# Catalogue 35: Autographs, Manuscripts, Association Copies & the William Congreve Archive

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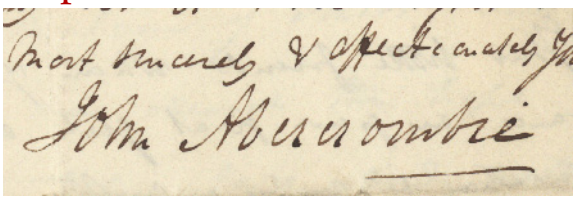
# Autographs, Manuscripts, Presentation & Association Copies

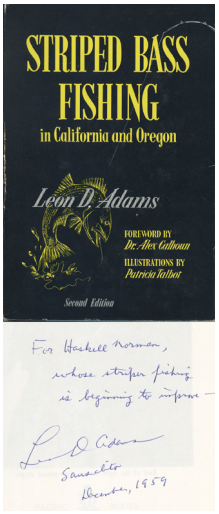


1. Abercrombie, John (1780-1844).

A.L.s. dated Edinburgh, 20th November 1820, to Dr. Thomas H. Burder (1789-1843). 4pp., incl. integral address leaf. 251 x 202 mm. Creased where previously folded, light wear along a few folds, light soiling, but very good, preserving Abercrombie's wax seal. $2000

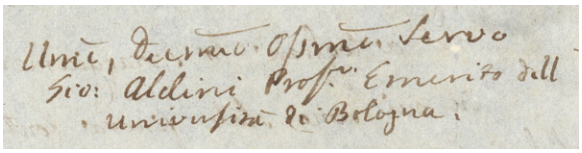
Excellent long letter congratulating Burder on the recovery of his health after a four-year illness. Abercrombie was the author of the classic *Pathological and Practical Researches on Diseases of the Brain and the Spinal Cord* (1828; G-M 2285.2), as well as the extremely popular *Inquiries Concerning the Intellectual Powers* (1830). Burder, Abercrombie's correspondent, was a London physician who "suffered from almost constant ill-health" (DNB); his article on "Headache," contributed to the *Cyclopedia of Practical Medicine,* was based largely on his own experience. 32459

2. Adams, Leon D. (1905-90).




Striped bass fishing in California and Oregon. xviii, 228pp. Text illustrations by Patricia Talbot. Palo Alto: Pacific Books, 1958. 236 x 156 mm. Original cloth, dust-jacket (sl. worn). *Presentation copy*, inscribed by the author on the half-title: "For Haskell Norman, whose striper fishing is beginning to improve—Leon D. Adams, Sausalito, December, 1959." $150

Second and best edition of this classic work. 40194



3. Aldini, Giovanni (1762-1834).

L.s. with autograph postscript to Cardinal Zurla. 2pp. plus integral blank. Bologna, 28 [probably September] 1825. 297 x 210 mm. Slightly worn in the center crease, but fine. From the Thomas Philipps collection. $1250

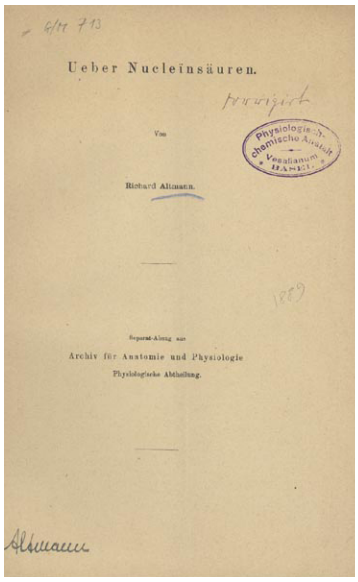
Aldini, the nephew of Galvani, was the premier apologist for his uncle's theories of animal electricity, publishing several papers on the subject (see G-M 1989.1) as well as his *Account of the Late Improvements in Galvanism* (1803), a book-length treatise on the subject. In the present letter he praises Cardinal Zurla for the Cardinal's understanding support of his [Aldini's] scientific enterprises. Apart from his promotion of animal electricity, Aldini helped to found the National Institute of Italy, established a practical school of physics and chemistry at Bologna, and pursued a career as an inventor. In his letter to the Cardinal he presents copies of two of his latest publications—on a machine for cutting marble, and on lighthouse construction—and expresses his intention to interest the Pope in his work by presenting him with drawings and models. DSB. NBG. 6782

## *Miescher's Copies of Altmann's Papers on Nucleic Acids*

4. Altmann, Richard (1852-1900).

(1) Ueber Nucleinsäuren. Offprint from *Arch. Anat. Phys.* (1889). 524-536pp. Original printed wrappers, creased vertically. Stamp of the Vesalianum, Physiologisch-chemisches Anstalt, Basel on the front wrapper. (2) Die Structur des Zellkernes. Offprint from *Arch. Anat. Phys.* (n.d.). 409-411pp. Original printed wrappers, creased horizontally, small wax stain on front cover. Booklabel and stamp of Johann Friedrich Miescher (1844-95). (3) Zur Theorie der Bilderzeugung. Offprint from *Arch. Anat. Phys.*(1880). 111-184pp. Plate. Original printed wrappers, slightly soiled. Upper right corner of first leaf cut away. Stamp of the Vesalianum, Physiologisch-chemisches Anstalt, Basel on the front wrapper. Together 3 offprints. Very good. $5000

First Editions, Offprint Issues. G-M 713 (no. [1]). Altmann coined the term "nucleic acid," which he introduced in his 1889 paper "Ueber Nucleinsäuren," and developed a convenient and general method for its preparation. Altmann's work on nucleic acids represents an early stage in the development of molecular biology.


Ueber Nucleïnsäuren.

Von

Richard Altmann.

1889

Separat-Abzug aus

Archiv für Anatomie und Physiologie

Physiologische Abtheilung.

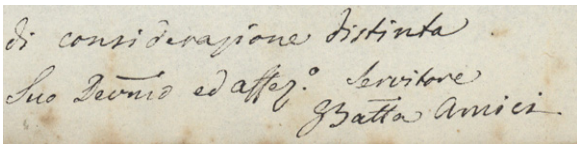
Altmann was a student of Johann Friedrich Miescher, who in 1869 discovered a hitherto unknown substance in the cell nucleus that he named nuclein; we now know it as DNA. Altmann worked with Miescher at Miescher's institute in Basel, called the "Vesalianum" after the great 16th-century anatomist. At the time Miescher was performing biochemical investigations of salmon sperm, from which he had succeeded in isolating protamine, an important constituent of spermatazoa. However, Miescher

> fell into an error: he detected purine bases in the protamine he had isolated by the murexide reaction, no doubt caused by contamination with adhering DNA. Later, Miescher requested that [his associate] Piccard re-investigate this question. Piccard also detected purine bases in the acid extract of spermatozoa from which protamine was isolated. However, he concluded (correctly) that nuclein also contained purine bases. This confusion was not resolved until R. Altmann in 1889 separated protein (free of purine bases) from nuclein (called by him nucleic acid), containing xanthine bases (Wolf).

Our copy of Altmann's paper on nucleic acid bears the stamp of Miescher's Vesalianum, as does the third offprint in the collection, a paper on the theory of imaging. The second offprint, on the structure of the cell nucleus, is from Miescher's library, with his stamp and booklabel. Fruton, *Proteins, Enzymes, Genes,* p. 400. Wolf, "Friedrich Miescher, the man who discovered DNA" (internet reference). Portugal and Cohen, *A Century of DNA,* pp. 20-21. 40022

## 5. Amici, Giovanni Battista (1786-1868).

Autograph letter signed, in Italian, to A[ndré] Melly (1802-51). Modena, June 20, 1825. 3pp.


di considerazione distinta
Suo Devmo ed affez.° Servitore
GBatta Amici

plus address. 245 x 184 mm. Pin-holes in upper margin, small lacuna in blank margin of second leaf where seal was cut (not affecting text), faint spotting, but fine, and elegantly penned. Docketed. English translation provided. $3750

Amici, a designer and maker of optical instruments, made significant contributions to the development of the compound microscope. In the early nineteenth century compound microscopes were much less accurate than simple microscopes, suffering from strong chromatic aberrations and a limited resolving power. In 1818, following the pioneering work of Beeldsnijder and van Deyl, Amici succeeded in building a catadioptric microscope with an elliptical reflecting mirror, which represented a vast improvement in magnification and resolution over earlier instruments. This improved microscope allowed Amici to add appreciably to the knowledge of the circulation of sap in *Chara* cells, and to discover the pollen tube. Amici announced these findings in two papers published in the *Memorie di Matematica e di Fisica*, Volume XVIII (1820).

Amici's unusually interesting letter to the Swiss-born entrepreneur André Melly discusses a microscope that Amici had built for Melly, and touches on the state of microscopy in the early nineteenth century, and reflects the role that Melli played in the business of science in England in the early decades of the nineteenth century. A part of the letter is translated below:

> . . . You wrote me that Mr. Wollaston is unwilling to believe in any observation made with the microscope, whoever may be responsible for it; I must confess that such an opinion, expressed by a learned man of such renown, caused me no little wonder; but my surprise diminished somewhat when I read, in the *Philosophical Transactions* for 1824, the description of the disease of the eyes to which Mr. Wollaston is subject. He tells us there that, when he is suffering an attack, if he looks at a man he can see only the half of his figure; if he reads the name Johnson he can make out only the syllable son; and so forth. A man who suffers from such visual aberrations may easily, then, be forgiven the suspicion that all the microscopical experience of other observers is no more than imaginary. Meanwhile, M. Prevost and M. Dumas, along with many others, ignoring the English physicist, continue to pursue and to distinguish themselves in

this branch of difficult research. M. Dumas will already be in possession, I believe, of one of M. Lelligue's microscopes, on which such favorable reports have been made. However, I do not understand how M. Dumas can have printed, in the *Journal of Natural History*, that the cost of my microscopes reaches 900 francs, when he ought to know that the one belonging to the Society of Geneva cost no more than 560 fr., which is my invariable price, with the addition of two *camerae lucidae*.

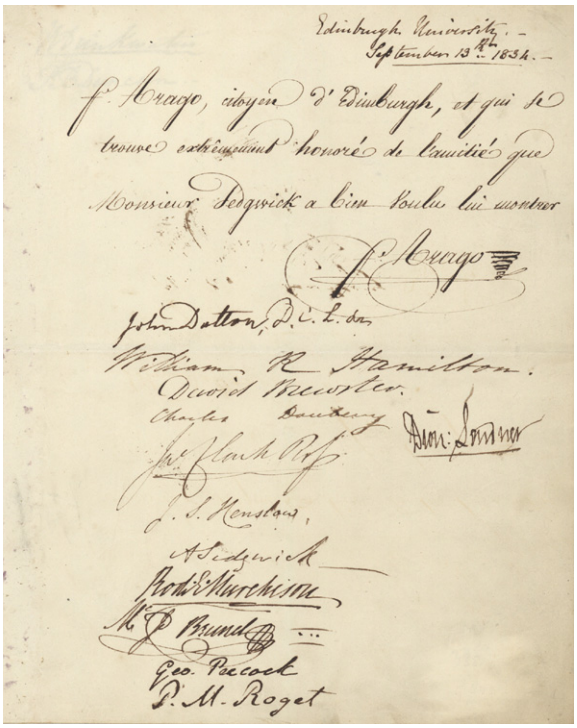
The scientific news that you were good enough to send me was most welcome to me, and I shall always receive with real pleasure and gratitude any that you may wish to share with me in future. Meanwhile I will make so bold as to ask you, when you reply to this letter, to let me have the addresses of the famous botanists Dawson Turner (Norwich Norfolk), Robert Brown, William Roscoe, and William Ker, all members of the Linnean Society. . . .

"Mr. Wollaston" refers to the British chemist and physicist William Hyde Wollaston (1766-1828), discoverer of the elements palladium and rhodium, and inventor of both the *camera lucida* and of the meniscus lens for the *camera obscura*. Wollaston suffered from hemianopia, the loss of half the vision in both eyes, and his published description of this disease, which Amici mentions in his letter, was the most comprehensive account that had yet appeared. Jean Louis Prévost (1790-1850) and Jean Baptiste André Dumas (1800-1884), also mentioned in this paragraph, performed microscopic investigations on fertilized frog eggs, proving that the egg is fertilized by the penetration of spermatazoa; their paper on this subject was published in 1824 (see G-M 474.1). We have not been able to identify M. Lelligue.

In the following paragraph Amici asks for the addresses of four English botanists: Dawson Turner (1775-1858), discoverer of four new lichen species and author of several works on botany; Robert Brown (1773-1858), who named the cell nucleus and described the molecular phenomenon known as Brownian motion; William Roscoe (1753-1831), founder of Liverpool's Botanic Gardens and author of a monograph on monandrian (single-stamen) plants; and William Ker, whom we have not been able to identify (he is not in Desmond's *Dictionary of British and Irish Botanists and Horticulturalists* [1994], for example). The first three were certainly potential clients for Amici's microscope-making business.

André Melly, the recipient of Amici's letter, was a Swiss entrepreneur who emigrated to England in 1822, where he appears to have made part of his living acting as an agent for museums and others interested in putting together collections in natural history. Melly was a keen entomologist; a collection of beetles he assembled and mounted is still in the museum of Geneva. He ended up becoming a prominent businessman in Liverpool. He served as agent to the Viceroy of India and then to the Egyptian Government, dying of fever while on a tour of the Nile in 1851.

Autograph letters by Amici are extremely rare on the market. The only letters by him that have appeared at auction since 1975 were receipts for microscopes. 40159


Edinburgh. University. -
September 13th. 1834. -
F. Arago, citoyen d'Edimburgh, et qui se
trouve extrêmement honoré de l'amitié que
Monsieur Sedgwick a bien voulu lui montrer
F. Arago
John Dalton, D.C.L. &c.
William R. Hamilton.
David Brewster.
Charles Bunbury
Jno. Clark Rss.
J. S. Henslow,
A. Sedgwick
Rod.k Murchisn
M. P. Brunel
Geo. Peacock
P. M. Roget

## 6. Arago, François (1786-1853).

Autograph document signed by Arago, and also signed by 14 members of the British Association, including John Dalton, William Rowan Hamilton, David Brewster, Dionysius Lardner, etc. Edinburgh University, September 13, 1834. 2pp. 254 x 204 mm. Minor creasing. Mounted, 19th cent. annotation on mount. $3750

Document written and signed by François Arago, perpetual secretary of the Académie des Sciences, best known for his important contributions to electromagnetism, optics and astronomy, and for his encouragement and support of scientists and inventors such as Ampère, Fresnel, Leverrier, Niepce and Daguerre. The document, written in French, reads: "F. Arago, citoyen d'Edimburgh, et qui se trouve extrêmement

honoré de l'amitié que Monsieur Sedgwick a bien voulu lui montrer, F. Arago" [F. Arago, citizen of Edinburgh, and who finds himself extremely honored by the friendship shown him by Monsieur Sedgwick, F. Arago].

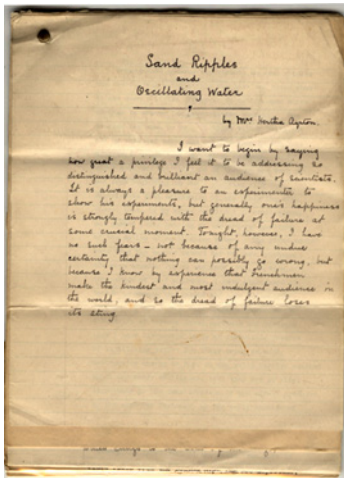
The document also bears the signatures of thirteen notable British scientists, identified as members of the British Association (est. 1831): chemist John Dalton (1766-1844), who laid the foundation for modern atomic theory; mathematician William Rowan Hamilton, discoverer of quaternions; scientist and author David Brewster (1781-1868), editor of the *Edinburgh Philosophical Journal* and one of the leading contributors to the *Encyclopaedia Britannica*; Charles Daubeny (1795-1867), professor of chemistry at Oxford University; Antarctic explorer James Clark Ross (1800-1862); geologist and botanist John Stevens Henslow (1796-1861), who taught Darwin natural history and recommended him for the voyage of the *Beagle*; Adam Sedgwick (1785-1873), one of the founders of modern geology; geologist Roderick Impey Murchison (1791-1871), who first described and investigated the Silurian system; engineer Marc Isambard Brunel (1769-1849), builder of the Thames Tunnel and father of engineer Isambard Kingdom Brunel; mathematician George Peacock (1791-1858), who helped reform the teaching of calculus and algebra in England; Peter Mark Roget (1779-1869), creator of *Roget's Thesaurus*; scientific writer and editor Dionysius Lardner (1793-1859), best known for publishing the most extensive contemporary account of Babbage's Difference Engine no. 1; and Philip Bury Duncan (1772-1863), Keeper of the Ashmolean Museum at Oxford University. A fourteenth signer, W. Drinkwater, is not noted in our references. 26672

## 7. Ayrton, Hertha (1854-1923).


Collection of manuscript, typescript and printed materials, consisting of the following: (1) 27-page typescript, with extensive manuscript corrections and additions, of Ayrton's lecture "Sand ripples and oscillating water" [1911?]. 280 x 240 mm. Creased along folds, some soiling. (2) 2-1/2 page manuscript critique, by an anonymous Royal Society referee, of Ayrton's paper "On some new facts connected with the motion of oscillating water" (1911). 325 x 205 mm. Creased along folds, some soiling, a few tears. (3) 12-page typescript, with ms. corrections, of Ayrton's paper "Primary and residual vortices in oscillating fluids—Their connection with skin friction," left unpublished at her death. Dated "ca. 1915" in pencil on the first leaf. 256 x 205 mm. Creased along folds, minor soiling. (4) 2 partially filled notebooks concerning her research on fans, 1918-23. 195 x 157 mm; 227 x 180 mm. Quarter leather and quarter cloth, hinges weak. (5) Proceedings of the Royal Society, Series A, Vol. 96, no. A 676 (1919), containing Ayrton's paper "On a new method of driving off poisonous gases." Orig. printed wrappers; sheet of Ayrton's manuscript notes, on United Suffragists stationery, laid in. (6) Collection of 7 mimeographed and carbon typescripts, on legal-size paper (330 x 204 mm.) fastened with brads, pertaining to the claim made by Ayrton's estate for an award for the Admiralty's use of her negative carbons (1924). A few leaves loose, creased along folds, some soiling & chipping. 2 of the documents bear the pencil signature of C. E. Greenslade, Ayrton's research assistant. (7) *Hertha Ayrton: A Memoir*, by Evelyn Sharp. xiv, 304 pp. 5 plates. London: Arnold, 1926. Orig. cloth, shaken, some leaves loose. $8500

A collection of original manuscripts and typscripts documenting three of Ayrton's major areas of research: (A) the formation of sand ripples under water by ripple-forming vortices (nos. 1-3); (B) the creation of satisfactory specifications for the carbons used in searchlight projectors, as requested by the Admiralty (no. 6); and (C) the invention of the Ayrton Fan for dispelling clouds of poison gas, an outgrowth of her research on sand-ripples and vortices (nos. 4-5). Ayrton began investigating the causes of sand-ripples in 1901, after observing these formations on a beach; her researches led to the establishment of important new facts about wave motion in both water and air, and were instrumental in gaining her the Royal Society's Hughes Medal for original research in 1906. Nonetheless, not all of Ayrton's work on this subject met with approval; see Sharp, pp. 225-27 for an account of the rejection of Ayrton's 1911 paper "On some

new facts connected with the motion of oscillating water," the subject of the anonymous Royal Society critique cited here as No. 2. No. 3, Ayrton's "Primary and residual vortices in oscillating fluids—Their connection with skin friction," was written ca. 1915 but left unpublished at Ayrton's death; Sharp states in a footnote (p. 281) that the paper was "probably" read before the Royal Society in spring 1926.


Sand Ripples
and
Oscillating Water

by Mrs Hertha Ayrton

I want to begin by saying how great a privilege I feel it to be addressing so distinguished and brilliant an audience of scientists. It is always a pleasure to an experimentalist to show his experiments, but generally one's happiness is strongly tempered with the dread of failure at some crucial moment. Tonight, however, I have no such fear – not because of any undue certainty that nothing can possibly go wrong, but because I know by experience that Frenchmen make the kindest and most indulgent audiences in the world, and to the dread of failure loses its sting

Ayrton's work on carbons for searchlights, which she began in 1904, was an offshoot of her research on the electric arc, in which she had become recognized as a leading authority; it was she who discovered what caused the erratic behavior of electric arcs in searchlights, and who invented improved negative carbons to ameliorate these problems in both searchlights used by the military (1910; see Sharp, ch. XV), and in the lights used by cinematographers (1913; see Sharp, p. 247). The latter improved carbons, which Ayrton patented in 1913, were the source of the legal dispute documented in no. 6, Ayrton's estate claiming that the Admiralty had used Ayrton's 1913 negative carbons in searchlights during 1915-16, and demanding an award. The legal documents in no. 6 include the "Brief on behalf of the Claimant" by the Estate's lawyer, George Beloe Ellis, and 5 of the 21 documents listed on p. 2 of the brief. Two of the documents are signed in pencil by Ayrton's research assistant, C. E. Greenslade.

The work for which Ayrton is perhaps best known is her Ayrton Fan, a simple hand-held device she invented during the First World War to repel clouds of poison gas. This device, adopted by the British armed forces only after much delay and prevarication, was still responsible for saving many lives, and Ayrton continued to work on improvements to the fan even after the Armistice (nos. 4-5; see Sharp, ch. XVIII). With all of these accomplishments to her credit, it is remarkable that Ayrton was not mentioned in the DNB until publication of the 1993 volume entitled *Missing Persons*, in which she receives a full article. The most authoritative account of Ayrton's life remains Evelyn Sharp's 1926 biography (no. 7), which describes not only Ayrton's scientific activities but also her untiring labors on behalf of the women's suffrage movement. Ogilvie, *Women in Science*, pp. 32-34. Surprisingly, Ayrton is not noticed in Kass-Simon and Farnes, *Women of science, righting the record* (1990). 14390.

## 8. Babbage, Charles (1791-1871).

Observations on the Temple of Serapis. . . . Privately printed, 1847. Original red cloth, with gilt motif of temple on front cover, partly unopened, insignificant cracking in upper parts of hinges. 42 [4, advertisements]pp. 2 lithographed plates (1 partly hand-colored) and text illustrations. 222 x 138 mm. Provenance: Inscribed by Babbage on verso of endpaper: "A M. M. Becquerel [i.e., Antoine-César Becquerel (1788-1878); name effaced but still faintly legible] Membre de L'Institut de France from the Author." $4500

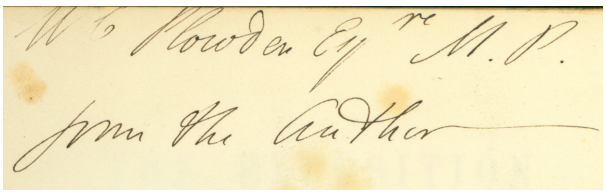
First Edition. Babbage's scientific interests did not confine themselves to mathematics, economics, and computation, but ranged over a wide variety of subjects, including astronomy, electricity and magnetism, physics, and geology. This paper reported his observations on the Temple of Serapis, an ancient ruin situated on the seacoast near Naples that Babbage studied during his 1828 European tour.

