin, Esq; to Mr. Peter Collinson, F.R.S. concerning an electrical kite. Extract from *Philosophical Transactions of the Royal Society* 47 (1752): 565-567. 232 x 173 mm. In a Sammelband of extracts from the *Philosophical Transactions* containing 48 papers on electricity by Franklin and others (click [here](#) for complete listing), bound in later half cloth, marbled boards, light wear, lower corners a bit bent. Light foxing and toning, occasional marginal dampstaining, but very good. \$17,500



First Edition of Franklin's First Account of his Famous Kite Experiment, One of the Most Celebrated Scientific Experiments in American History. "Until the middle of the eighteenth century electricity was known only in its static form, and the most important instrument in use was the Leiden jar for concentrating electricity, discovered accidentally by Pieter van Musschenbroek . . . With this and other instruments Franklin conducted a series of experiments during the years 1746-57 . . . The most dramatic result of Franklin's researches was the proof that lightning is really an electrical phenomenon. Others had made such a suggestion before him—even Newton himself—but it was [Franklin] who provided the experi-

mental proof. In 1752 he flew a kite in a thunderstorm and attached a key to its string. From this he collected electric charges in a Leiden jar and showed that atmospheric and frictional or man-made electricity are the same" (*Printing and the Mind of Man*, p. 119). Franklin's lightning experiments made his name famous throughout Europe, and "marked the coming of age of electrical science" (*Dictionary of Scientific Biography*).

As is well known, Franklin communicated the results of his electricity experiments in a series of letters to the Royal Society in London. Our volume includes four additional Franklin papers, all of which first appeared in print in the Royal Society's *Philosophical Transactions*—"A letter from Mr. Franklin to Mr. Peter Collinson, F.R.S. concerning the effects of lightning" (1752); "Electrical experiments, made in pursuance of those by Mr. Canton" (1755); "Extract of a letter concerning electricity, from Mr. B. Franklin to Mons. Delibard" (1755); and "An account of the effects of electricity in paralytic cases" (1757). In addition, the volume contains 43 papers on electricity from the *Philosophical Transactions* by some of Franklin's most notable contemporary "electricians," including Charles Du Fay, Stephen Gray, Granville Wheler, William Watson, Guillaume Mazeas, Jean Antoine Nollet, Benjamin Wilson, John Canton and Ebenezer Kinnersley; click [here](#) for a complete listing. The papers, published between 1734 and 1764, provide a good representation of both the lead-up to Franklin's electrical investigations and the enormous scientific interest inspired by his results. 51404

“Formal Invention of Quantum Electrodynamics”

49. Heisenberg, Werner (1901-76) and **Wolfgang Pauli** (1900-1958). (1) Zur Quantendynamik der Wellenfelder. Offprint from *Zeitschrift für Physik* 56 (1929). 61pp. 231 x 160 mm. Original printed wrappers, spine repaired. (2) Zur Quantentheorie der Wellenfelder. II. Offprint from *Zeitschrift für Physik* 59 (1930). 168-190pp. 231 x 160 mm. Original printed wrappers, spine repaired. Together 2 items, boxed. Small mark from paper clip on wrappers of no. (1), small tear in front wrapper of no. (2), but very good. \$12,500

First Editions, Offprint Issues. Heisenberg and Pauli’s two-part paper contains the first full-fledged relativistic quantum field theory, representing the “formal invention of quantum electrodynamics” (Miller, *Early Quantum Electrodynamics: A Source Book*, p. xiii). “This extremely technical and mathematical branch of quantum physics, the foundations of which were laid by Heisenberg, Dirac, Pauli, Jordan, and their colleagues during the late 1920s and early 1930s, continues to this day with much the same program and approach . . . [Heisenberg was] a leading member of the small band of abstract theorists who established the program and laid the foundations of relativistic quantum field theory as it has been pursued ever since” (Cassidy, *Uncertainty: The Life and Science of Werner Heisenberg*, p. 276).

In this paper—the only one that Heisenberg and Pauli co-authored—the two physicists attempted to establish “a consistent extension of the quantum formalism that would yield a satisfactory unification of quantum mechanics and relativity theory . . . In 1929, drawing upon the work of Dirac, Jordan, Oskar Klein, and others, Heisenberg and Pauli succeeded in formulating a general gauge-invariant relativistic quantum field theory by treating particles and fields as separate entities interacting through the intermediaries of field quanta. The formalism led to the creation of a relativistic quantum electrodynamics, equivalent to that developed by Dirac, which, despite its puzzling negative energy states, seemed satisfactory at low energies and small orders of interaction. But at high energies, where particles approach closer than their radii, the interaction energy diverges to infinity. Even at rest, a lone electron interacting with its own field seemed to possess an infinite self-energy . . . Attention was directed to the resolution of such difficulties for more than two decades” (*Dictionary of Scientific Biography*). Mehra & Rechenberg, *The Historical Development of Quantum Theory*, 6, pp. 312-26. 43254