From the strata in which [the temple] was embedded and encrustation on the marble columns [Babbage] was able to estimate the sea level at various earlier dates. . . . [In March 1834] Babbage read a paper to the Geological Society on his observations together with a theory of the movement of isothermal surfaces within the earth. He sought to prove that large tracts of the earth's surface subside through the ages, whilst other portions rise irregularly at various rates (Hyman, *Babbage,* p. 71).

An abstract of Babbage's paper was privately printed the same year (see Van Sinderen 1980, no. 48); however, Babbage did not allow full publication until 1847, when

he had the paper privately printed with some additions (including a brief bibliography of his publications). Babbage's isothermal theory was significant for Charles Lyell, who used the figure of the Temple of Serapis for the frontispiece to his *Principles of Geology* (1830); and for John Herschel, who came up with the theory of geosynclines, for which he and Babbage are often given credit together. As the key image for a certain kind of geological movement, the Temple of Serapis was later analyzed in great detail by Suess in his development of global tectonics.

Babbage presented this copy to the physicist Antoine-César Becquerel, of the noted French scientific family whose members also include Antoine-César's grandson Henri Becquerel (1852-1908), discoverer of radioactivity. Antoine-César Becquerel made contributions to mineralogy, electricity, and chemistry, investigating the electrical effects of compression and heat on minerals, synthesizing mineral substances, and demonstrating that electricity can be generated by the contact of dissimilar bodies only under certain conditions. Van Sinderen 1980, no. 57. *Origins of Cyberspace* 63. 39012



## 9. Babbage, Charles (1791-1871).

The exposition of 1851; or, views of the industry, the science, and the government, of England. xvi, 289 [1]pp. (lacks publisher's adverts.). London: John Murray, 1851. 214 x 136 mm. Diced calf ca. 1851, gilt spine, light wear at hinges and corners, first and last leaves foxed. Inscribed on the half-title in Babbage's hand: "M. C. Plowden Esqre. M. P. from the Author." Babbage presented this copy to a member of Parliament, possibly with the hope of influencing government policy toward funding his calculating engines. $6000

Second edition. The Great Exhibition of 1851, held at the specially constructed Crystal Palace in Hyde Park, London, was the first of the great international exhibitions held to celebrate progress in the world's arts and manufactures. Lyon Playfair, who played a leading role in organizing the exhibition, had originally suggested that Babbage be put in charge of the exhibition's Industrial Commission, but Playfair's suggestion was rejected by the British government, which was still at loggerheads with Babbage over funding for his calculating engines. Babbage was also refused permission to display the completed portion of his Difference Engine no. 1 at the exhibition, even though the exhibition's purpose was to display the latest advances in industry, and Babbage's machine, though built twenty years earlier, was arguably the finest product of precision mechanical engineering to date.

Angered at these slights, Babbage published this vitriolic history of the exhibition, in which he skewered the insularity and snobbism of its 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, much as he had two decades earlier. Chapter 13, entitled "Calculating engines," contains a description of the current state of development of his Analytical Engine. The expanded second edition, published a few months after the first, adds an extract from Charles R. Weld's *History of the Royal Society*, and also Augustus De Morgan's review of Weld's book, both of which give a supportive account of Babbage's Difference Engine project. Van Sinderen 1980, no. 61. *Origins of Cyberspace* 67. 39026

## 10. Babbage, Charles (1791-1871).

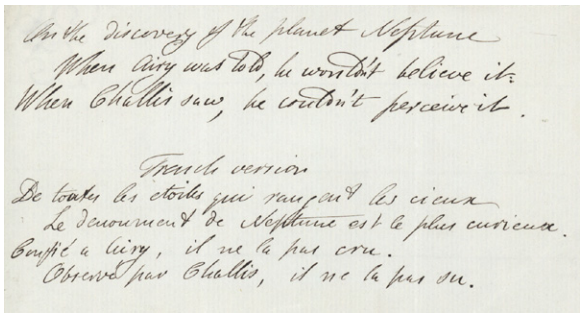
Autograph note signed [to James Emerson Tennent (1804-69)], plus two accompanying autograph sheets. [London] Dorset St., Manchr Sqr., 26 June 1854. Note: 1 page, plus integral blank. 108 x 89 mm. Accompanying autograph sheets: 113 x 179 mm. One corner lightly creased but fine otherwise. $2000

> Babbage's note reads:
>
> My dear Sir, I send you the epigram. Two others accompany it. Yours truly, C Babbage, Dorset St., Manchr Sqr., 26 June 1854

Babbage's note refers to the accompanying sheets, the first of which reads:

> Some personal friends of Sir Joseph Banks having placed a marble bust of the baronet in the meeting room of the Royal Society as a companion to one of Isaac Newton; the following lines were attached to it.
>
> Methinks I've seen three things look wondrous small:
>
> A penny loaf in Davies Gilberts hall;
>
> A tiny flee upon a lion's hide,
>
> And Banks' marble block by honored Newton's side.

Apart from the obvious dig at Banks, the epigram also contains a less than flattering reference to Davies Gilbert,


On the discovery of the planet Neptune
When Airy was told, he wouldn't believe it.
When Challis saw, he couldn't perceive it.

French version
De toutes les etoiles qui rangent les cieux
Le denouement de Neptune est le plus curieux.
Confié a Airy, il ne la pas cru.
Observé par Challis, il ne la pas su.

onetime president of the Royal Society, whose politicking and unethical practices Babbage had castigated in his *On the Decline of Science*.

The second sheet contains two additional epigrams:

On the discovery of the planet Neptune

When Airy was told, he wouldn't believe it.

When Challis saw, he couldn't perceive it.

French version

De toutes les etoiles qui rangent les cieux

Le denoument de Neptune est le plus curieux.

Confié a Airy, il ne la pas cru.

Observé par Challis, il ne la pas su.

These epigrams mock the obtuseness of Astronomer Royal George Biddell Airy, who had refused to credit John Couch Adams's mathematical prediction of the existence of the planet Neptune (discovered in 1846); and of Airy's friend and colleague James Challis, who, in searching the skies for the new planet, had observed it twice without recognizing it. Babbage resented Airy because Airy opposed further funding for either the Difference or Analytical Engines, regarding them as extremely expensive projects with little practical utility. *Origins of Cyberspace* 72. 39032

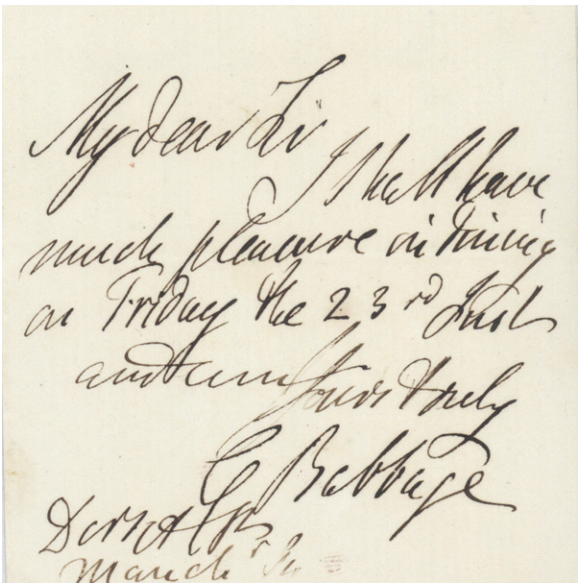
## 11. Babbage, Charles (1791-1871).

Autograph note signed [to James Emerson Tennent (1804-69)]. Dorset Pl[ace, London], n.d. [probably 1850s]. 1 page, plus integral blank leaf. 110 x 90 mm. Fine. $950

Babbage's note reads:

My dear Sir: I shall have much pleasure in dining on Friday the 23rd Inst and am, Yours truly, C. Babbage, Dorset St., Manchr Sqr

In spite of his reputation as an "irascible genius," Babbage was a very social man who enjoyed attending parties and dining with friends and acquaintances. One of these was James Tennent, secretary to the Board of Trade from 1852

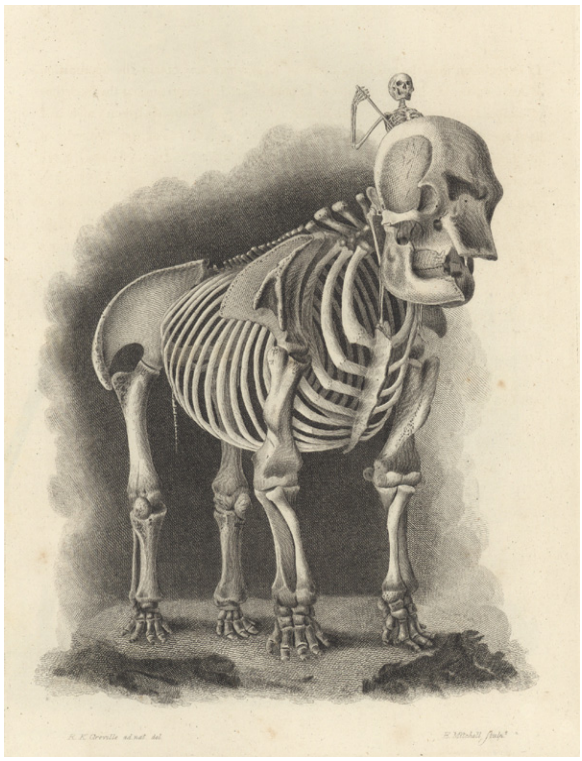

My dear Sir I shall have much pleasure in dining on Friday the 23rd Inst and am Yours truly C. Babbage
Dorset Pl
Manch Sq

to 1867, and a man who shared with Babbage a deep interest in economic and social issues. Babbage may have come to know Tennent through their common friendship with Charles Dickens., who dedicated his last complete novel, *Our Mutual Friend*, to Tennent. As part of the same social set, Dickens and Babbage met frequently at fashionable parties. It is thought that Dickens based the character of Daniel Doyce in *Little Dorrit* partly on Babbage and partly on Babbage's engineer, Joseph Clement. In that novel Dickens introduced the Circumlocution Office as a way of satirizing the British Treasury and its dealings with Babbage over the funding of the Difference Engine no. 1. *Origins of Cyberspace* 66. 39033

## 12. Barclay, John (1758-1826).

A series of engravings representing the bones of the human skeleton with the skeletons of some of the lower animals. 2 volumes in 1, folio. 36 engraved plates (32 numbered and 4 additional plates), plus unnumbered explanation leaves. Edinburgh: printed for E. Mitchell, 1819-20. 353 x 261 mm. (vol. I); 363 x 261 mm. (vol. II). Calf c. 1820, rebacked. *The Author's Copy*, with his bookplate. Gift inscription on flyleaf. $3750

First Edition. This work was published in two parts, one being issued in slightly smaller format. Barclay was one of the most distinguished teachers of anatomy in Edinburgh during the first decades of the 19th century. He taught mostly at his private anatomy school from 1797 to 1825. During the winter sessions Barclay taught anatomy, physiology and surgery; during the summer



sessions he taught comparative anatomy. When Barlcay retired his classes were taken over by Robert Knox, who would later gain notoriety as a purchaser of bodies from resurrectionists Burke and Hare. Most of the plates for this work were based on the prior atlases of Albinus, Sue, and Stubbs. 40090

## *Circa 600 Pages of Unpublished Autograph Manuscripts with Twelve Watercolor Paintings by Albert Jacquemart, from an Almost Completely Undocumented Period in Bazin's Life*

13. Bazin, Antoine-Pierre-Ernest (1807-78). A collection of autograph manuscripts, drawings and watercolor paintings on the lungs and their diseases, as listed below. [Paris, 1836-c. 1842] Various sizes. 1 ms. in original wrappers, torn & chipped; the remaining mss. in original unbound state, some soiling and browning, edges of some leaves a little frayed, a few marginal tears. 5 of the watercolors mounted; the remainder loose. Boxed. $27,500

Bazin, the son and grandson of physicians, was born in 1807 in the small town of St. Brice-sous-Bois. He studied medicine in Paris, where he impressed everyone with his brilliance: "named successively a hospital extern and intern, he was taught by Dupuytren, Honoré, Rostan, Bricheteau, Delarocque, Maury, Biett, and crowned his internship by obtaining the gold medal at the end of a remarkable examination" (Baudot, p. 176). He received his doctorate in medicine in 1834 with a thesis entitled *Recherches sur les lésions de poumon dans les fièvres dites essentielles* (Researches on lesions of the lung in "essential" fevers), and might then have begun on a career commensurate with his remarkable abilities. However, Bazin was unfortunately possessed of a difficult and overbearing personality, and his "utter lack of tact in dealing with influential colleagues" (Besnier, quoted in Crissy & Parrish, p. 150) caused him to be passed over in the *agrégé* examinations of 1835 and 1838, which prevented him from obtaining a teaching post in a university or *lycée*. These failures were so discouraging that Bazin abandoned all further efforts in that direction, instead spending the next several years in relative poverty and obscurity, struggling to advance his medical career both in private practice and at various hospitals. Bazin also attempted during this time to found two medical periodicals—*l'Institut médical* (first issue 1839) and *Répertoire des études médicales* (first issue 1848); however, both of these ventures were almost immediate failures, due largely to Bazin's lack of capital.

This difficult period in Bazin's life ended in 1847, when he was prevailed upon to accept a post at the Hôpital St. Louis; he remained there until his retirement at age 65, and it is there that he began the brilliant and influential dermatological studies for which he is now known. He constructed an elaborate "diathetic" system of dermatologic thought based on the idea that skin disorders were not diseases as such but only the visible manifestations of a few underlying pathological states; this theory enjoyed wide acceptance in France and Great Britain prior to the rise of the germ theory of disease in the 1870s. Bazin published over a dozen books on dermatological subjects, the most important being his influential *Leçons théoriques et cliniques sur les affections cutanées de nature arthritique et dartreuse* (1860); these, coupled with his great skills as a clinician and teacher, made him one of the great dermatological authorities of his age. His name survives today in the term "Bazin's disease," an alternative name for erythema induratum (see G-M 4051).

Although quite prolific in the years after 1850, when his fortunes were secure, Bazin published almost nothing in the unsettled and virtually undocumented period of his life between 1835 and 1847. A search of the sources available to us, including the online databases, NUC and contemporary obituaries (see below), has turned up references only to the two failed periodicals, his *agrégé*


theses (*Quels sont les caractères distinctifs de la contagion et de l'infection* [1835] and *Déterminer ce qu'il faut entendre par maladies lymphatiques* [1838]), and two unnamed memoirs on the structure of the lung (1836) and the connection between the spinal cord and spinal nerves (1840), both of which are mentioned only in a footnote to Baudot's obituary (p. 177). However, these twelve "lost" years were a more productive period for Bazin than the record of his publications indicates—the group of unpublished manuscripts and drawings offered here, which date from between 1839 and circa 1842, show that Bazin continued to rework and expand his writings on the lung, hoping to make his name as a specialist in pulmonary comparative anatomy and pathology. Although far more obscure than his later dermatological researches, Bazin's investigations on the lung are of great interest, particularly since they date from a time when common pulmonary illnesses were beginning to be diagnosed with precision, thanks to Laennec's stethoscope (1819).

This manuscript collection is made up of the following:

(1) Recherches sur la structure intime du poumon de l'homme et des animaux vertébrés, suivis de considerations sur les fonctions et la pathologie de cet organe (Research on the interior structure of the lung in man and vertebrates, followed by thoughts on the functions and pathology of this organ). June 3, 1839. Autograph notebook of 56 pages in folio, extensively revised by the author with erasures, pastings, notes, etc., dedicated to the history and criticism of the opinions of medical authors from antiquity to the nineteenth century, and submitted to the Institut Royal de France, whose stamp appears on the title. Also on the title is a note in the hand of noted French neurologist Marie Jean Pierre Flourens (1794-1867), a commissioner of the Institut: "Mrs. Duméril, de Blainville, Serres, Flourens: Commissaires." In the introduction to this memoir Bazin explained the origin of his research in this way: "The desire to acquire precise information on the original seat and the development of pulmonary phthisis and asthma directed me to research on the interior structure of the lung. . . ." This and the following memoir may have been written for publication in the *Mémoires* of the Institut; however, Bazin's name does not appear at all in the *Mémoires'* indexes for the

period 1836-57, and we have every reason to believe that it is unpublished.

(2) The interior structure of the lung in man and vertebrates. Second memoir presented to the Institute. 2 undated autograph notebooks of 15 and 13 pages in folio, with corrections, pastings, etc. as above, representing two parts of the manuscript. "Commissioners Blainville, Flourens, Serres" inscribed in another hand on p. 1 of Part 2.

(3) 12 watercolors (from 2 to 5 drawings per page), by Albert Jacquemart (1808-75), dated 1836, representing both gross and fine anatomical structures in the lung and other respiratory apparatus with notes and commentary by Bazin: windpipe of a gazelle injected with mercury; lung of a kestrel and a pigeon; lung of a Muscovy duck; lung of a girl who died at the Hôtel-Dieu in March 1836; man, bronchial branches/tubes injected with mercury; bronchial endings of a 4-month old fetus; bronchial endings of a calf's lung; lung of an otter, etc. At least six of the drawings were prepared to illustrate the second part of Bazin's "De la structure du poumon de l'homme et des animaux vertébrés" (no. 2); the drawings are referenced in marginal notes in the manuscript. Included with the Jacquemart watercolors are an unsigned watercolor and three black pencil drawings without captions. Jacquemart, a painter of flowers, also worked on the reproduction of subjects in botany, entomology, conchology, and medicine (cf. Benezit VI, p. 51).

(4) Recherches sur la structure intime des organes respiratoires. 40pp. in folio, unbound. Undated, but not earlier than 1841, since a bibliographical citation on the first page refers to a book published in that year. A scholarly review and critique of medical writings on the lung from antiquity to the time of writing; among the authors discussed are Aristotle, Plato, Hippocrates, Galen, Empedocles, Vesalius, Harvey, Malpighi, Willis, Ruysch, Bidloo, Duverney, Haller, John Hunter, Soemmerring and Reisseisen.

(5) Breathing apparatus of the lion. Autograph manuscript of 20pp. in folio and in quarto with 5 drawings by the author in pencil and ink: posterior bronchial plexus, anastamosis of the bronchial artery with the pulmonary artery, etc. Numerous corrections by the author. In a paper folder which contains a portion of another manuscript by Bazin entitled "De la structure intime des organes respiratoires des animaux vertébrés," and beginning "Il y a presque vingt cinq ans que j'ai co[mmencé] cette étude. . . ." (It has been 25 years since I began this research. . . ). Right margin of this ms. page trimmed, affecting text.

(6) A large collection of notes on lectures and dissections, in a paper folder entitled "Notes sur l'appareil respiratoire" (Notes on the respiratory apparatus). Undated, but 1842 or later. Circa 500 pages in quarto, mostly filed in 42 sub-groups, each with its own folder; there are also several loose unfiled sheets. Most of the sub-groups are devoted to authors: Aristotle, Plato, Galen, Empedocles, Harvey, Aranzio, Malpighi, Lower, Hunter, Cuvier, Laennec, Seymour, Mayo, Tiedeman, Spallanzani, Poli, Bourgery, Milne-Edwards (whom he criticizes for not having been aware of the "rather numerous preparations that I left in the comparative anatomy collections in 1839"), etc. The remaining groups contain dissection notes: procedures used on a very young human embryo; pleurisy; bird autopsies; notes on the breathing apparatus of several mammals (with some sketches). Also included in this document is the manuscript of the first lesson of a zoology course taught by Bazin. All of the materials in (6) were probably written in preparation for various lecture courses taught by Bazin during the 1840s or later; Crissey (p. 151) notes Bazin's habit of opening each year's *Leçons* with a caustic and contemptuous survey of the work of his predecessors.

Some of the manuscripts described above may have been intended for publication in one or the other of Bazin's failed medical journals, both of which are extraordinarily rare: neither is cited in NUC, or in the OCLC or RLIN databases. Besnier, in his obituary of Bazin, stated that he knew of only one copy of Bazin's *Institut médical* (at the Bibliothèque Nationale); he also noted that the later *Répertoire des études médicales* ceased publication after only six issues. Baudot, "Le Docteur Bazin, sa vie et ses oeuvres," *Arch. gén. méd.,* 7th series, 1 (1879): 175-98. Besnier, "Éloge de P.-A.-E. Bazin," *Annales de dermatologie et de syphilographie* 9 (1877-78): 467-79. Crissey & Parrish, *Dermatology and Syphilology of the 19th Century* (1981) pp. 150-62. 32927

## *The Most Important Presentation Copy Extant*

14. Beaumont, William (1785-1853).
Experiments and observations on the gastric juice, and the physiology of digestion. 8vo. 280pp. Plattsburgh: F. P. Allen, 1833. 223 x 140 mm. Original boards, cloth spine, a little worn, remains of paper label on spine; preserved in quarter morocco slipcase. Faint foxing, otherwise fine. *Presentation copy,* inscribed on the title by Beaumont to his friend James Wilkinson Kingsbury (1801-53): "J. W. Kingsbury from

EXPERIMENTS

AND

# OBSERVATIONS

ON THE

# GASTRIC JUICE,

AND THE

# PHYSIOLOGY OF DIGESTION.

---

BY WILLIAM BEAUMONT, M. D.

Surgeon in the U. S. Army.

---

PLATTSBURGH,

PRINTED BY F. P. ALLEN.

1833.

his friend the Author." Kingsbury's signature written faintly in pencil on front free endpaper. The Thomas Streeter copy, with his note in pencil on the front free endpaper. $75,000

First Edition. G-M 989. *The most important presentation copy extant of the first great American contribution to physiology.* Beaumont inscribed this copy to his longtime friend James W. Kingsbury, an army officer whom Beaumont had met when both men were stationed in Prairie du Chien, Wisconsin in the early 1830s. Kingsbury was a man of some prominence in St. Louis, where he had married a local heiress, Julia Antoinette Cabanne, and acquired from his father-in-law a 425-acre tract of land that is now home to Kingsbury Place, one of St. Louis's most elegant residential communities. In 1835 Beaumont moved his family to St. Louis, where he remained the rest of his life. His decision to settle in the city, although motivated by professional ambition, certainly also owed something to the presence of his friend there.

As is well known, Beaumont, a U. S. Army surgeon, was the first to make an accurate scientific study of the physical phenomena of gastric digestion. While stationed at Fort Mackinac, Michigan, close to the Canadian border, Beaumont had been presented with a unique opportunity in the person of one of his patients, the young French Canadian soldier Alexis St. Martin, who was left with a permanent gastric fistula after suffering a gunshot wound to the stomach. Beaumont's experiments and observations, conducted between 1825 and 1831, conclusively established the chemical nature of digestion, the presence and role of hydrochloric acid in the stomach, the temperature of the stomach during digestion, the movement of the stomach walls and the relative digestibility of certain foods—all of which revolutionized current theories of the physiology of digestion.

Kingsbury was quite familiar with Beaumont's researches on digestion, as Beaumont had continued his experiments with Alexis St. Martin during Kingsbury's tenure at Prairie du Chien. When Beaumont decided to publish his *Experiments and Observations* by subscription, Kingsbury, who by then was back at St. Louis, acted as one of Beaumont's agents, distributing prospectuses for the book to local booksellers and other likely purchasers. The Beaumont archives at Washington University's Becker Medical Library includes a letter that Kingsbury wrote to Beaumont on July 14, 1833; this is the earliest letter written to Beaumont to contain a reference to Beaumont's book:

> Your book will be valuable to any one whether a medical man, or a plain farmer, especially when Diet is all the rage as it is now. I hope it may prove as profitable to your purse, as it has to your standing in the great world, where you are located you do not require Alex's intestines to gain you a name or practice. Send me on some 4 or 5 of the prospectus. I shall take one or two copies, my friends will take some & I trust that the talent of the country will have & manifest a feeling for kindred abilities.

At the end of his letter Kingsbury repeats his request:

> Send your prospectus as soon as you can we have about 16 doctors here to be examined.

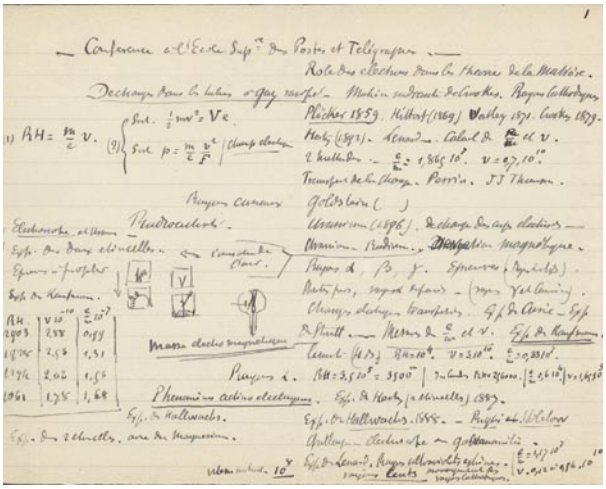
Even though Beaumont's scientific advisors urged him to have his book issued by established medical publishers such as Lippincott in Philadelphia, Beaumont decided to self-publish his book. He had it typeset at the press of the town newspaper in Plattsburgh, New York, and sold through a prospectus and agents. The Beaumont archives include a remarkably complete account of Beaumont's adventure in self-publishing, which included his placing some copies of the first edition for sale in Boston. These were issued with a cancel title and the imprint Lilly, Wait & Co., 1834.

Only one other presentation copy of this work is recorded: the Haskell F. Norman copy, which sold for $45,000 at Christie's NY in 1998. That was one of fifty copies which Beaumont had bound in full leather. Considering normal book production practice, it is likely that the special full-leather copies were produced after the main edition. The Norman copy was inscribed by Beaumont to William Dunlap, whose relationship with Beaumont is unknown. Dibner 130. Fulton, pp. 186-190. Horblit 10. Lilly, p. 185. Norman Library 152. Norman, *One Hundred Books Famous in Medicine*, 61. Peters & Fulton, *William Beaumont's Letter to his New Haven Bookseller, Hezekiah Howe. . . ,* pp. 1-17. Horsman, *Frontier Doctor: William Beaumont, America's First Great Medical Scientist*. Myer, *William Beaumont: A Pioneer American Physiologist.* Hunter, *Kingsbury Place: The First Two Hundred Years*, pp. 5, 7-8. 39845

## *Illustrated Scientific Manuscript on Electrons and the Theory of Matter*

### 15. Becquerel, Henri (1852-1908).

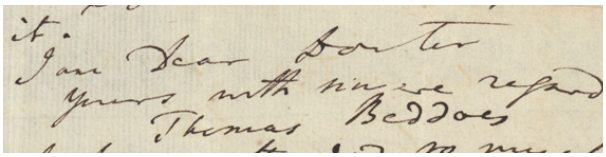
Role des electrons dans les théories de la matière. Autograph manuscript with drawings. Undated but ca. 1900. 3pp. on 3 numbered half-sheets of lined paper (rectos only), measuring 178 x 223 mm. Creased where previously folded, otherwise very good. $16,500



Becquerel, the son and grandson of renowned French physicists, is best known for his discovery of spontaneous radioactivity in 1896, which opened the way to the development of nuclear physics. In the years following, Becquerel continued his researches in radioactivity, identifying alpha rays and electrons in the radiations of radium (1899-1900), publishing the first evidence of a radioactive transformation (1901), and issuing a classic account of his radioactivity investigations in his *Recherches sur une propriété nouvelle de la matière* (1903). In 1903, Becquerel shared the Nobel Prize in physics with Marie and Pierre Curie, whose continuing researches in radioactivity had validated and shown the importance of Becquerel's pioneering investigations.

In late 1906, following in the footsteps of his father and grandfather, Becquerel was elected vice president of the Académie des Sciences, and in late 1907 he was chosen president, succeeding to the post in 1908. In June of that year Becquerel was elected as one of the two permanent secretaries of the Académie, an even more influential post than that of president. Shortly afterwards, he died unexpectedly of a heart attack at the age of 56, when he was still at the height of his powers.

We are offering here Becquerel's extensive manuscript notes for his lecture on the role of electrons in theories of matter, delivered in 1900 or later at a conference held at the École Supérieure des Postes et Télégraphes. The lecture cites the work of many other physicists active in this field, including Pierre and Marie Curie (1859-1906; 1867-1934), whose work on radioactivity is mentioned above; Julius Plücker (1801-68), discoverer of the cathode ray; Heinrich Hertz (1857-94), discoverer of radio waves, who in 1892 demonstrated that cathode rays could pass through thin metal foil; Philipp Lenard (1862-1947), Hertz's assistant, who received the 1905 Nobel Prize for his work on cathode rays; Sir William Crookes (1832-1919), inventor of the Crookes tube and author of important investigations of radiant matter; Joseph John Thomson (1856-1940), awarded the 1906 Nobel Prize for his discovery of the electron; Jean-Baptiste Perrin (1870-1943), winner of the 1926 Nobel Prize for physics, whose early experiments with cathode rays prepared the way for Thomson's determination of the charge/mass ratio of the electron; John William Strutt, third Baron Rayleigh (1842-1919), winner of the 1904 Nobel Prize for his discovery of argon and responsible for important contributions to electromagnetic theory; and Pieter Zeeman (1865-1943), recipient of a share of the 1903 Nobel Prize for his discovery of the "Zeeman effect" describing the splitting of spectral lines in a strong magnetic field. Also mentioned are alpha, beta and gamma rays, the first two discovered by Ernest Rutherford (1871-1937) in 1898, and the third by Paul Villard in 1900. Each of the three sheets of manuscript also includes a diagram by Becquerel, the first labeled "Radioactivité," the second "Phénomène de Zeeman," and the third "Phénomène de Hall" (i.e., Edwin Herbert Hall [1855-1938], who discovered that application of a magnetic field at right angles to a current-carrying metal bar deflects electrons towards one edge of the bar). DSB. Weber, *Pioneers of Science*, passim. Magill, *The Nobel Prize Winners: Physics*, pp. 55-63. 37799



## 16. Beddoes, Thomas (1760-1808).

A.L.s. to Dr. [Thomas G.] Girdlestone (1758-1822). Bradford, July 25, [1797 ( postmark)]. 3pp. plus integral cover. 252 x 196 mm. Creased along original folds, light soiling on cover, lacunae repaired along folds and where seal was broken, with loss of one letter. $2500

Beddoes' letter touches on the medicinal properties of nitric acid and discusses his famous Pneumatic Institution for the treatment of disease by inhalation of various gases, which began operation the following year (1798). The letter begins as follows:

> I was extremely gratified with your Yarmouth case, which I carefully returned to Dr. Babington. I trust it is designed for publication. I shall be curious to learn the sequel. In your last letter you speak of the beneficial effects of nitric acid. I have had some most important communications on the subject which I

am going to print, & should be happy to receive a paper from you. . . .

Later in the letter Beddoes refers to his "scheme" for the Pneumatic Institution—he thanks Dr. Girdlestone and a Dr. Lubbock

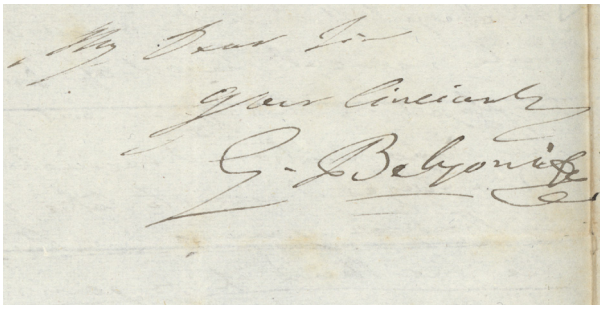
> for the authority of your names more than for your contributions. Depend upon it the scheme will be executed soon, barring any great public disaster. I have got a committee of great respectability—What I want is a superintendent, who ought to have several uncommon qualifications. That point being secured, the next step will be to circulate an outline for the suggestions of philosophers & physicians.

Even though Beddoes does not mention the Pneumatic Institution by name here, it is highly improbable that the above paragraph refers to anything else. The "superintendent of uncommon qualifications" that Beddoes ended up hiring was the nineteen-year-old Humphry Davy, who first made his name as a scientist through his investigations, performed in the Pneumatic Institution's laboratory, of the physiological properties of nitrous oxide gas.

In a postscript, Beddoes once again returns to the subject of nitric acid:

> Could not you who have attended so much to Hepatitis give me something important on the efficacy of nitric acid in liver complaints?

Beddoes' correspondent, Dr. Thomas Girdlestone, was a Yarmouth physician who had served in India; he was the author of *Essays on the Hepatitis and Spasmodic Affections in India* (1787) and several other works. Hirsch. Wikipedia. 34283



17. Belzoni, Giovanni Battista (1778-1823). A.L.s. to S. Briggs. Gibraltar, 20 June 1823. 1–1/2pp. plus integral blank. Creased where previously folded, light foxing, minor soiling along folds, top edge a bit frayed. Docketed on verso of blank leaf. Included with this letter is an engraved portrait of Belzoni by T. Woolnoth and two brief cuttings from 19th cent. publications containing biographical information about Belzoni. $2500

Extraordinary letter concerned with Belzoni's abortive second African expedition, which ended with his death in December 1823. One of the most romantic figures of the nineteenth century, Belzoni enjoyed "a career of enterprise and adventure which has few parallels even in the annals of discovery" (DNB). A native of Padua, Belzoni was originally destined for the priesthood, but abandoned this pursuit after the French invasion of Italy in 1798, turning his attention instead to the study of hydraulic engineering. In 1803 Belzoni emigrated to England, where for some time he was forced to make his living as a street performer, exhibiting his remarkable size (six feet seven inches) and strength. Belzoni's fortunes improved after he came under the patronage of Henry Salt (1780-1827), the British traveler and antiquary, who prevailed upon Astley's Royal Amphitheatre to hire Belzoni as an actor.

In 1812 Belzoni left England to tour Spain and Portugal; in 1815 he ended up in Egypt, where Salt had just been named consul-general. It was there that Belzoni made his name with some of the earliest and most important archeological discoveries of the nineteenth century:

> On the recommendation of the orientalist J. L. Burckhardt, [Belzoni] was sent by Salt to the Ramesseum at Thebes, whence he removed with great skill the colossal bust of Ramesses II, commonly called "the Young Memnon"— shipped by Belzoni to England, this piece is still on prominent display at the British Museum. He also pushed his investigations into the great temple of Edfu, visited Elephantine and Philae, cleared the great temple at Abu Simbel of sand (1817), made excavations at Karnak, and opened up the sepulchre of Seti I (still sometimes known as "Belzoni's tomb"). He was the first to penetrate into the second pyramid of Giza, and the first European in modern times to visit the oasis of Bahariya, which he supposed to be that of Siwa. He also identified the ruins of Berenice on the Red Sea (Wikipedia).

In 1819 Belzoni returned to England, where a year later he published his *Narrative of the Operations and Recent Discoveries within the Pyramids, Temples, Tombs, and Excavations in Egypt and Nubia* (1820). In the autumn of 1823 he set out on another expedition, this time to Timbuktu, where he hoped to find the source of the Niger river. He obtained funding for this expedition from the firm of Briggs of Alexandria, and after being refused permission to pass through Morocco, decided to take the

Guinea Coast route. He got as far as Benin, but was stricken with dysentery at the village of Gwato, where he died on December 3.

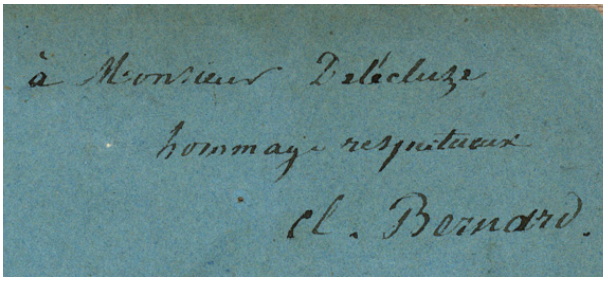
Belzoni's letter, written in his eccentric English to a member of the firm financing his ill-fated second expedition, reads as follows:

> My dear Sir,
>
> Every mariner meet contrary winds at times, and travelers adversity, no man could have greater reason to hope for success than I had in my undertakeing, and everything was so arranged that nothing was left to accomplish my views, when some underminers, as I dreaded, has upseted all my doing and frustrated my hopes from this quarter, Mrs. B. will acquaint you of the particular,—I am now seting off for a second attempt, and though I received a violent Blow or rather a reverse on my first, I do not intend to give it up till I met impossibility, I only regreat the lost of five months employed in this affair, but such are the informations I received and the advantages I mean to take, that probably by the time you receive this, I shall be one third of my journey farther southerly than I have been on my last rout; Mrs. B. will explain my news plain to you,—the only absolute difficulty is that I fear I shall not be able to support the heavy expenses which are necessarily [illeg.] in this undertakeing, as accompanied with presents to the Emperor and every one at his Court that [h]as any thing to do with me, amount to more than I can afford, if I must repeat the least[?] over and over again; but be it as it will, my face shall not tourn to the North till I mek all the attempts possible,—I shall write to you from my next station, with my respects to your Brother I remain, My dear Sir, Yours sincerely, G. Belzoni

The setback Belzoni refers to here is probably the Emperor of Morocco's refusal to allow Belzoni's expedition to travel through his country. Letters from Belzoni are extremely rare—we have not been able to find any citations to Belzoni mss. in OCLC, RLIN or the British Library catalogue. DNB. 39550

### 18. Bernard, Claude (1813-78).

Recherches expérimentales sur les fonctions du nerf spinal. Offprint from *Arch. gén. Méd.* IV & V (1844) 379-426, 51-93pp. 8vo. 75, [1]pp. Paris: Rignoux, 1844. 230 x 147 mm. Original wrappers, uncut & unopened, spine restored. Fine copy, in a half morocco drop-back box. $2750



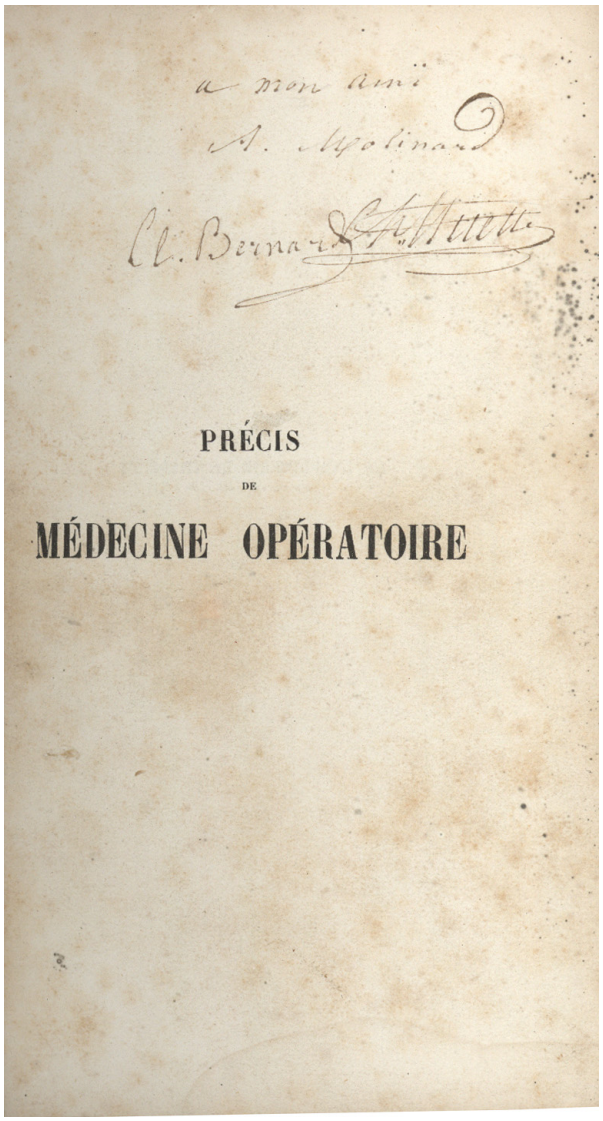

First Edition, Inscribed By Bernard on front wrapper: ". . . Monsieur Delécluze / hommage respectueux / Cl. Bernard." A few pencil corrections to text probably Bernard's. An extremely rare presentation copy of the separate offprint recording Bernard's destruction experiments on the spinal and vagus nerves and innervation of the vocal chords. G-M 1264. Spillane 161. DSB. 11499

## *Rare Presentation Copy of the First Edition*

### 19. Bernard, Claude (1813-73) & Huette, Charles.

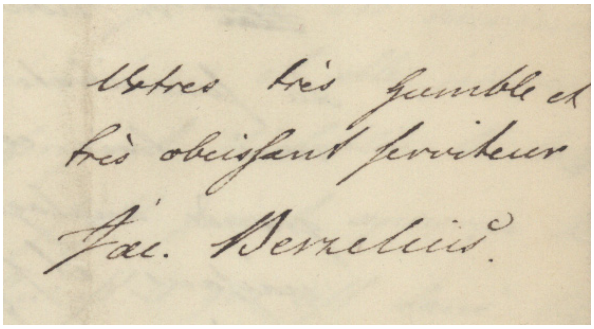
Précis iconographique de médecine opératoire et d'anatomie chirurgicale. 8vo. [4] xxvi [2], 488pp. Engraved frontispiece of Vesalius with printed tissue guard, issued only to subscribers, 113 engraved plates printed in sepia and hand-colored. Paris: Méquignon-Marvis, 1846. 188 x 117 mm. Quarter calf, gilt spine, worn, front hinge split. Lightly foxed throughout, but very good. *Presentation copy, inscribed by the authors on the half-title:* "A mon ami / A. Molinard /Cl. Bernard Ch. Huette." Boxed. $7500

First Edition, and *rare in commerce.* Bernard and Huette's influential surgical textbook was one of the first of its kind to enjoy a world-wide market, and was still being reprinted at the end of the 19th century. Presentation copies of the first edition are extraordinarily rare; *this is the only one that we have ever seen!* Blocker, p. 34. 33317




20. Bernard, Claude (1813-73).
A.L.s. to M. Cap, dated 25 février 1850. 1-1/2pp. plus integral address leaf. 212 x 136 mm. Creased where previously folded, minor foxing & soiling, but very good. $1500

Regarding the submission of an article to an unnamed journal, presumably edited by M. Cap: "I have sent the medical review article for the next number to the printers. I must leave today for 8 or 10 days to go see my mother, who is very ill. I will thus not be able to correct the proofs. I ask you to give them a glance during my absence. . . ." Bernard also asked his correspondent to send him current issues of the *Revue médicale*, the *Revue médico-chirurgicale* and the "*Journal des conn[aissances] médico-chirurgicales*," so that he might recast the medical review article into a different form, "which I believe will be very profitable for your journal." We have not been able to discover which article Bernard is referring to here. 34278

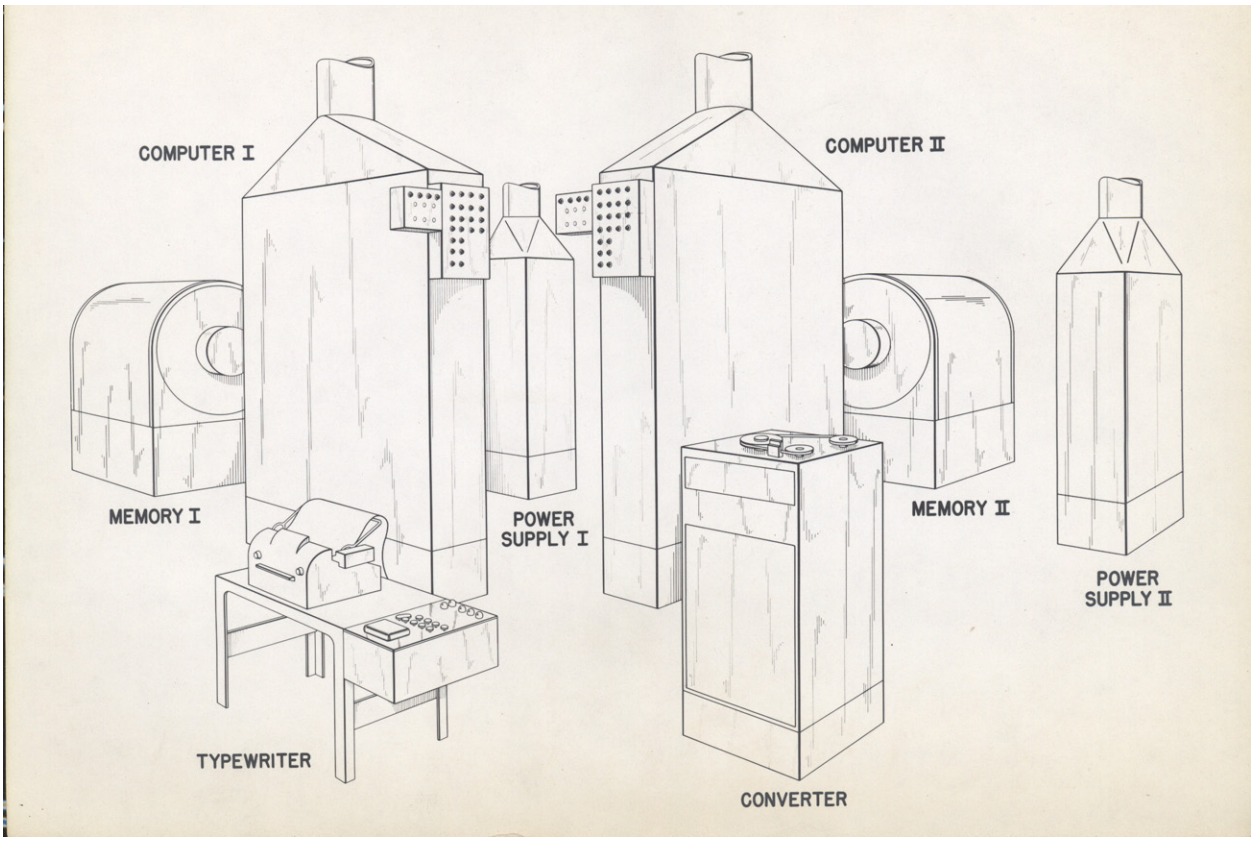


21. Berzelius, Jöns Jacob (1779-1848).
A.L.s. in French to an unidentified recipient (possibly William Henry [1774-1836]), dated from London, 18 Oct. 1812. 3-1/2pp. 226 x 184 mm. Creased where previously folded, light browning & soiling, a few tiny pin-holes, but very good. Biographical notice of Berzelius tipped to first page. English translation provided. $2750

Excellent scientific letter from the Swedish chemist Berzelius, inventor of the current system of chemical symbols, originator of the duality theory of chemical affinity classing chemical elements as either electronegative or electropositive (an ancestor of 20th century electron theories of bonding), developer of new and important methods of chemical synthesis and analysis, and author of *Lärbok i kemien* (1808-12), the most influential chemical textbook of its day. In the first decade of the 19th century Berzelius and his associate Hisinger performed important research on the effects of electricity on various salts, finding that all were decomposed by electric current. Humphry Davy had been performing similar research in England (isolating several metals in the process), and the two men became interested in each other's work. Davy's findings reinforced Berzelius's conviction of "the significance of electricity in binding chemical elements together and also strengthened his conviction, gained from reading Lavoisier, that oxygen was an essential constituent not only of all acids, but also of bases as well" (DSB).

In 1812 Berzelius traveled to England to meet all the important British chemists, including Davy; it was during this trip that Berzelius wrote the present letter, probably to Manchester chemist William Henry. The letter discusses Berzelius's disagreement with Davy over the elemental nature of chlorine (formerly called "oxymuratic acid"), and Davy's discovery that muriatic acid (our hydrochloric acid) contains no oxygen—a blow to Lavoisier's oxygen theory of acids.

> You observe very justly that no experiment can be invented for proving or for refuting the new theory that our friend Davy just gave on oxymuratic acid. It




seems however that in the present state of science some arguments can be admitted and that the calculations founded on the principles of the doctrine of definite proportions have to count for something in this question. Now these calculations prove that the new theory has never been necessary in order to better explain the phenomena and it proves still that Davy, totally while looking to establish the doctrine of definite proportions, not once perceived for himself the extent of this doctrine. What is in the hypothesis of Davy but the submuriates, the combination of oxymuriatic gas with the oxide gas of carbon? What is finally the double muriate of ammoniac and of lead? This hypothesis will say to us: the first are combinations of leaden p. en. and oxide of lead. The second is an acid *sui generis*, with one radical and two oxygens or two bodies that play the part of them; instead of as in the old hypothesis this acid has to be a combination of muriatic acid and carbonic acid, in such a proportion that they contain an equal quantity of oxygen, or according to [John] Dalton, composed of an atom of each one. There is in this chlorine explanation a certain consequence in the manner of augmentation, but it seems that only a glance over all of it is necessary to find that the application of this hypothesis will force us to absurdities in the explanation of bodies [that are] more complex and that contain muriatic acid.

Berzelius did not accept the elementary nature of chlorine until 1818.

Berzelius's letter was for a long time preserved in an album containing several letters written to William Henry, and it is reasonable to assume, given its date and subject matter, that this letter was also. Earlier in the letter Berzelius refers to a memoir by his correspondent on electrolysis; Henry was one of the first chemists to experiment with this technique. DSB. 34887

## *Designing the First Stored-Program Electronic Computer at the World's First Electronic Computer Company—The Albert A. Auerbach Collection on the BINAC*

### 22. BINAC.

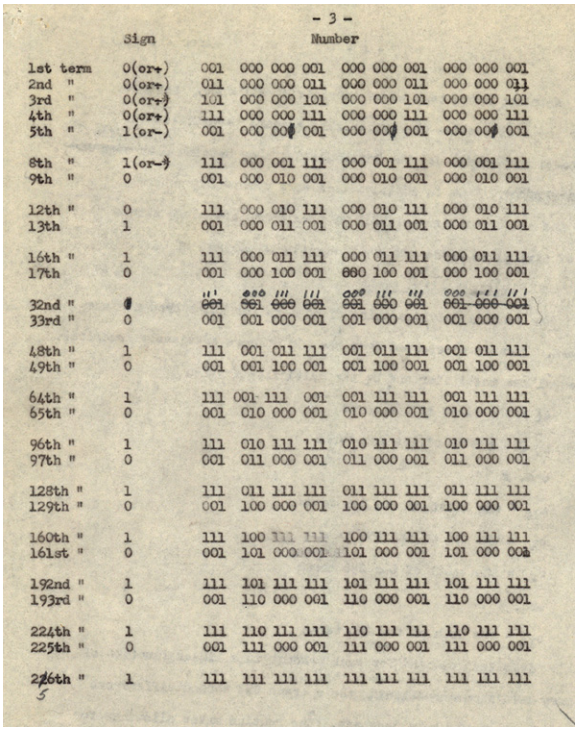
Collection of 45 documents, blueprints, etc. from the library of Albert A. Auerbach (d. 2005), the engineer who designed the BINAC's twin CPUs. 1947-51. Complete description and

listing available on request, or can be seen at our website. $30,000

The BINAC was the first stored-program electronic computer built in the United States. Among stored-program electronic computers, it was preceded in operation only by the British Manchester "Baby" computer, which operated for a very short time. Even though it is recognized that the BINAC included numerous hardware and software innovations, very little about its design and operation is known. Probably because of the scarcity of BINAC documentation, none of the histories of computing discuss it in any detail. One of the only books to include information on its design and engineering is Herman Lukoff's *From Dits to Bits: A Personal History of the Electronic Computer* (1979), cited throughout this description. Apart from the collection in the Sperry-Univac Company Papers at Hagley Museum's Eleutherian Mills Historical Library in Delaware, virtually no primary material on the BINAC is preserved. The *Origins of Cyberspace* Library contained only a very few documents on the BINAC. The Auerbach collection on the development of the BINAC includes documents written and preserved by one of its primary designers—Albert A. Auerbach, designer of the machine's twin CPUs. Most of the material in this collection has never previously been on the market.

The Auerbach Collection is also probably the only collection remaining in private hands of original documents and blueprints from the Electronic Control Company, the world's first electronic computer company. It is a unique opportunity to acquire records of the first significant work by the world's first electronic computer company. Though the world's first electronic computer, the ENIAC designed by Pres Eckert and John Mauchly, was operational in May 1945, its existence was not made public until February 1946. One month later Eckert and Mauchly founded the Electronic Control Company. Their purpose was to manufacture and sell electronic computers; however, at the time hardly anyone could think of a need for electronic computers. Eckert and Mauchly's business concept was so new and radical that they did not even include the word computer in the original company name. At the end of 1947 Eckert and Mauchly renamed their business the Eckert-Mauchly Computer Corporation. No other company would attempt to design and manufacture electronic computers until the early 1950s.

Eckert and Mauchly's BINAC, a path-breaking parallel machine developed for Northrop Aircraft Company, was also the first electronic computer produced for sale, and the first computer to use solid state components. In design the BINAC was the successor to the ENIAC and the EDVAC, and an important and little understood step on the way to the UNIVAC. As an indication of the rarity of the documents in this collection, only one, the sales brochure for the BINAC, was present in the *Origins of Cyberspace* library. Most of the other documents in the Auerbach collection were produced for internal use, or issued in very, very few copies. Few, if any other copies of the documents in this collection would have survived. They include some of the earliest programs ever written for a stored-program electronic computer, a collection of original design blueprints showing the evolution of the BINAC design produced by the Electronic Control Co., the original press release for the first stored-program electronic computer ever sold, documents relating to the BINAC patents, and original typescripts describing the logical design and operation of the machine. A full description of this collection is available on request, or can be downloaded at www.historyofscience.com. 39839



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| 224th " | 1 | 111 | 110 111 111 | 110 111 111 | 110 111 111 |
| 225th " | 0 | 001 | 111 000 001 | 111 000 001 | 111 000 001 |
| 256th " | 1 | 111 | 111 111 111 | 111 111 111 | 111 111 111 |

## 23. BINAC.

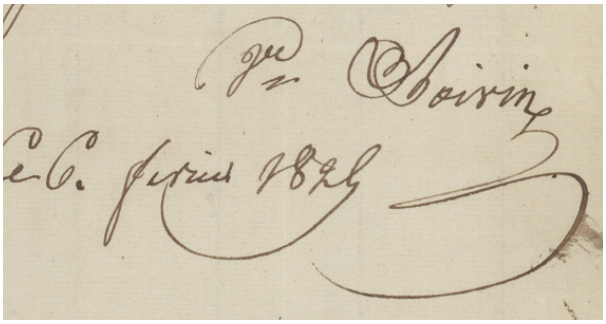
(1) BINAC test routine. Manuscript document. N.p., 3/15/49. 22 sheets. 269 x 204 mm. (2) BINAC test. Carbon typescript with manuscript corrections. N.p., 3/21/49. 7 sheets. 267 x 204 mm. Light toning, small holes from staples, otherwise very good. Provenance: Ralph E. Mullendore. $7500

(1) This manuscript, titled "BINAC test routine," appears to be a working document created by at least two different programmers, as it is written in two distinct

hands. Both documents describe the test routine developed for BINAC at the National Bureau of Standards, which had agreed "that the acceptance run of BINAC would serve as a benchmark for the UNIVAC contract" (Shurkin 1984, 242). Included is a table for conversion between binary octal numbers and decimal numbers.

Because no organization had ever purchased an electronic digital computer before, figuring out an appropriate test routine for UNIVAC they had ordered was a completely new project for the United States Census Bureau. It required a detailed understanding of the functioning of what was a revolutionary new machine.

(2) This carbon typescript, dated six days after the manuscript cited above, appears to be an early draft, probably a transcription from dictation, with numerous corrections in manuscript in what looks to be Eckert's hand. A similar copy, with identical corrections, is in the Margaret Fox collection at the Charles Babbage Institute. Both the manuscript and typed BINAC test routines are written in the machine language of the BINAC, and may represent the only BINAC programs to survive. *Origins of Cyberspace* 1143-1144. 39036



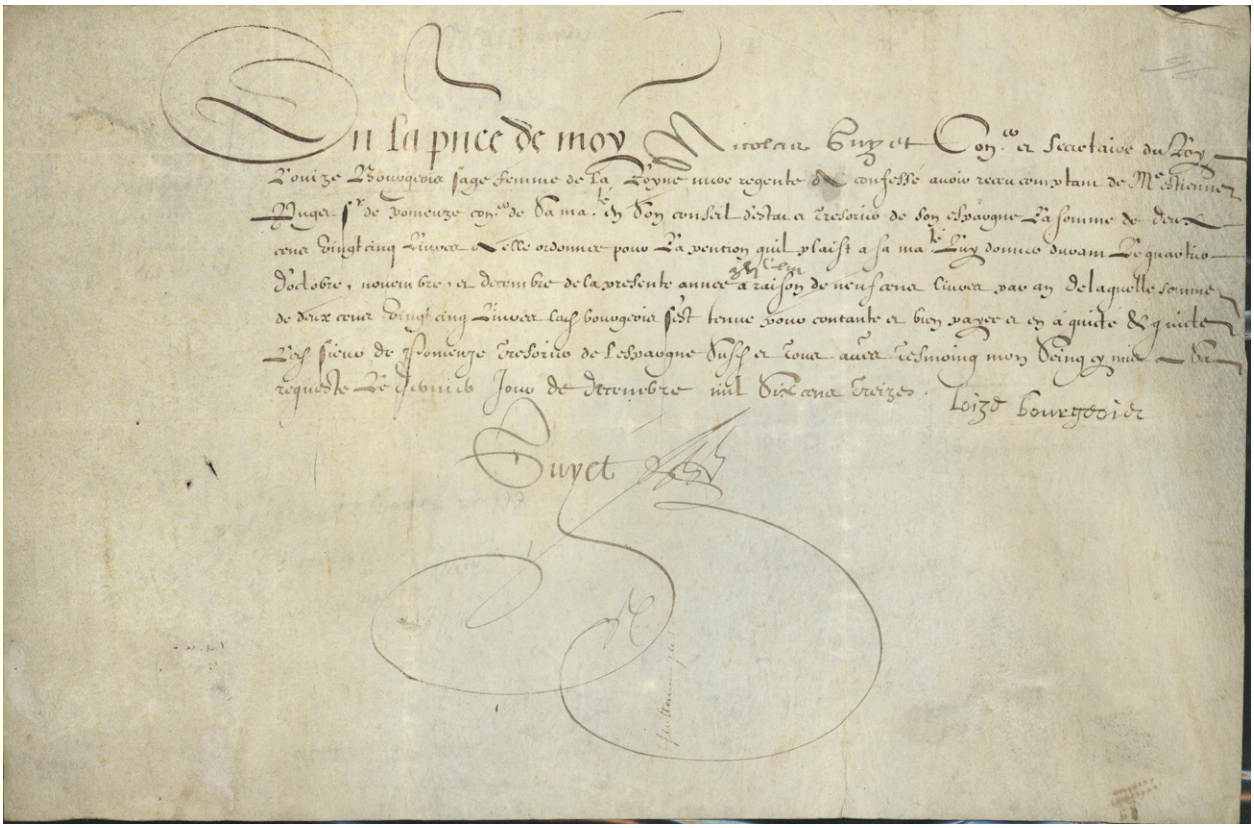
## 24. Boivin, Marie Anne Victoire (1773-1841).

Series of 15 autograph letters signed, mostly to her publisher Baillière, plus 1 engraved and 1 lithographed portrait. 22 – 1/4pp. total (not including integral address leaves). Various sizes. Paris and Versailles, Feb. 6, 1829 – Dec. 4, 18[37?]. Creased where originally folded, light browning, portion of first letter cut away, occasional soiling. Complete listing available.

$9500

Boivin, one of France's most celebrated midwives, studied midwifery at the Hospice de la Maternité under Mme. Lachappelle, and eventually rose to the post of Superintendent-in-Chief of midwifery at the Maison royale de santé. She was the author of several works on obstetrics and gynecology, including three classic treatises: *Mémoriale de l'art des accouchements* (1812; later editions 1817, 1824, 1836; G-M 6165); *Nouvelles recherches sur l'origine, la nature et le traitement de la mole vésiculaire ou grossesse hydatique* (1827; G-M 6172); and *Traité pratique des maladies de l'utérus et de ses annexes* (1833, with Antoine Dugès; G-M 6028). She also improved the speculum, and was one of the first surgeons to amputate the cervix uteri for cancer, a procedure described in her 1833 *Traité*. For her many achievements she was awarded an honorary M.D. by the University of Marburg.

Boivin's original publisher was Méquignon l'aîné, who issued both the first three editions of the *Mémoriale* and the 1827 *Nouvelles recherches.* After Méquignon's death (referred to in passing in the present correspondence) Boivin switched to the firm of Baillière, who published the 1833 *Traité* and the 1836 edition of the *Mémoriale,* as well as her *Recherches sur une des causes les plus frequentes et la moins connue de l'avortement, suivies d'un mémoire sur l'intropelvimetre ou mensurateur interne du basin* (1828). The bulk of the present correspondence discusses issues relating to the publication of her 1833 and 1836 works: problems with the plates, requests for author's copies (a recurring theme in the correspondence), advertising and reviews, accounting issues, etc. Three letters in particular stand out. The first is that of Nov. 2, 1832, relating to the publication of the 1833 *Traité,* in which Boivin asks Baillière to send to her co-author Dugès an extract from Barron's *Delinéations* (a work we have not been able to identify) prior to printing the *Traité's* important chapter on cancer. The second is that of July 19, 1836, referring to the publication of the 1836 *Mémoriale*, in which Boivin complains that the book will be published too late to distribute to students at the beginning of the academic year, requests proofs of all printed sheets "jusqu'à la 21e" (up to the 21st) so that she can work on the *table des matières* and the plate register, and describes the additions she has made to the work as being not very great, so that it will not be much larger than the previous edition. The third is Boivin's letter of August 29, 1836, in which Boivin takes Baillière to task for not supplying her with the number of author's copies of the 1833 *Traité* that she believes herself entitled to, an omission that has left her unable to supply copies to medical societies and individuals. This letter, one of the longest in the collection, includes Boivin's account of the costs associated with publishing the *Traité,* in which she declares that Baillière owes her ten complete copies of the work. The difficulties referred to here, which had caused a "refroidissement" between Boivin and Baillière, were apparently resolved, as in later letters she resumes the cordial tone she had previously used with her publisher. 38325



## *Earliest Available Example of the Autograph of a Famous Woman Physician or Scientist*

25. Bourgeois, Louise (1563-1636).

Document signed "Loize Bourgeois," dated 10 December 1613. Vellum sheet measuring 192 x 291, containing 8 lines in a secretarial hand as well as the signature of Nicolas Puyet, "Con. et secretaire du Roy." Creased where folded, 2 or 3 tiny holes (not affecting text), slight soiling, otherwise very good. $6000

Signed receipt documenting payment to Louise Bourgeois, France's premier midwife in the late 16th and early 17th centuries, the sum of 225 livres from the royal treasury, representing her pension for the winter quarter of 1613. Louise Bourgeois, who served the royal court for twenty-seven years as the "sage-femme de la royne mère" (midwife to the queen mother), is probably the first woman in Europe to publish a significant book in science or medicine. It is hard to think of a famous woman physican/author predating Bourgeois except the legendary medieval physician, Trotula (*fl.* 11th century A.D.) Ogilvie, *Women in Science, Antiquity through the 19th Century* (1986) does not cite a woman physician or scientist between Trotula and Bourgeois.

A pioneer of scientific midwifery, Bourgeois was the author of *Observations diverses sur la sterilité, perte de fruict, foecundité, accouchements et maladies des femmes* (1609), the first book on obstetrics published by a midwife. She was a student of Ambroise Paré, who taught her obstetrics and surgery; she may have learned the technique of podalic version from him. She was the first to describe both face presentation and prolapse of the umbilical cord, and she is credited with introducing premature labor in patients with contracted pelvis. She was also a skilled surgeon, performing operations for stone and tumors, and repairing wounds. It is very possible that Bourgeois was the first professionally trained woman surgeon. At the time Mme. Bourgeois signed our pension receipt, she had been at her royal post for thirteen years, delivering all six of Marie de Medici's children, and enjoying an international reputation for her skill and learning. Despite her illustrious career, however, Bourgeois was dismissed from the court in 1627 following the death from puerperal sepsis of the Queen's daughter-in-law Madame de Montpensier, duchesse d'Orléans.

Our receipt has a double significance as both a rare example of a significant 17th-century medical autograph (whether male or female), and what is most probably the

*earliest autograph obtainable* of an important female physician or scientist. The rarity of scientific and medical autographs from this period should not be underestimated. Our example is very similar to one preserved in the Waller collection at the University of Uppsala, recording Mme. Bourgeois's receipt of her pension for the spring quarter of 1613, and to two examples at the Bibliothèque Nationale, recording a double payment received for the summer and fall quarters of 1613, and a triple payment received for the winter, spring and summer quarters of 1615. All examples appear to be written in the same secretarial hand, all appear to use similar official language, and all, of course, are signed by Bourgeois. However, the Waller example bears the signature of a different royal official (Callard), and there is a blank space in the first line, which in our example and the Bibliothèque Nationale examples has been filled in with the name of the official (Nicolas Puyet) who countersigned the documents. Our example also bears a small manuscript correction to the fifth line, probably in the hand of Puyet. The fact that the signatures on all these examples are virtually identical confirms the authenticity of Bourgeois's signature on our document. It should be pointed out that Erik Waller acquired his vast collection of medical and scientific autographs mostly during the economic upheaval between the two World Wars when many ancient estates and collections were dispersed. Cutter/Viets, *Short Hist. Midwifery*, pp. 73-77; 196-97. O'Dowd & Philipp, *Hist. Ob. Gyn.*, pp. 170-71. 30588

## 26. Bourgery, Jean-Baptiste Marc (1797-1849).

(1) 2 A.Ls.s. to the French medical publisher / bookseller Jean Baptiste Baillière, the first co-signed by Nicolas Henri Jacob (1781-1871). 2pp. total, plus integral address leaves. April 1, 1835-May 31, 1841. 187 x 121 mm. (2) Notice sur les titres de M. Bourgery comme candidat . . . dans la section de médecine et de chirurgie de l'Académie des Sciences. 4to. 28pp., plus 3pp. lithographed "Note additionelle" dated June 1845. [Paris:] Paul Renouard, Jan.-Feb. 1843. 285 x 223 mm. (uncut & unopened). Original tan printed wrappers, edges frayed, some dust-soiling. Front wrapper *inscribed by Bourgery* to an illegible recipient. (3) Tisson & De Quincy. Notice sur M. le docteur Bourgery. . . . Offprint from *Archives des hommes du jour.* 4pp. [Paris:] Imprimerie Maulde et Renou, 1846. 226 x 150 mm. Unbound as issued; stitch-holes in margin. $950

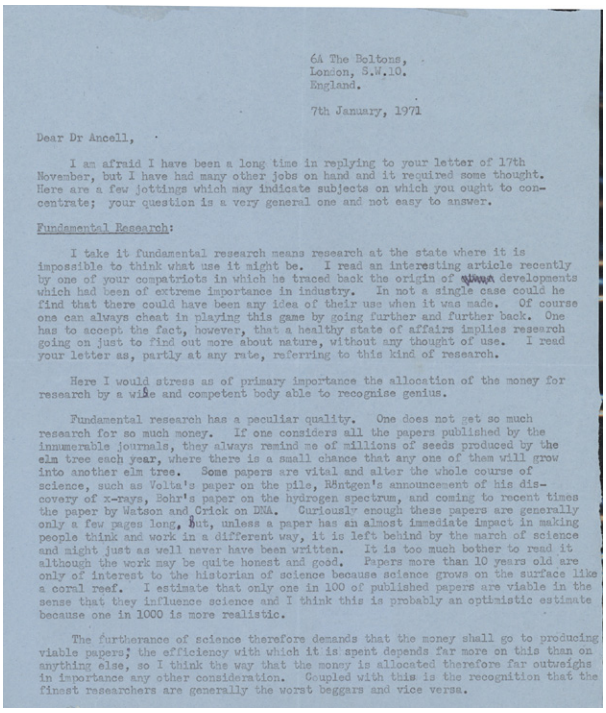
Bourgery is best known for his multi-volume *Traité complet de l'anatomie de l'homme comprenant la médecine opératoire* (1832-54), illustrated with 750 folio hand-colored lithographs by Nicolas Jacob (a pupil of David), and described as "fine summary of anatomical knowledge and ideas current in Paris during the middle of the nineteenth century" (Roberts & Tomlinson, *Fabric of the Body,* p. 537). Jacob also illustrated Bourgery's earlier *Anatomie élémentaire en 20 planches . . . avec texte explicatif, formant un manuel complet d'anatomie* (1834-42), published by Didot. This work is mentioned in Bourgery's first letter to Baillière, co-signed by Jacob, in which the two state that they are sending the publisher 300 uncolored copies of plate 4 of the *Anatomie élémentaire,* and promise to send him some colored examples also. Baillière published Bourgery's *Traité de petite chirurgie* in 1835 (the only work of Bourgery's issued by this publisher), and this letter may have been written in connection with that event. In the second letter, Bourgery informs Baillière that he has returned the two "livraisons" (fascicles) that Baillière had lent him.

The bibliographical *Notice sur les titres de M. Bourgery* (no. [2] above) was originally issued in connection with Bourgery's 1843 nomination to the Académie des Sciences following the vacancy left by the death of Larrey. His candidacy was not successful, but two years later he was nominated again to fill the seat vacated by Breschet's death. The lithographed addition to the *Notice sur les titres* updates Bourgery's publications to June 1845. No. (3), the *Notice sur M. le docteur Bourgery*, is a brief favorable notice of Bourgery's career and accomplishments. 38370

## 27. Bragg, William Lawrence (1890-1971).

T.L.s. to Dr. R. M. Ancell, Jr. London, January 7, 1971. 1-1/4pp., on single sheet (air letter). 238 x 196 mm. Creased where originally folded, traces of mounting tape, otherwise fine.$5000

Bragg founded the science of x-ray crystallography, and played a fundamental role in its development into one of the essential analytic tools of physics, chemistry and molecular biology. Prior to 1912, scientists had very little knowledge about the solid state of matter, but in 1912 came the Friedrich-Knipping-Laue paper showing that x-rays can be diffracted by crystals. Drawing on this discovery and on the work of others in the field, Lawrence Bragg was able to determine the theoretical basis for crystal structure analysis, which he was able to demonstrate experimentally using the x-ray spectrometer invented by his father, William Henry Bragg. In 1915, at the age of 25 he became the youngest person (at the time of writing) to receive the Nobel Prize, an honor he shared with his father.



64 The Boltons,
London, S.W.10.
England.

7th January, 1971

Dear Dr Ancell,

I am afraid I have been a long time in replying to your letter of 17th November, but I have had many other jobs on hand and it required some thought. Here are a few jottings which may indicate subjects on which you ought to concentrate; your question is a very general one and not easy to answer.

Fundamental Research:

I take it fundamental research means research at the state where it is impossible to think what use it might be. I read an interesting article recently by one of your compatriots in which he traced back the origin of developments which had been of extreme importance in industry. In not a single case could he find that there could have been any idea of their use when it was made. Of course one can always cheat in playing this game by going further and further back. One has to accept the fact, however, that a healthy state of affairs implies research going on just to find out more about nature, without any thought of use. I read your letter as, partly at any rate, referring to this kind of research.

Here I would stress as of primary importance the allocation of the money for research by a wise and competent body able to recognise genius.

Fundamental research has a peculiar quality. One does not get so much research for so much money. If one considers all the papers published by the innumerable journals, they always remind me of millions of seeds produced by the elm tree each year, where there is a small chance that any one of them will grow into another elm tree. Some papers are vital and alter the whole course of science, such as Volta's paper on the pile, Röntgen's announcement of his discovery of x-rays, Bohr's paper on the hydrogen spectrum, and coming to recent times the paper by Watson and Crick on DNA. Curiously enough these papers are generally only a few pages long, but, unless a paper has an almost immediate impact in making people think and work in a different way, it is left behind by the march of science and might just as well never have been written. It is too much bother to read it although the work may be quite honest and good. Papers more than 10 years old are only of interest to the historian of science because science grows on the surface like a coral reef. I estimate that only one in 100 of published papers are viable in the sense that they influence science and I think this is probably an optimistic estimate because one in 1000 is more realistic.

The furtherance of science therefore demands that the money shall go to producing viable papers; the efficiency with which it is spent depends far more on this than on anything else, so I think the way that the money is allocated therefore far outweighs in importance any other consideration. Coupled with this is the recognition that the finest researchers are generally the worst beggars and vice versa.

Bragg began his academic career at Trinity College, Cambridge, then moved to Manchester University where he remained until 1937. After a year at the National Physical Laboratory, Bragg was named Cavendish Professor of experimental physics at Cambridge, a post he held until 1953. Shortly after his return to Cambridge in 1937, Bragg met Max Perutz, who had been working at the Cavendish Laboratory on the structure of hemoglobin; Bragg immediately became deeply interested in applying x-ray crystallography to the study of the huge and complex protein molecules of the living cell. He devoted the rest of his scientific career to this field and supervised the work of others, including Perutz and John Kendrew, who shared the 1962 Nobel Prize in chemistry for their elucidation of the first structures proteins. Another Cavendish triumph during Bragg's tenure there was Watson and Crick's discovery of the structure of DNA; Bragg did not play a direct role in this work, but encouraged it and was quick to understand the importance of the results.

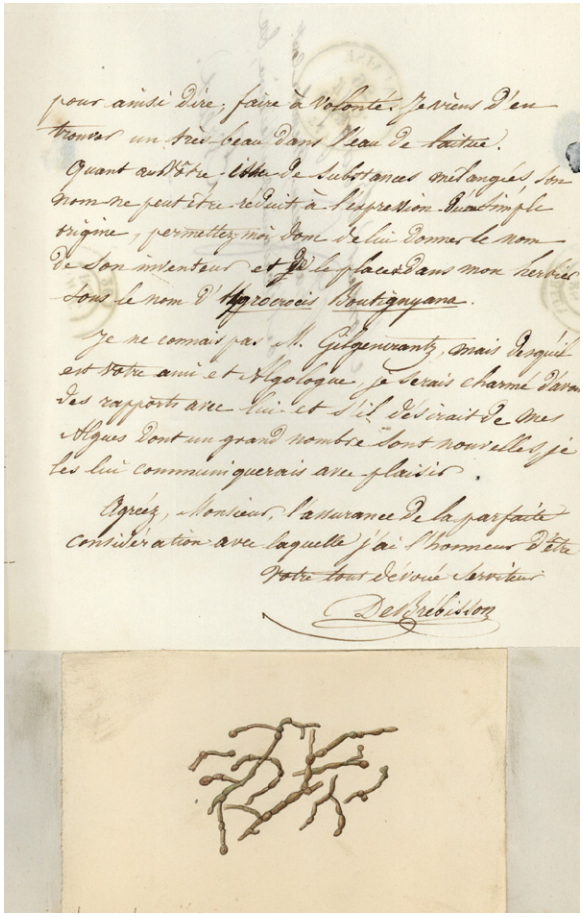
After Bragg's retirement from Cambridge he was appointed professor of natural philosophy at the Royal Institution, where he continued his scientific researches, made organizational and administrative changes, and instituted an enormously popular series of scientific lectures for schoolchildren, many of which he gave himself. These lectures inspired a television series, and made Bragg an admired and recognized public figure. He retired from the R. I. in 1966, and died in July 1971.

The letter we are offering here, written six months before Bragg's death, is a response to a query by a member of the television news staff at KOB Radio & Television in Albuquerque, N.M. It contains some profound and thought-provoking statements on the nature and progress of scientific research:

> Fundamental Research:
>
> I take it fundamental research means research at the state where it is impossible to think what use it might be. I read an interesting article recently by one of your compatriots in which he traced back the origin of developments which had been of extreme importance in industry. In not a single case could he find that there could have been any idea of their use when it was made. . . . One has to accept the fact, however, that a healthy state of affairs implies research going on just to find out more about nature, without any thought of use. . . .
>
> Here I would stress as of primary importance the allocation of the money for research by a wise and competent body able to recognize genius.
>
> Fundamental research has a peculiar quality. One does not get so much research for so much money. If one considers all the papers published by the innumerable journals, they always remind me of millions of seeds produced by the elm tree each year, where there is a small chance that any one of them will grow into another elm tree. Some papers are vital and alter the whole course of science, such as Volta's paper on the pile, Röntgen's announcement of his discovery of x-rays, Bohr's paper on the hydrogen spectrum, and coming to recent times the paper by Watson and Crick on DNA. Curiously enough these papers are generally only a few pages long. But, unless a paper has an almost immediate impact in making people think and work in a different way, it is left behind by the march of science and might just as well never have been written. It is too much bother to read it although the work may be quite honest and good. Papers more than 10 years old are only of interest to the historian of science because science grows on the surface like a coral reef. I estimate that only one in 100 of published papers are viable in the sense that they influence science and I think this is probably on optimistic estimate because one in 1000 is more realistic.
>
> The furtherance of science therefore demands that the money shall go to producing viable papers; the efficiency with which it is spent depends far more on this than on anything else, so I think the way that

the money is allocated therefore far outweighs in importance any other consideration. . . .

Phillips, "William Lawrence Bragg," in Thomas & Phillips, eds., *Selections and Reflections: The Legacy of Sir Lawrence Bragg,* pp. 1-69. DSB. 38490



28. Brébisson, Louis Alphonse de (1798-1872). A.L.s. in French to Pierre Hippolyte Boutigny (1798-1884), accompanied by watercolor drawing of *Hygrocrocis arsenici*. Falaise, 29 October 1839. 3pp. plus address. 196 x 161 mm.; drawing measures 77 x 121 mm. Mounted. $950

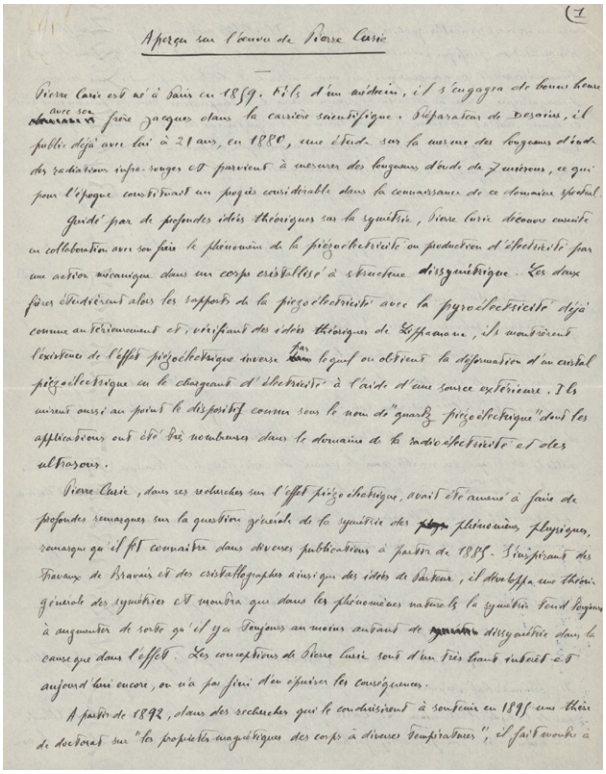
Brébisson was one of the first botanists to discover microscopic algae, on which he published several works. He was the author of *Flore de la Normandie* (1836 and later editions), and contributed to the monumental *Flore générale de France* (1828-29). Brébisson also made important contributions to the development of photography: he pioneered the art of photography in Normandy, was one of the first in France to use collodion negatives, and in 1849 built a camera adapted for use with a microscope, which he employed in his scientific researches. "His work on microscopic seaweeds and diatoms stimulated further research, and was still being cited at the end of the century" (Frizot, *A New History of Photography*, p. 276).

In the letter Brébisson thanks Boutigny for sending him a species of algae (hygrocrocis), and expresses pleasure in their mutual correspondence. He describes Boutigny's specimen as being, "like all others, formed of filaments which, in each species, present themselves a little differently depending on the environments in which they developed." He proposes to put the specimen into his own herbarium under the name of *Hygrocrocis boutignyana,* after its discoverer. The letter is accompanied by a watercolor sketch of a alga, *Hygrocrocis arsenici.* 40110

## *Broglie's Homage to Pierre Curie*

29. Broglie, Louis de (1892-1987). Aperçu sur l'oeuvre de Pierre Curie. Autograph manuscript signed. 4pp., on 2 sheets. 271 x 210 mm. N.p., April 19, 1956. In French (English translation provided). Creased where previously folded, faint rust-marks from paper clip, but fine. With accompanying signed portrait photograph, 172 x 107 mm., inscribed "A Monsieur Joseph Mertens / en hommage cordial / Louis de Broglie"; also cover addressed to Mertens in Broglie's hand, postmarked 19[63?]. Fine.$6500

The manuscript of Broglie's address commemorating the fiftieth anniversary of Pierre Curie's death on April 19, 1906; the address presents a brief but well-informed history of Pierre Curie's scientific career and accomplishments. After mentioning Pierre Curie's early studies in spectroscopy, Broglie devotes several paragraphs to his subject's fundamental contributions to the fields of piezoelectricity and magnetism—in particular his elucidation of "Curie's law" and the "Curie point"—which have had far-reaching effects in physics; "even today we have not exhausted the possibilities." Most of the rest of Broglie's address discusses the Nobel Prize-winning investigations of radioactivity that Pierre Curie performed between 1896 and 1906 in conjunction with his wife Marie; these include the discovery of polonium and radium, the isolation of pure radium chloride and radium bromide, and the identification of secondary radiation produced by radium emanation (radon). Broglie closes with a poignant account of Pierre's tragic death, and of Marie's solitary continuation of the work they had begun together; he also notes that "[Marie's] work was continued with the greatest brilliance by her daughter Madame Irène Joliot-Curie and by her son-in-law Frédéric Joliot-Curie,



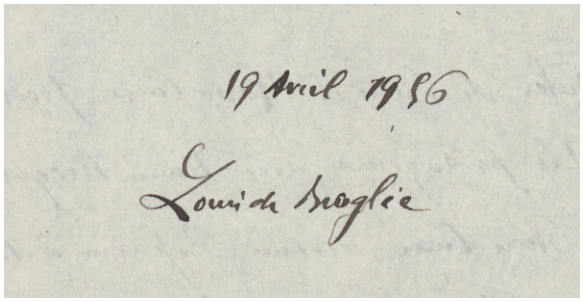
Aperçu sur l'œuvre de Pierre Curie

Pierre Curie est né à Paris en 1859. Fils d'un médecin, il s'engagea de bonne heure avec son frère jacques dans la carrière scientifique. Préparateur de Desains, il publie déjà avec lui à 21 ans, en 1880, une étude sur la mesure des longueurs d'onde des radiations infra-rouges et parvient à mesurer des longueurs d'onde de 7 microns, ce qui pour l'époque constituait un progrès considérable dans la connaissance de ce domaine spectral.

Guidé par de profondes idées théoriques sur la symétrie, Pierre Curie découvre ensuite en collaboration avec son frère le phénomène de la piézoélectricité ou production d'électricité par une action mécanique dans un corps cristallisé à structure dissymétrique. Les deux frères étudièrent alors les rapports de la piézoélectricité avec la pyroélectricité déjà connue antérieurement et, vérifiant des idées théoriques de Lippmann, ils montrèrent l'existence de l'effet piézoélectrique inverse par lequel on obtient la déformation d'un cristal piézoélectrique en le chargeant d'électricité à l'aide d'une source extérieure. Ils eurent aussi au point le dispositif connu sous le nom de "quartz piézoélectrique" dont les applications ont été très nombreuses dans le domaine de la radioélectricité et plus encore aujourd'hui.

Pierre Curie, dans ses recherches sur l'effet piézoélectrique, avait été amené à faire de profondes remarques sur la question générale de la symétrie des phénomènes physiques, remarques qu'il fit connaître dans diverses publications à partir de 1885. S'inspirant des travaux de Bravais et des cristallographes ainsi que des idées de Pasteur, il développa une théorie générale des symétries et montra que dans les phénomènes naturels la symétrie tend toujours à augmenter de sorte qu'il y a toujours un moins autant de dissymétrie dans la cause que dans l'effet. Les conceptions de Pierre Curie sont d'un très grand intérêt encore aujourd'hui, on n'a pas fini d'en épuiser les conséquences.

A partir de 1892, dans des recherches qui le conduisirent à soutenir en 1895 une thèse de doctorat sur "les propriétés magnétiques des corps à diverses températures", il fait appel à

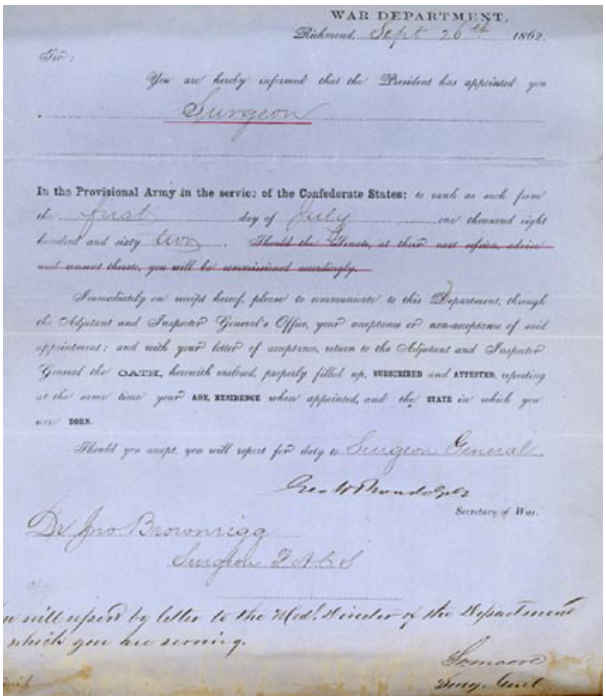


19 Avril 1956

Louis de Broglie

originators of important discoveries in nuclear physics who also received the Nobel Prize for the discovery of artificial radioelements. The premature disappearance of Irène Joliot-Curie [who died on March 17, 1956] that recently put in mourning the entire realm of French science and that coincided with the fiftieth anniversary of the tragic death of Pierre Curie, gives today a character particularly moving on the celebration of this sad anniversary."

Broglie's address was most probably never published; it is not listed in it is not listed in the comprehensive bibliography of Broglie's works contained on pp. xv-xxvii of *Louis de Broglie: Sa conception du monde physique* (1973). DSB. 32963



WAR DEPARTMENT.

Richmond, Sept 26th 1863.

Sir:

You are hereby informed that the President has appointed you

Surgeon

In the Provisional Army in the service of the Confederate States: to rank as such from the first day of July one thousand eight hundred and sixty two. Should the Senate, at their next session, advise and consent thereto, you will be commissioned accordingly.

Immediately on receipt hereof, please to communicate to this Department, through the Adjutant and Inspector General's Office, your acceptance or non-acceptance of said appointment; and with your letter of acceptance, return to the Adjutant and Inspector General the OATH, herewith enclosed, properly filled up, SUBSCRIBED and ATTESTED, reporting at the same time your AGE, RESIDENCE when appointed, and the STATE in which you were BORN.

Should you accept, you will report for duty to Surgeon General

Geo. W. Randolph

Secretary of War.

Dr Jno Brownrigg

Surgeon P.A.C.S.

will report by letter to the Med. Director of the Department to which you are assigned.

Geneva

Surg. Gen.

## *Archive of a Confederate Surgeon*

30. Brownrigg, Jonathan.

Archive of autograph and printed materials relating to Brownrigg's service as a surgeon with the army of the Confederate States of America, as listed below. V.p., v.d. Many items with Brownrigg's annotations. Some rubbing and wear to covers of (1), (2) & (7); A few leaves of (1) and (2) apparently clipped out (including the title), and others darkened due to discoloration of glue used to affix newspaper clippings; other items showing signs of wear and use as might be expected, but overall very good and unique.

$12,500

There were only about 2500 surgeons in the Confederate States Army, and their archives virtually never appear on the market—this is the first we have seen in our four decades of business. It is a rich, fascinating and poignant archive, preserved carefully by Brownrigg's descendants until the present, depicting in detail the military career of a typical Confederate army surgeon during the American Civil War, and unknown to scholars until now.

According to the manuscript annotation on the "General order no. IX" mentioned below under (1), Brownrigg joined the army of Tennessee as a volunteer in the spring of 1861, where he served as a private until being elected

surgeon of Blythe's Mississippi battalion the following July. He was later examined at Nashville and appointed surgeon to the army of Tennessee. Brownrigg was transferred and promoted numerous times, as documented in the official orders included in (1); he ended up as Chief Surgeon to the Department of Alabama, Mississippi and East Louisiana, commanded by Maj. General Stephen Dill Lee. He resigned from the C.S.A. in July 1864, a few months after his marriage to Bettie Yerger. We have been unable to discover anything about Brownrigg's life other than what is contained in this archive; however, his participation in the dramatic and bloody War between the States is well documented here.

The archive consists of the following:

(1) Brownrigg's medical syllabus from his student days at one of the medical schools in Philadelphia, the city where many Confederate physicians received their training (see Cunningham, *Doctors in Gray*, pp. 9-12). The syllabus is titled Mütter's Syllabus on the spine, after Thomas Mütter (1811-59) who taught at Jefferson Medical College, where Brownrigg presumably studied medicine. It is interleaved with blank pages on which Brownrigg wrote nearly 40 pages of medical notes; many of these relate to the treatment of wounds, which would have been one of his major concerns as an army surgeon. Glued over many of the printed pages and some of the holograph ones are numerous newspaper clippings relating to medical, political and personal matters; several are obituaries of family members, including Brownrigg's wife. Inserted are approximately 21 official orders (some of them official copies) transferring Brownrigg between various units, raising his rank, reacting to his requests for discharge, etc. Some of these orders are on official printed forms of the C. S. A. Medical Department, others are wholly manuscript. One of the printed forms, "General order no. IX" of the Provisional Army of the State of Tennessee, is cited as no. 4140 in Parrish & Willingham's Confederate Imprints; Brownrigg's name is included in the form's list of surgeons. (The remainder of the printed forms in this archive are not in Parrish & Willingham, since this bibliography does not include any type of document that required completion in manuscript.)

(2) Album titled *Token of Love*, belonging to Bettie Yerger, whom Brownrigg married in January 1864. Among the usual sentiments from friends are Brownrigg's manuscript account of his and Bettie's courtship and marriage: "John Brownrigg & Bettie Yerger. Met first in Febry 1863. Plighted their troth June 25th, 1863. Engaged to be married Oct. 15, 1863. Married on January 14th, 1864, at the residence of Judge Wm. Yerger, in Jackson Mississippi. . . . Separated by death Sep. 3rd, 1867, but not in heart. I fell in love with her at first sight, at Col. Fontes house at a little evening party. . . ." Also included are a printed obituary notice, an announcement of Bettie's funeral, and Brownrigg's ms. instructions bequeathing his engagement and wedding rings to his son.

(3) 3-page A.L.s. to Brownrigg from Brig. Gen. Henry Hopkins Sibley (1816-86), dated May 15th, 1863 from Shreveport, Lousisiana, describing the death of Brownrigg's brother, Major Richard T. Brownrigg, during the engagement at Irish Bend and Fort Bisland, April 13-14, 1863. Richard Brownrigg played a minor role in Texas politics, serving as signatory to an 1861 ordinance concerning the separation of Texas from the United States; see Parrish & Willingham 4155. Sibley described in detail the location of Richard Brownrigg's grave, and ended his letter by noting that "the Yankees have not advanced above Alexandria-their gun boats are some twenty miles below the river falling. . . ." For further information on Sibley, see Faust, Historical Times Illustrated Encyclopedia of the Civil War, pp. 686-87.

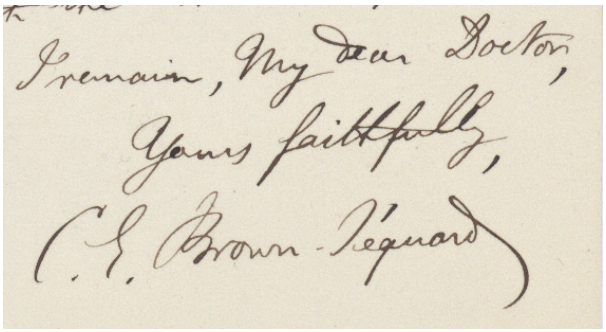
(4) Three 1-page printed medical forms filled out in manuscript, all dated April 15, 1864, recommending that "Chief Surgeon Jno. Brownrigg of Genl. S. D. Lee's Cavalry Command" be granted a 30-day extension of leave due to "facial neuralgia of an aggravated type," from which he had been suffering for the previous 15 days. The forms bear the signatures of Surg. W. L. Lipscombe and Surg. Richard L. Butt, of Way(?) Hospital in Columbus, Miss. Each form is attached to blue paper on which comments or docketing information have been written. Maj. Gen. Stephen Dill Lee (1833-1908), commander of the Department of Alabama, Mississippi and East Louisiana, was a distant relative of Robert E. Lee; see Faust, p. 431.

(5) Special Orders dated May 9, 1864 from Headquarters, Dept. of Alabama, Mississippi and East Louisiana in Demopolis, AL, relieving Brownrigg from duty as Chief Surgeon in Maj. General [S. D.] Lee's command.

(6) Special Orders dated July 29, 1864 from the Adjutant and Inspector General's Office in Richmond, VA, accepting Brownrigg's resignation from the C.S.A.

(7) New Testament printed in 1868, evidently belonging to Brownrigg, and signed later by various members of the Marshall family, to whom he was related.

(8) Lock of hair from Brownrigg's youngest brother Thomas, who served in the C.S.A. and died in 1879. 34778




## 31. Brown-Séquard, Charles Edouard (1817-94).

A.L.s. ("C. E. Brown-Séquard") to gynecologist and medical numismatist [Horatio R.] Storer (1830-1922; see G-M 6633), dated from Brighton [U.K.], Sept. 13, [18]76. 2pp., on stationery embossed with Brown-Séquard's initials. 132 x 112 mm. Creased where previously folded, light soiling and wear along folds. Very good.

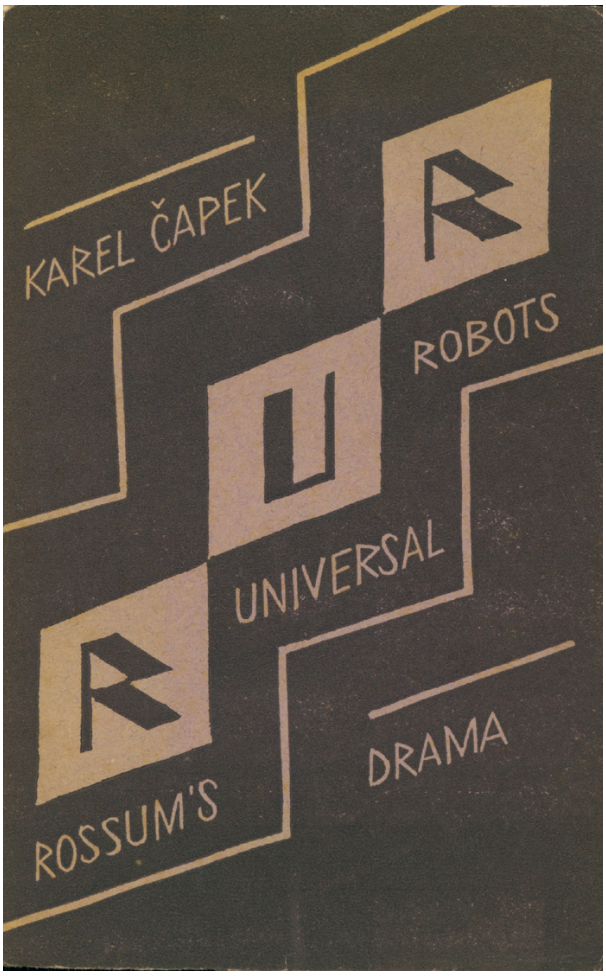
$950

Letter from Brown-Séquard, one of the 19th century's pre-eminent neurophysiologists (see G-M 1322, 1325-26, 1465, 4530, 4893) to the pioneering American gynecologist Storer, performer of the first cesarean-hysterectomy (1868). "I hope you have found friends in Edinburgh. It is, as I told you, a question whether you would or not, succeed in getting a large practice in this country. But if it became well known that you have occupied, and deservedly so, the highest rank in your special line of practice, in the United States, and that your success in ovariotomy & the treatment of uterine & other affections of women has been considerable, I would be sure of your obtaining here, (I mean in Great Britain) and before very long, a preeminent position." DAB & DAMB (Kelly & Burrage) for Storer. 32089

## 32. Capek, Karel (1890-1938).

R.U.R. Rossum's universal robots. 96, [4]pp. Prague: Vydalo Aventinum, 1920. 224 x 153 mm. Original purplish-gray printed wrappers, spine worn and chipped, back wrapper faded. Boxed. Capek's signed inscription in Czech to his mother-in-law, dated March 18, 1921, is on the first leaf. $15,000

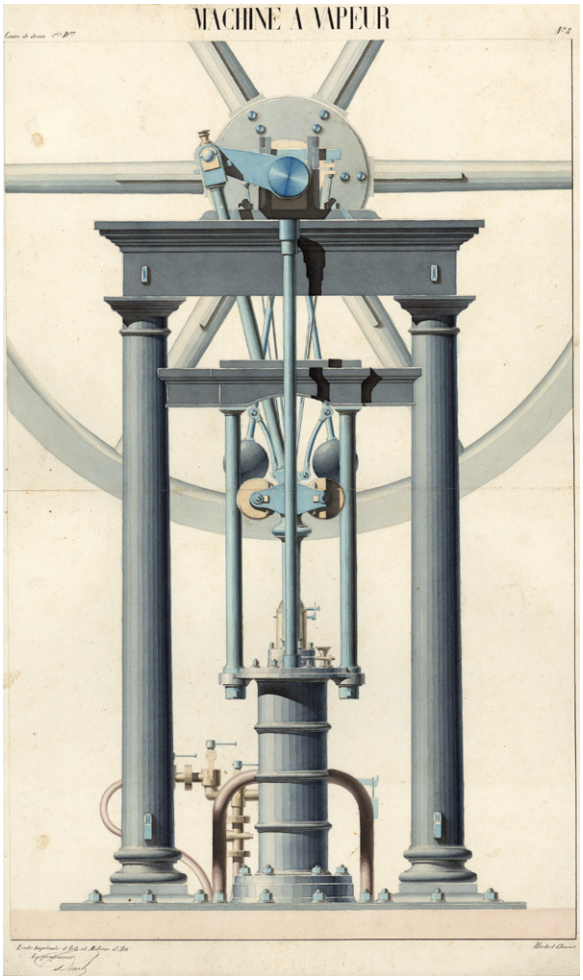
First Edition. Capek's play introduced the word "robot" to the world; it is derived from the Czech robota, which means "drudgery" or "servitude." The word was coined by Capek's brother Joseph, a novelist and painter (the two Capek brothers were the best-known literary




figures in liberated Czechoslovakia between 1918 and 1939). Though the word "robot" now connotes a mechanical device capable of performing work on its own, Capek's "robots" were quasi-human figures fashioned from an artificial substitute for protoplasm, and formed in a "stamping mill." Capek's play, which reflected his concerns about advancing technology and automation, was an immediate worldwide success. In the play robots are produced on robot-run assembly lines to do work that humans do not want to do. They remember everything but cannot think of anything new or experience emotion. Frustrated with the limitations designed into them by their human creators, they eventually revolt against the humans, killing all but one. A major reason for the huge success of Capek's play may have been its dramatic exploration of the possibilities of automation technology and the nearly universal fear that machines would replace people, perhaps not in their lives but in their work. Thus the term "robot" came into our language reflecting both the promise and dangers of automation.

R.U.R. was published in Czech in 1920, premiered in Prague early in 1921, was performed in New York in

1922, and issued in English translation in 1923. It was eventually translated into all the major languages. Though the colophon indicates that two thousand copies were printed, the first edition is very difficult to find. OCLC cites only five copies in North American libraries (Harvard, Indiana U., U. Nebraska-Lincoln, Texas A&M, U. Texas-Austin [HRC]). RLIN does not cite any copies of the first edition. *Origins of Cyberspace* 249. 39022




33. Clement, Michel.

Album of 70 double-page pen-and-ink drawings, some enhanced with ink wash or watercolor, executed over a three-year course of design taught at the École Impériale d'Arts et Métiers d'Aix. [Aix-en-Provence, probably 1857-60]. 311 x 230 mm. (drawings measure 445 x 311 mm.). Bound in quarter sheep, mottled boards ca. 1860, rubbed, upper right corner of front cover lacking. Each drawing bears the artist's name and a professor's signature (4 different signatures in all). Drawings from the second "Division" are dated 1858-59. Very good apart from a little light soiling and a few scattered fox-marks. $3250

A collection of drawings executed by a student at the École des Arts et Métiers at Aix. "L'idée premier de ces écoles (d'art et métier) appartient au duc de la Rochfoucault-Liancourt, qui fonda en 1788, dans ses domaines, l'école dite de 'la montagne'" [The original idea for these (technical) schools belongs to the Duke of la Rochfoucault-Liancourt, who founded in 1788, on his property, the school called "la montagne"] (Larousse, *Grand dict. du XIX siècle*). Two more industrial schools were founded during the Napoleonic era, and in 1832, after a period of neglect, a royal decree established France's technical schools in their final form: "qui est de former des chefs d'ateliers et des ouvriers instruits" [to produce heads of workshops and educated workers] (*ibid.*). The period of training was set at three years, with the first year devoted to arithmetic, geometry and drawing, the second year to descriptive geometry, trigonometry and mechanical drawing (of both stationary and moving parts), and the third year to industrial mechanics and advanced drafting techniques. The album offered here provides examples of drawing from all these fields of instruction, and is an extremely rare example of mid-nineteenth century French technical instruction. 38392

34. Clouet, Jean-François (1751-1801).

A.L.s. to Citoyen [Pepin?] at Charleville. 3pp. on 2 conjugate leaves. Sedan, 17 mai l'an 2me de la République française [1794]. Creased and a little chipped but very good. $1250

A specialist in metallurgy and active supporter of the French Revolution, Clouet was put in charge of reorganizing metallurgical establishments in his native region in 1793, and he must have written the above letter in his official capacity. He discusses iron products, mostly with military applications, and gives a detailed account of materiel shipped in recent weeks.

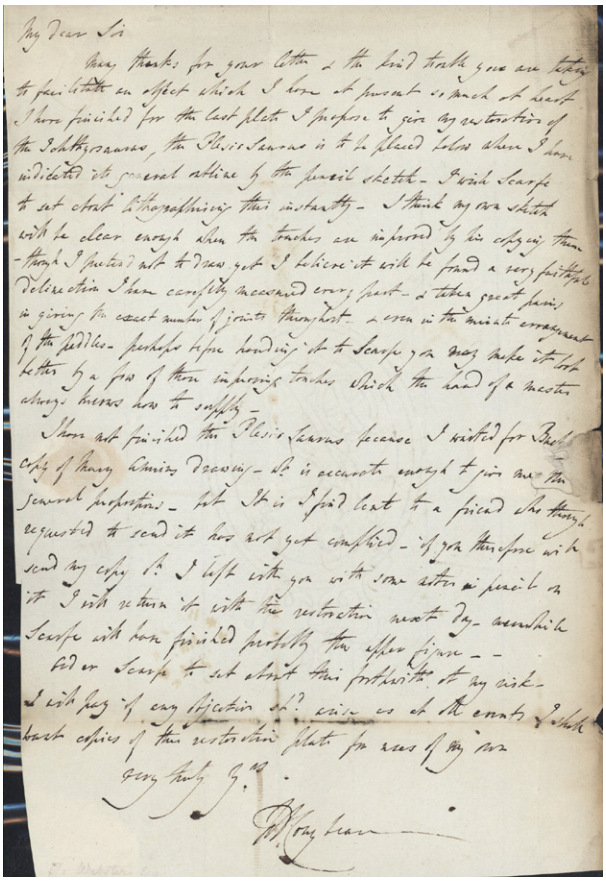
> Vous avez encore le temps de trouver du fer tendre, l'ouvrier en petite balles en a encore près d'un mille devant les mains, et tandis qu'il l'usera, je verrais aux moyens d'y suppléer, et d'augmenter cette fabrique. . . .

> Vous me ferez passer une douzaine des petits tonneaux le plustot que vous pourriez et une demi-douzaine de grands semblables aux premiers qui ont servis à encaisser la terre de la chimie . . .Vous pourrez en m'envoyant ces tonneaux me faire parvenir en même tous la terre de pipe qui est chez Brullon, il faudra faire déposer aussi une demi douzaine de barils chez Gerard Pavost pour y encaisser encore différentes terres qui sont déposées dans l'arrière chimie. . . .
>
> [You still have time to find soft iron, the bullet maker still has close to a thousand on his hands, and while he is using this up, I will look into methods of supplying it and of increasing the manufacture. . . .
>
> You will have sent to me a dozen small barrels as soon as you can and a half-dozen of the large ones similar to the first ones which were used to pack the chemical earth . . . You can, in sending these barrels, have also have forwarded to me all of the pipe-clay at Brullon's, and you must also have half a dozen barrels left at Gerard Pavost's for packing the different earths which are stored in the back. . . .]

At the time of writing, the last days of Robespierre's Reign of Terror, there was fierce civil war in the west of France (the Wars of the Vendée). Before the revolution Clouet was professor of physics and chemistry at Mézières, where he worked with Gaspard Monge on the liquefaction of sulfur dioxide, arsenious iron, the manufacture of Damascus blades and the preparation of cast steel. He showed that steel is formed by heading wrought iron with diamond powder. DSB. Partington III, 103. 2465

## 35. Conybeare, William Daniel (1787-1857).

Autograph letter signed to Thomas Webster (1773-1844). Bath, March 7, 1824 (place and date from postmark). 1 page. 302 x 202 mm. Edges a little frayed, with repair in right margin affecting one word, small tears along one fold, light soiling along folds, traces of former mounting. $1500



An excellent letter relating to Conybeare's primary contribution to paleontology: his identification, description and reconstruction of the *Plesiosaurus*, an extinct marine reptile from the early Jurassic period, and one of the first "antediluvian reptiles" to be described by science. In 1821 Conybeare, in association with H. T. de la Beche, had published "Notice of a discovery of a new fossil animal, forming a link between the ichthyosaurus and the crocodile" (*Trans. Geological Soc. London* 5 [1821]: 558-94); this contained the first description of the plesiosaurus, which Conybeare prepared from fragmentary fossil remains found in Lyme Regis. In the same year a nearly perfect fossil skeleton of the plesiosaurus was discovered in the same location by Mary Anning (1799-1847), the noted female fossil collector and paleontologist. From this specimen, Conybeare was able to confirm his earlier description in nearly every detail. In 1824 he published "On the discovery of an almost perfect skeleton of the plesiosaurus" (*Trans. Geological Soc. London,* 2nd ser., 1, pt. 2 [1824]: 381-89), containing the first complete account of the animal, and illustrated by a lithograph plate showing views of both plesiosaurus and ichthyosaurus skeletons. In the present letter, written to the secretary of the Geological Society, Conybeare discusses the preparation of this plate:

> Many thanks for your letter & the kind trouble you are taking to facilitate an object which I have at present so much at heart. I have finished[;] for the last plate I propose to give my restoration of the Ichthyosaurus, the Plesiosaurus is to be placed below where I have indicated its general outline by the pencil sketch. I wish Scarfe [i.e., the lithographer G. Scharfe] to set about lithographing this instantly. I think my own sketch will be clear enough when the touches are improved by his copying them—though I pretend not to draw yet I believe it will be found a

very faithful delineation. I have carefully measured every part—& taken great pains in giving the exact number of joints throughout—& even in the minute arrangement of the paddles—perhaps before handing it to Scarfe you may make it look better by a few of those improving touches which the hand of a master always knows how to supply.

I have not finished the Plesiosaurus because I waited for Buck[land's] copy of Mary Anning's drawing—wch is accurate enough to give me the general proportions—but it is I find lent to a friend who though requested to send it has not yet complied—if you therefore will send my copy wch I left with you with some notes in pencil on it I will return it with the restoration next day—meanwhile Scarfe will have finished probably the upper figure.

Order Scarfe to set about this forthwith at my risk. I will pay if any obligation shd arise as at the counts[?]. I shall want copies of the restoration plate for uses of my own. Very truly yrs W.D. Conybeare

In his 1824 paper Conybeare mentioned that the plesiosaurus skeleton had "been placed for a time at the disposal of my friend Professor Buckland for the purpose of scientific investigation" (p. 381).

Thomas Webster, the recipient of this letter, was the author of several important papers on the geology of the Upper Secondary and Tertiary strata of southeast England, and served as house-secretary and curator of the museum for the Geological Society of London. He was later appointed professor of geology at University College, London. The British mineral "Websterite" is named for him. DSB. DNB. Wikipedia for Conybeare, Mary Anning and the plesiosaurus. 40118

## 36. Corvisart des Marest, Jean Nicolas (1755-1821).

A.L.s. to M. Bellot, Docteur en Médecine. N.p., 25 December 1812. 1 page plus integral address leaf. Small tear in one corner where seal was broken, light soiling along folds, traces of mounting. $750

The letter reads:

Monsieur et très honoré confrère,

Mon avis, sauf un meilleur, est que vous vous borniez à passer la veille du jour de l'an dans la soirée à la porte du palais du Luxembourg, et que vous écriviez votre nom sur la liste de la reine: c'est ainsi que j'en use. Je crois que la reine et vous en serez plus à l'aise en agissant ainsi.

Je vous renouvelle, Monsieur et très honoré confrère, l'assurance de tous mes sentiments d'attachement et de considération.

Corvisart

[My advice, for want of anything better, is that you restrict yourself to passing by the door of the Luxembourg Palace early on the New Year's Day reception and write your name in the Queen's book: this is how I do it. I believe that the Queen and you will be more comfortable if you act in this way. I renew, Sir and most honored confrere, the assurance of my feelings of attachment and consideration.]

Corvisart, the personal physician to Napoleon Bonaparte, made several important contributions to cardiology: he "created cardiac symptomatology and made possible the differentiation between cardiac and pulmonary disorders. He was first to explain heart failure mechanically and to describe the dyspnoea of effort" (G-M 2737). The "Queen" he mentions in his letter is most likely Hortense de Beauharnais (1783-1837), daughter of Napoleon's wife Josephine and wife of Napoleon's brother Louis, whom Napoleon had set on the throne of Holland in 1806. After Louis's abdication from the Dutch throne in 1810, Hortense separated from her husband and spent the remainder of her life in France and Switzerland. She was the mother of Napoleon III, who ruled France as both president and emperor from 1849 to 1870. 39544

# *With T.L.s.*

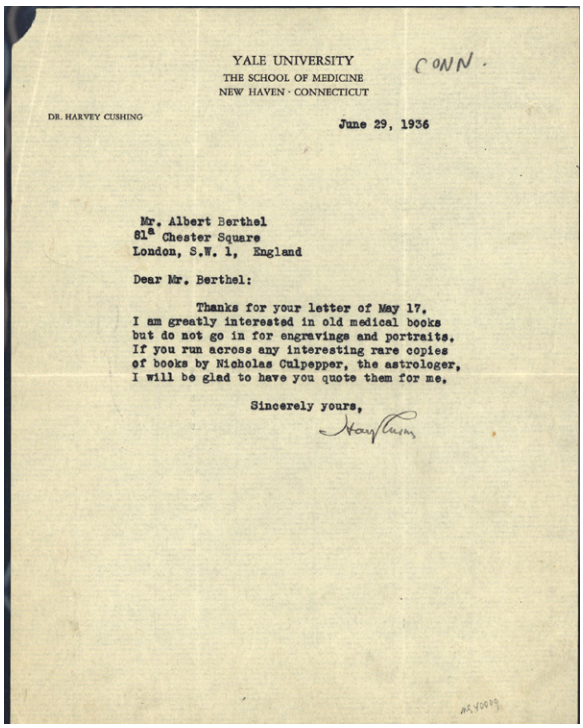
## 37. Cushing, Harvey (1869-1939).

Consecratio medici. Offprint from *J.A.M.A.* 87 (1926). 4to. 9 [3]pp. Chicago: American Medical Assoc., 1926. 279 x 202 mm. Original printed wrappers, a little soiled & faded. Small marginal stain, but very good. *Presentation copy, with Cushing's T.L.s. to the recipient* ("Mansell"), dated Sept. 20, 1926, tipped to the final blank. $650

First Separate Edition of Cushing's 1926 Jefferson Medical College commencement address, later collected in the book of the same name (1928). Cushing's letter reads in part: "I am so pleased to know that you liked the Jefferson address; I shall of course send you a copy when I receive some reprints." Mansell is not noted in Fulton's biography of Cushing. 34574

## 38. Cushing, Harvey (1869-1939).

Typed letter signed, on Yale University School of Medicine stationery. June 29, 1936. 1 page.



YALE UNIVERSITY
THE SCHOOL OF MEDICINE
NEW HAVEN · CONNECTICUT

CONN.

DR. HARVEY CUSHING

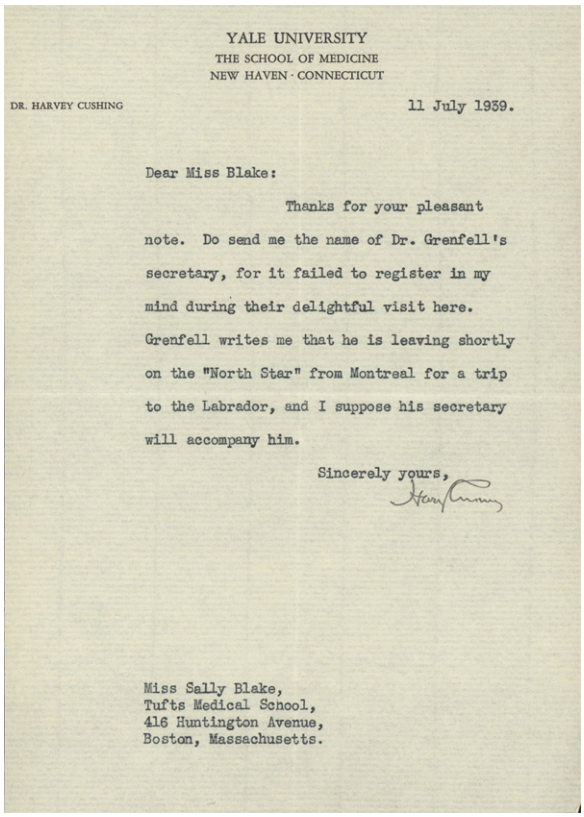
June 29, 1936

Mr. Albert Berthel
81a Chester Square
London, S.W. 1, England

Dear Mr. Berthel:

Thanks for your letter of May 17. I am greatly interested in old medical books but do not go in for engravings and portraits. If you run across any interesting rare copies of books by Nicholas Culpepper, the astrologer, I will be glad to have you quote them for me.

Sincerely yours,



YALE UNIVERSITY
THE SCHOOL OF MEDICINE
NEW HAVEN · CONNECTICUT

DR. HARVEY CUSHING

11 July 1939.

Dear Miss Blake:

Thanks for your pleasant note. Do send me the name of Dr. Grenfell's secretary, for it failed to register in my mind during their delightful visit here. Grenfell writes me that he is leaving shortly on the "North Star" from Montreal for a trip to the Labrador, and I suppose his secretary will accompany him.

Sincerely yours,

Miss Sally Blake,
Tufts Medical School,
416 Huntington Avenue,
Boston, Massachusetts.

217 x 172 mm. Tiny fragment torn from upper left corner (not affecting text). $1000

To Mr. Albert Berthel, print dealer in London, asking him to quote "any interesting rare copies of books by Nicholas Culpeper, the astrologer." 40009

## 39. Cushing, Harvey (1869-1939).

Typed letter signed, on Yale University School of Medicine Stationery. July 11, 1939. 1 page. 217 x 150 mm. Traces of mounting on verso. $750

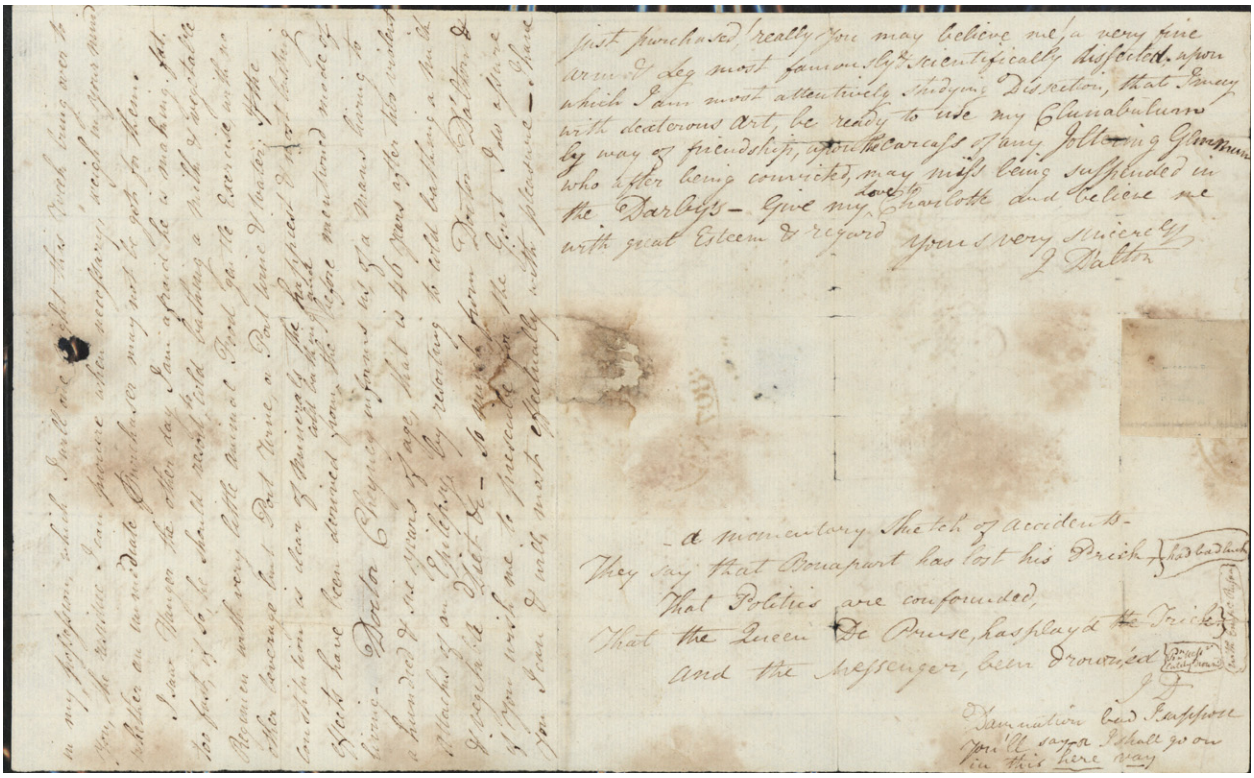
To Miss Sally Blake of Tufts Medical School, asking for the name of Dr. (Sir Wilfred) Grenfell's secretary. 40010

## 40. Cuvier, Georges L. C. F. D., *baron* (1769-1832).

Autograph letter signed to an unidentified correspondent ("Monsieur le Comte"). N.p., n.d. 1 page. 196 x 153 mm. Trace of former mounting on verso. $950

From the great French naturalist and zoologist Baron Cuvier, whose work helped to establish the modern sciences of paleontology and comparative anatomy. Cuvier opposed Hutton's geological uniformitarianism and Lamarck's evolutionary theories, proposing instead a series of "revolutions" or "catastrophes" in earth history to explain geological change and mass extinction of species—indeed, Cuvier was the first to establish species extinction as a fact. Cuvier was attached to Muséum nationale d'histoire naturelle, teaching comparative anatomy and serving as the museum's president three times between 1808 and 1827; he also served as perpetual secretary of the Académie des sciences, Classe des sciences physiques. He wrote a vast number of works on all branches of science, delivered public lectures on scientific topics, and authored official reports on the activities of the Academy. The present letter touches on these activities:

> Mon rapport était prêt, et je devais le faire aujourd'hui. La commission m'a chargé de conclure à l'adoption du projet. A moins de contre ordre de votre part, je lui dirai ce que vous désirez et on remettra la lecture publique. Je ferai à vos ordres demain toute la matinée ; c'est à vous même que je demande de m'indiquer le moment où je pourrai vous trouvez libre.
>
> Je vous plains bien ; quels tourments vous devez éprouver !
>
> Agréez mes sentiments respectueux, B G Cuvier
>
> P.S. La commission se réunit au Luxembourg à midi. Voulez vous m'y faire savoir votre décision.



[My report was ready, and I should make it today. The commission has asked me to conclude with the adoption of the project. Unless I receive instructions from you to the contrary, I will tell them what you wish and we will deliver the public lecture. I will be at your service all morning tomorrow; and I beg you to let me know at what time you will be free.

I pity you well; what torments you are about to suffer!

Rest assured of my respectful sentiments, B G Cuvier

P.S. The commission meets at the Luxembourg at noon. Please let me know there of your decision.]

40185

## 41. Dalton, John (1766-1844).

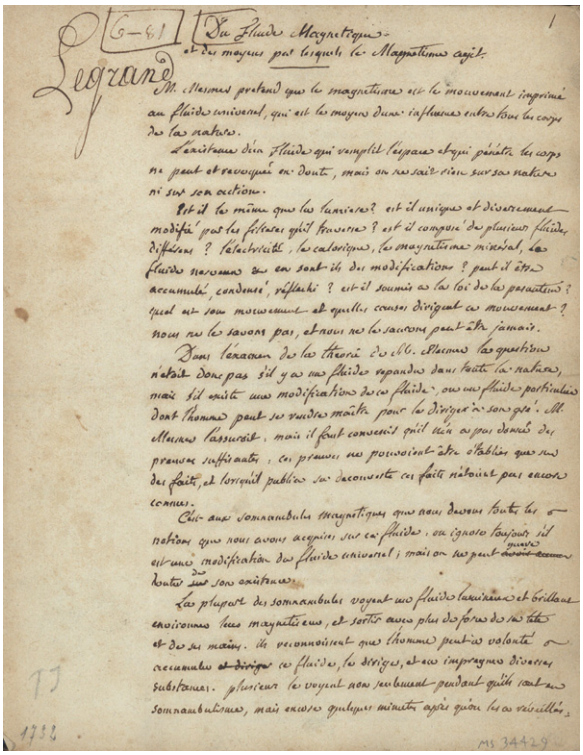
A.L.s. to Abraham Bosquet. N.p., June 15, 1807. 3pp. plus address, on single sheet measuring 202 x 323 mm. Tears where seal was broken mended at an early date, another small hole minimally affecting one word, light wear along creases, minor foxing, but very good otherwise. Docketed by recipient. $3750

An excellent letter from one of the founders of modern chemistry, discussing both scientific and social matters, and ending with a somewhat risqué bit of political verse, revealing an ease and sense of humor in marked contrast to Dalton's "quiet and reserved" public manner. Dalton is best known for his chemical atomic theory, "which for the first time gave significance to and provided a technique for calculating the relative weights of the ultimate particles of all known chemicals" (DSB); he also, early in his career, made significant contributions in physics, discovering the law of gaseous expansion at constant pressure (also known as Charles's law), and the law of partial pressures in gaseous systems. The letter we are offering here dates from the year that Dalton's interests shifted from physics to chemistry: in April 1807 (three months before the date of this letter) Dalton gave a lecture course in Edinburgh in which he made the first direct mention of "indivisible particles" or atoms, and set forth the groundbreaking ideas that he would begin to publish the following year in his *New System of Chemical Philosophy* (1808-27).

Dalton's letter reveals his interest in medicine and anatomy: he prescribes a regimen of diet and exercise to a friend he thinks is "making fat too fast," and boasts of having acquired "a very fine arm & leg most famously & scientifically dissected" on which he could practice dissection. Dalton's postscript verse, lampooning the "bad luck" of "Bonapart," may refer to the Battle of Eylau (February 7-8, 1807), which ended in bloody stalemate and marked the first significant check to the advance of Napoleon's *Grande Armée.* Ironically, Dalton wrote the

present letter one day after Napoleon's decisive victory in the Battle of Friedland (June 14, 1807), an event of which Dalton could not yet have been informed.

Dalton's letter was written to Dr. Abraham Bosquet, author of treatises on marine technology and on dueling. The letter is not cited in Smyth's bibliography of Dalton's works, which includes a section on Dalton's correspondence. DSB. 40062



## *Landmark in Animal Magnetism—A Major Portion of the Autograph Manuscript*

### 42. Deleuze, Joseph Philippe François (1753-1835).

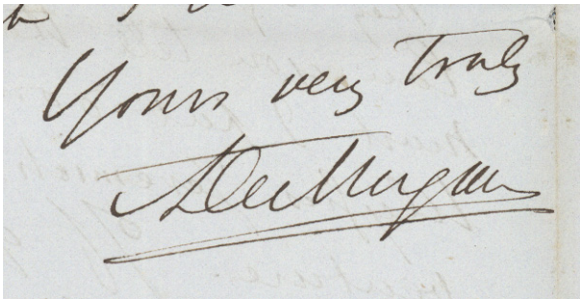
Autograph manuscript (incomplete) of his *Histoire critique du magnétisme animal* (1813). 44 leaves, variously numbered. 220 x 169 mm. Lightly creased horizontally, minor browning & soiling, otherwise fine. $9500

A major portion of the original, much-corrected autograph manuscript of Deleuze's *Histoire critique du magnétisme animal* (1813), the first real history of the subject and a landmark in the history of animal magnetism. "According to Bertrand [A. J. F. Bertrand, author of *Du magnétisme animal en France* (1826)], a writer very well-informed on the history of this period, the outstanding qualities of the *Histoire critique* brought it a success which all other works on the same subject had hitherto been far from obtaining. It was, he goes on, 'not only useful to the cause of magnetism, by procuring it a great number of converts; it served it further by encouraging those who practised magnetism in secret to declare themselves open practitioners" (quoted in Gauld, *Hist. Hypnotism*, p. 117). The work remains even today an indispensable source of information about the mesmeric movement.

Deleuze, a disciple of Puységur, Mesmer's most significant disciple, was the leading figure in the mesmeric movement from 1813-33. He became a convert to animal magnetism in 1785 after himself undergoing the experience of being magnetized, and practiced the mesmeric art for the rest of his long life, without any charge to his patients. He was the author of numerous works on animal magnetism, including the highly popular *Instruction pratique sur le magnétisme animal* (1825), which shaped the practice of animal magnetism for decades afterwards. Deleuze was one of the first to discuss the possibility of employing animal magnetism to anesthetize surgical and obstetrical patients; see Gauld, p. 118.

We are offering here a portion of the autograph manuscript of Volume I, the volume devoted to the methods and phenomena of animal magnetism (the second volume contains reviews of the leading French works on the subject to 1812). The manuscript consists of Chapter 3, "Du fluide magnétique et des moyens par lesquels le magnétisme agit" (On the magnetic fluid and the ways in which magnetism acts); about half of Chapter 4, "Des procédés employés dans le magnétisme" (On the procedures used in magnetism); a brief portion of Chapter 5, "De la difference de force entre les magnétiseurs" (On differences of force among magnetizers); all of Chapter 7, "De l'application du magnétisme à la guérison des maladies" (On using magnetism to cure illnesses), including some discussion of pain relief; and the first third of Chapter 8, "Du somnambulisme magnétique" (On magnetic somnambulism). A brief comparison of our manuscript with the 1813 printed version shows numerous variations between the texts: changes in wording, addition or omission of sentences and paragraphs, etc. The manuscript even includes a cancelled draft of the first page of Chapter 8. The manuscript is written in Deleuze's small but legible hand throughout, and shows an unusually large number of his corrections; it has also been marked, presumably by the printer, with what appears to be compositors' names and numbers corresponding to the page numbers in the printed text. This is almost certainly the only manuscript by Deleuze in North America. We have been unable to verify the

existence of other manuscripts by Deleuze in France. Gauld, *History of Hypnotism*, pp. 116-19. Crabtree, *From Mesmer to Freud*, pp. 131-35. 34429



## 43. De Morgan, Augustus (1806-71).

(1). Autograph letter signed to an unidentified correspondent. Camden Town, Jan. 27, 1848. 1 page plus integral blank. 180 x 114 mm. (2) Autograph letter signed to Admiral Sir Francis Beaufort (1774-1857). Camden Town, October 7, 1857. 2-1/2pp. 183 x 114 mm. Some foxing, blank portion of second leaf cut away. Together 2 letters, both mounted on single sheet together with printed obituary notice and wood-engraved portrait. $750

Two dryly humorous letters from the mathematician Augustus de Morgan, known for formulating De Morgan's laws or De Morgan's theorem (rules in formal logic relating pairs of dual logical operators in a systematic manner expressed in terms of negation), and for introducing the term "mathematical induction" and making its idea rigorous. De Morgan was also the author of *Arithmetical Books from the Invention of Printing to the Present Time* (1847), which has been described as "the first significant work of scientific bibliography" (*Dictionary of Scientific Biography*).

De Morgan's 1848 letter reads as follows:

> I can't find Leverrier's Christian names—or, not to make any assumption which a member of the Institute might repudiate—his *prénoms*. They begin with U. J. Can you tell them? Or must I put down Ulysses Jeremiah at a venture. If you can't tell them, can you calculate them. They can hardly be as difficult as a planet.
>
> If you happen to know Hencke's, pray tell them to me: but I can't demand them of you as a right which I do Leverrier's.

"Leverrier" refers to Urbain Jean Joseph Leverrier (1811-77), the French astronomer whose mathematical calculations and astronomical observations of the perturbations of Uranus led directly to the discovery of Neptune. "Hencke" refers to German astronomer Karl Ludwig Hencke (1793-1866), discoverer of the asteroids 5 Astraea and 4 Vesta.

The 1857 letter reads:

> I had a note from Mr. Smyth this morning, by which I was very glad to hear that you were able to write, and that your handwriting was still of the old firm type. This note was in answer to one which made some inquiries about your identity—not health alone, but identity—and it appears that you and I have been fellow sailors, and that 51 years ago this very month. To be sure we were, as we may say, at the two extreme ends of the chain. You commanded the Woolwich, and I commanded nothing but my mother's constant attention, being then an infant of four months old on board the Jane Duchess of Gordon E. S. But my command was in better order than yours; for my voice was sufficient *per se,* whereas yours would have been of little effect but for the knowledge that the nine tails and powder and ball were looming in the distance as definite possibilities.
>
> I picked up my mother's journal a few days ago, which let me into this little secret. It would do you good to see how you were cut up when you shortened sail against the wishes of the ladies.

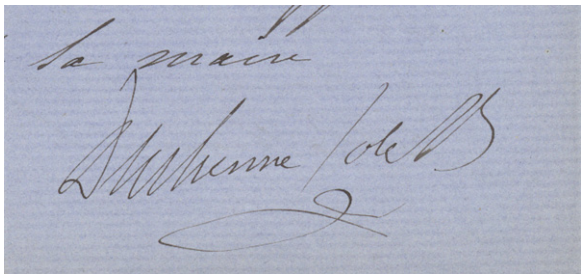
De Morgan was born in India and returned to England as an infant; his letter refers to this voyage. His correspondent, Admiral Sir Francis Beaufort, was a naval hydrographer who conducted important hydrographic surveys in South America and southern Anatolia; he served for 25 years as head of the Hydrographic Office of the British Admiralty, and invented the Beaufort scale for indicating wind force. 40154

## 44. Duchenne de Boulogne, Guillaume B. A. (1806-75).

(1) Albumin print photograph of Duchenne, showing him seated at a table with electrical apparatus. N.p., n.d. 113 x 72 mm. Upper left corner clipped, upper right corner creased, small stain in lower left margin. (2) Travaux de l'auteur. Single proof sheet with numerous ms. corrections in pencil in Duchenne's hand, inscribed at the foot of the first page: "Bon à mettre en pages. G. D. de B." N.p., n.d. [1861]. 257 x 155 mm. Creased horizontally, minor soiling. (3) A.L.s. to H. Baillière. [Paris], 14 January 1861. 1 page on 1 sheet, Duchenne's letterhead

embossed in upper left corner. 209 x 134 mm. Creased horizontally. Together 3 items.$3000

(1) Photograph of Duchenne, showing him seated with some of the electrical apparatus used to perform his pioneering electrophysiological studies of the nerves and muscles; see G-M 614, 624, 4732, 4736, etc. Also included are (2), a proof sheet entitled "Travaux d'auteur" (Works of the author), a bibliographical list heavily corrected in Duchenne's hand and with his initialed note of approval, together with (3), an A.L.s. from Duchenne to his publisher Baillière asking him to review the proof. Interestingly, Duchenne failed to correct the erroneous date "1867" in the proof's second-to-last entry. 38979



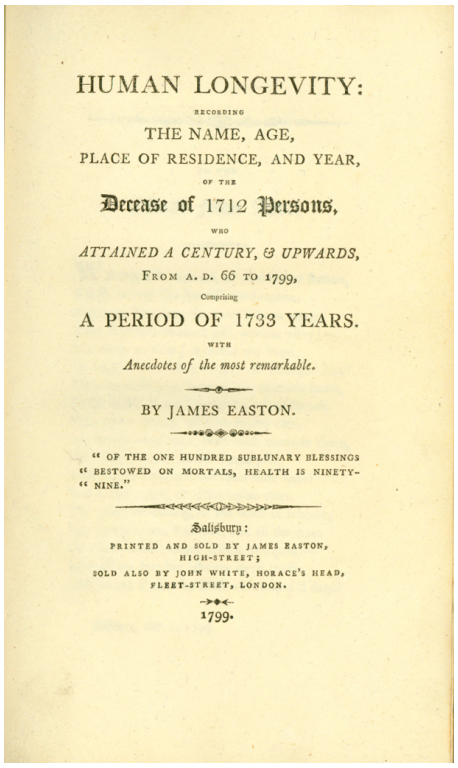
## 45. Duchenne de Boulogne, Guillaume B. A. (1806-75).

(1) 2 A.Ls.s. on his embossed stationery to the publisher Baillière, dated 22 and 29 August 1872. 2pp. plus integral blank (22 August) & 2-1/2pp. (29 August). Together 4-1/2pp. 216 x 135 mm. & 210 x 135 mm. Creased where previously folded, edges of first letter chipped, light dust-soiling to second letter, but very good. Both letters docketed and annotated by recipient. (2) Motet, A[uguste] (1832- ). Duchenne (de Boulogne) et son oeuvre. Éloge. . . . Offprint from *Ann. méd.-psych.*, 8th series, 3 (1896). 8vo. 31 [1]pp. Paris: Masson et Cie., 1896. 244 x 158 mm. Original wrappers, tear in front wrapper. (3). Brissaud [Edouard] (1852-1909). L'oeuvre scientifique de Duchenne de Boulogne. Extract from *Arch. d'électricité médicale exp. et clin.* 7 (1899). 8vo. [448]-468pp. 242 x 162 mm. Disbound, several leaves loose, light foxing.$1500

Two letters from the founder of modern neurology in France, best known for his electrophysiological studies of the nerves and muscles; see G-M 614, 624, 4732, 4736, etc. In his first letter, Duchenne notifies his publisher that he will be returning several books lent to him by the Baillières for the purpose of compiling an unnamed work—possibly the collection of articles published in the early 1870s under the title *Contributions à l'étude du système nerveux et du système musculaire*. Among the books Duchenne borrowed were a 2-volume work by Jaccoud (possibly his *Traité de pathologie interne,* 1870-71); a work by Holmes on the diseases of children (possibly Timothy Holmes' *Surgical Treatment of the Diseases of Infancy and Childhood,* 1868); Vol. III of François Longet's *Traité de physiologie* (3rd ed., 1868-69); and Leuret and Gratiolet's *Anatomie comparée du systeme nerveux* (1839-57). In the second letter Duchenne reminds the Baillières that the Jaccoud work mentioned in his previous letter had been sent to him in error, and that the Baillières had billed him twice for the Leuret-Gratiolet set. Accompanying these letters are two articles on Duchenne's life and scientific work. 36266

## 46. Easton, James.

Human longevity: recording the name, age, place of residence, and year, of the decease of 1712 persons, who attained a century, & upwards, from A.D. 66 to 1799. . . . 8vo. xxxii, [60], 292pp. Salisbury: James Easton; London: John White, 1799. Several ms. notes and press cuttings bound in. With: Supplementary notes to Easton's Human Longevity [ms. title]. 2 vols., containing mounted press cuttings, ms. notes, letters, a photograph, etc. N.p., n.d. (between 1859 and 1898). Together 3 vols. 220 x 136 mm. Uniformly bound in 19th century half calf, gilt spines, marbled boards, t.e.g., light rubbing. $4750



HUMAN LONGEVITY:

RECORDING

THE NAME, AGE,
PLACE OF RESIDENCE, AND YEAR,

OF THE

Decease of 1712 Persons,

WHO

*ATTAINED A CENTURY, & UPWARDS,*

FROM A. D. 66 TO 1799,

Comprising

A PERIOD OF 1733 YEARS.

WITH

*Anecdotes of the most remarkable.*

BY JAMES EASTON.

" OF THE ONE HUNDRED SUBLUNARY BLESSINGS
" BESTOWED ON MORTALS, HEALTH IS NINETY-
" NINE."

Salisbury:

PRINTED AND SOLD BY JAMES EASTON,
HIGH-STREET;

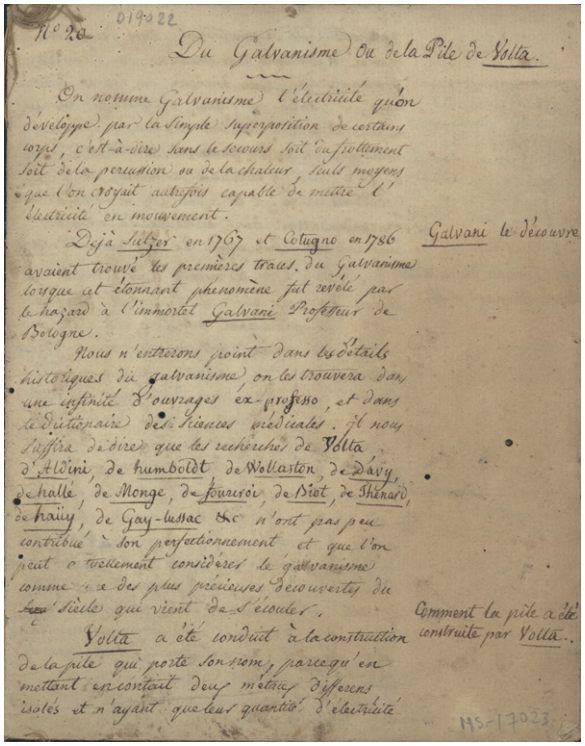
SOLD ALSO BY JOHN WHITE, HORACE'S HEAD,
FLEET-STREET, LONDON.

1799.

First Edition. A remarkable and unique collection of statistical, social and demographic information on the subject of human longevity. Easton's published book on centenarians is here supplemented with two volumes of additional notices of centenarian deaths gathered primarily from British newspapers, covering the years between 1859 and 1891. This collection, which would be very difficult to duplicate today, appears to have been compiled by a Capt. Brooke; several letters to him are laid in the supplementary volumes. 39539

## 47. Electricity.

Du Galvanisme ou de la Pile de Volta. Manuscript in French. [11.2]pp., small 4to., on 6 conjugate leaves, stitched. [France, c. 1800.] Lightly creased, a little browning, pinhole worming affecting 1 or 2 letters but entirely legible & very good. $1250



N° 20. 019022

Du Galvanisme ou de la Pile de Volta.

On nomme Galvanisme l'électricité qu'on développe par la simple superposition de certains corps, c'est-à-dire sans le secours soit du frottement soit de la percussion ou de la chaleur, seuls moyens que l'on croyait auparavant capable de mettre l'électricité en mouvement.

Déjà Sulzer en 1767 et Cotugno en 1786 avaient trouvé les premières traces du Galvanisme lorsque cet étonnant phénomène fut révélé par le hazard à l'immortel Galvani Professeur de Bologne. Galvani le découvre

Nous n'entrerons point dans les détails historiques du galvanisme on les trouvera dans une infinité d'ouvrages ex-professo, et dans le Dictionnaire des Sciences médicales. Il nous suffira de dire que les recherches de Volta d'Aldini, de Humboldt de Wollaston, de Davy de Hall, de Monge, de Fourcroi, de Biot, de Thénard, de Haüy, de Gay-Lussac &c n'ont pas peu contribué à son perfectionnement et que l'on peut actuellement considérer le galvanisme comme une des plus précieuses découvertes du 18e siècle qui vient de s'écouler.

Comment la pile a été construite par Volta.

Volta a été conduit à la construction de la pile qui porte son nom, parce qu'en mettant en contact deux métaux différens isolés et n'ayant que leur quantité d'électricité

MS-17023

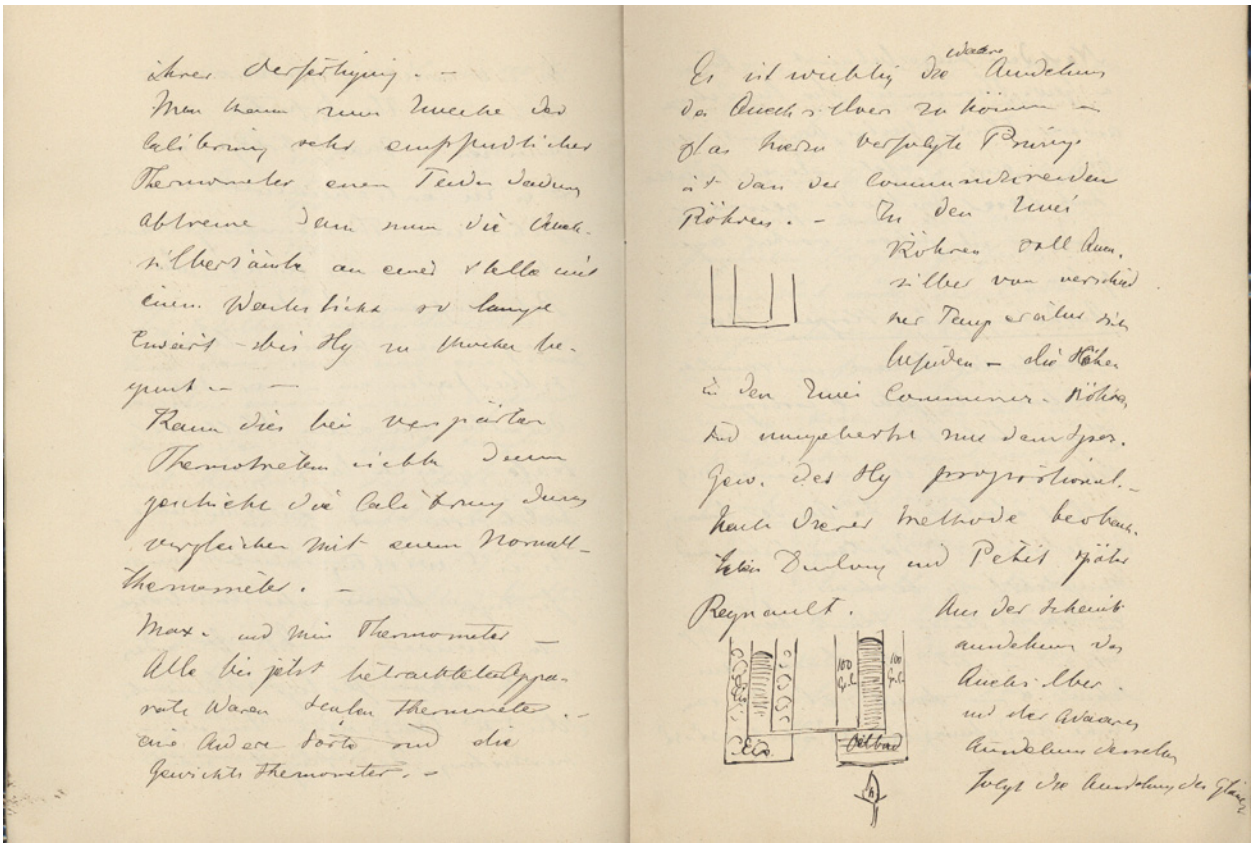
First Edition. A remarkable and unique collection of statistical, social and demographic information on the subject of human longevity. Easton's published book on centenarians is here supplemented with two volumes of additional notices of centenarian deaths gathered primarily from British newspapers, covering the years between 1859 and 1891. This collection, which would be very difficult to duplicate today, appears to have been compiled by a Capt. Brooke; several letters to him are laid in the supplementary volumes. 39539

Manuscript, either a draft of an article or copy of an article, on Volta's pile and technical improvements to it, and medical applications of the pile. The manuscript is labeled "No. 20" in the upper left corner. There is some crossing out and interpolation of text, which suggests a draft for publication rather than a copy of a published article. In either case, the text is written in academic style, beginning with a brief history of the predecessors of Volta, and reference to follow-up work by Aldini, Humboldt, Wollaston, Davy, Hall,, Monge, Fourcroi [sic], Biot, Thénard, Haüy and Gay-Lussac. Volta's pile is described in detail (2.2pp.), then improvements on it (5pp.), including a mention of Cruikshank. The effects of the pile on the body are then discussed (2.5pp.), notably muscular effects, effects on secretions, effects on the brain, and the skin. The main difference between the effect on the body of current from the pile and from the Leyden jar is stated, and a comparison of effects depending on the size of the pile is made. In conclusion, it is noted that either the pile or the Leyden jar is effective in paralyses, amauroses in an early state, partial deafness, accidental muteness, neuralgias, chronic rheumatic pain, suppression of menstruation, asphyxia, etc., and that the pile may be preferrable in paralysis of the facial nerve, loss of sensation, and amaurosis. See Rowbottom & Susskind 51, discussing early papers on the medical applications of Volta's pile, especially their summary of Grappengiesser's recommendations (1801, G-M 1988.1), which is similar in content and word order to the summary remarks in our manuscript. 17023

## *Forerunner of Relativity*

## 48. Eötvös, Loránd [Roland] (1848-1919).

Wärmelehre. Autograph manuscript notebook consisting of title-leaf and 22pp., with 11 pen-and-ink drawings. N.p., n.d. [Heidelberg, ca. 1868]. 217 x 146 mm. Unbound, stitched.



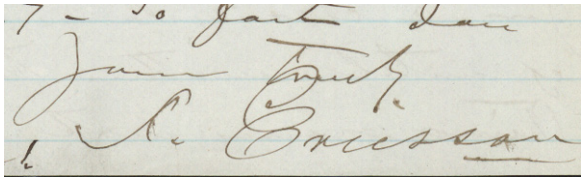
Creased vertically where previously folded, light soiling to outer leaves, but fine otherwise. Preserved in a cloth box. $10,500

An extraordinary find—a scientific manuscript in the hand of the 19th-century Hungarian physicist Loránd Eötvös, most probably written during his student days at the University of Heidelberg, which he attended between 1867 and 1870. Manuscript material by Eötvös *of any type* is extremely rare—there are no examples in North American libraries. Our inquiries to German libraries have turned up his matriculation signature at the University of Heidelberg and an 1871 letter held at the Staatsbibliothek zu Berlin, both of which we have compared with the handwriting in the present document in order to confirm its authorship. There may be some other examples in Russia (Eötvös briefly attended the University of Königsberg, now in Kaliningrad, Russian Federation), and there are almost certainly some in Eötvös's native Hungary, but we have as yet been unable to obtain any information from either of these sources.

While at Heidelberg Eötvös studied physics under Hermann von Helmholtz, and the present notebook, on the theory of heat, probably stems at least in part from Helmholtz's lectures. Eötvös's manuscript—it is too full and detailed to be called "notes"—deals with the comparison of water, alcohol and mercury thermometers; linear expansion of glass and various metals from 0 to 100 degrees Celsius; the thermal expansion of solids and gases, etc. It is illustrated with pen-and-ink sketches of laboratory apparatus and a few diagrams. The text on the last page breaks off in the middle of a sentence ("die Luftströme welche sich der . . ."); since the present notebook shows no signs of tampering or damage, this suggests that Eötvös continued his manuscript in another notebook.

Eötvös is today recognized as one of the important forerunners of the theory of relativity. Most of his scientific career was devoted to research on gravitation, and he invented an instrument for measuring differences in gravitational attraction (the "Eötvös balance") that for decades remained unsurpassed in accuracy. The experiments Eötvös performed with this instrument enabled him to redetermine with great precision the rate of gravitational attraction of different bodies, and in so doing to prove that gravitational mass and inertial mass are equivalent—a discovery that later became one of the building blocks of the theory of general relativity. Einstein learned of Eötvös's work in 1912, while in the midst of his search of a relativistic theory of gravitation, and immediately recognized its fundamental importance, stating that "in the context [of a theory of gravitation] the

Eötvös experiment plays a role similar to that of the Michelson experiment for uniform motion" (quoted in Pais, *Subtle is the Lord*, p. 235). Einstein published his first discussion of Eötvös's work in his and Marcel Grossmann's "Entwurf einer verallgemeinerten Relativitätstheorie und einer Theorie der Gravitation" (*Zeitschr. Math. Phys.* 62 [1913]: 225-44; included in the Plotnick collection). Einstein was also interested in Eötvös's law of capillarity (the temperature coefficient of the molecular surface energy of a liquid is independent of the nature of simple unassociated liquids), publishing a paper on the subject in 1911 ("Bemerkung zu dem Gesetz von Eötvös," *Ann. Phys.*, 4th ser., 34 [1911]: 165-69; also in the Plotnick collection). DSB. *Twentieth Century Physics* I, pp. 286-87. Pais, *Subtle is the Lord*, pp. 216-17. 33462



## *A.L.s. from the Designer of the "Monitor"*

49. Ericsson, John (1803-89).

A.L.s. dated March 26, [18]60, to an unknown recipient. 2-1/2 pp., on lined paper embossed with a small steam locomotive and the letters "P. & P. in the upper left corner. 247 x 195 mm. Creased where folded, small tear mended, but fine overall. $1500

Detailed letter from the prolifically inventive Swedish-born engineer John Ericsson, whose many accomplishments include the invention of a screw propeller for steamships, a rotary steam engine, the first English steam-driven fire engine, and his enormously popular "caloric" engine. This last, a hot-air engine designed to use heat more directly and efficiently than its steam-powered counterpart, was the first mass-produced heat-powered engine; in various incarnations, it satisfied the growing need for small and medium-sized sources of industrial power throughout the nineteenth century. Ericsson's most famous achievement, however, was his design for the Union Navy's ironclad warship *Monitor*; the *Monitor's* decisive victory over the Confederate ironclad *Merrimac* in March 1862 marked a turning point not only in the course of the Civil War, but in the history of warship design and construction. In later life Ericsson interested himself in alternative sources of power, particularly solar and tidal energy.

The present letter, written almost exactly two years before the *Monitor's* defeat of the *Merrimac*, discusses several of Ericsson's inventions—a hydraulic pump, a "swing machine," an air hoister and a telegraphic machine—as well as the difficulties Ericsson had encountered in obtaining the necessary support and encouragement to proceed with the patenting of these inventions. The last paragraph of the letter contains a reference to a "new" caloric engine, which was "nearly ready"; Ericsson continued to improve the caloric engine to the end of his life. Ericsson's imperious and combative temperament is apparent throughout the letter, particularly in the postscript, in which he states that "I should prefer the 'cove' you allude to showing his hand *before* I have my patent claim. Under my general principle I will be able to hit him all the harder—so with others who may feel inclined to tread on my & our toes just now." DAB. Strandh, *Hist. Machine*, pp. 136-39; 164. 16818

## *Haller's Copy*

50. Fabrici, Girolamo (Fabricius ab Aquapendente) (1533-1619).

Opera omnia anatomica et physiologica . . . cum praefatione Bernardi Siegfried Albini (1697-1770). Folio. [48], 452, [22]pp. Leaf 8*1 misbound. Portrait, 61 copperplates (many folding) and numerous text woodcuts. Leiden: van Kerckhem, 1737. 332 x 207 mm. Half vellum c. 1737, uncut, marbled paper covers renewed. Lower margin of portrait and title restored without loss of text, lacuna in last leaf repaired, apparently without text loss. Slight foxing and browning, but clean, crisp and very good. From the library of Albrecht von Haller (1708-77), with his signature on the front endpaper and his engraved bookplate. $7500

The finest of the collected editions of Fabrici's celebrated anatomical and physiological works, presenting the valves in the veins, the embryonic development of the chick and other animals, as well as his studies on the anatomy of the eye, ear and throat, the physiology of muscle, etc. See G-M 465-66, 757. This edition was part of a series of editions of classic texts, including the works of Vesalius, Eustachius, and Harvey, edited by the celebrated anatomist Albinus. Elegantly printed and with a superior association, from the library of one of the greatest of all medical figures—anatomist, physiologist

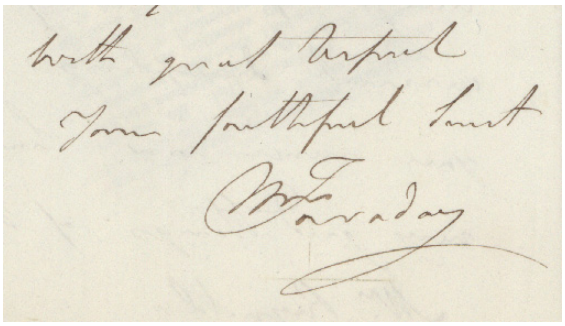

bibliographer, naturalist, poet and patriot Albrecht von Haller (see num. G-M refs.). Haller and Albinus were friends and correspondents.

Among his prolific contributions, Haller made very significant contributions to embryology. These are discussed extensively in the histories of embryology by Cole and Needham, and in the DSB : "Haller's most important finding in embryology again shows his statistical bias: he was able to devise a numerical method to demonstrate the rate of growth of the fetal body and its parts. By the quantitative determination he showed that fetal growth is relatively rapid in its earlier stages but that the tempo gradually decreases. These observations were entirely new, and remain fundamentally correct (Needham, 1959). Their significance seems to have eluded Haller, however, since he does mention them in a list of his own original anatomical and physiological discoveries." With portrait, not always present. *Heirs of Hippocrates* 231, 1738 issue. Not in Waller, Wellcome or Osler. In addition to all of his scientific work, Haller was one of the greatest bibliographers in the history of science. See the website devoted to Haller's work at the University of Bern. 40089

51. Faraday, Michael (1791-1867).

A.L.s. to Mrs. Reynolds. [London,] Royal Institution, 28 Sept. 1837. 2pp. plus integral blank. 229 x 189 mm. Creased where previously folded, small marginal tear, pin-holes in upper right corner of first leaf, otherwise fine.

$1500



Letter by Michael Faraday, the British physicist best known for his discovery of electromagnetic induction and his invention of the dynamo. The second paragraph of the letter mentions "two copies of the paper written by Dr. Moll of which I spoke to Dr. Reynolds"—this is most likely a reference to Gerard Moll's *On the Alleged Decline of Science in England* (1831), a pamphlet published as a rebuttal to Charles Babbage's *Reflections on the Decline of Science in England, and on Some of its Causes* (1830). Moll's pamphlet was edited and published by Faraday; see *Origins of Cyberspace*, no. 40. In the same paragraph, Faraday refers to "Daniell," probably John Frederic Daniell (1790-1845), inventor of the long-functioning electric battery known as the Daniell cell (see DSB).

In the first paragraph, Faraday thanks Mrs. Reynolds for her hospitality and sends her a gift of some nets used in shaping boiled dumplings:

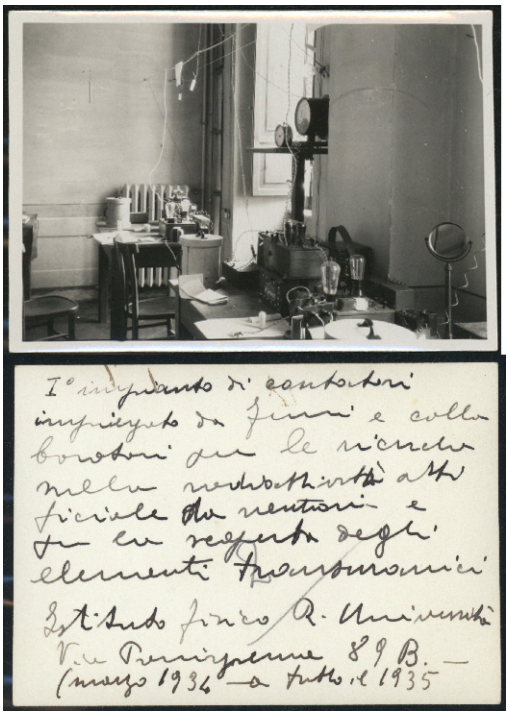
> . . . having obtained the nets I spoke of I now send them. Remember they are not for such a dish as the one you gave me the receipt for but for common place hard currant dumplings things perhaps which you never saw but which are nevertheless very good things of their kind. The dumpling when put into its net is to be tied up tight (but not squeezed) and when turned out after boiling presents—but you must make the experiment.

We have not been able to identify Faraday's correspondent. 38489

## *Fermi's Work on Nuclear Transmutation in Rome 1934-35*

52. Fermi, Enrico (1901-54).

(1) 3 original black and white photographs of laboratory equipment, with annotations in Italian on the versos in ink possibly by Emilio Segrè. 85 x 62 mm. 1934-35. (2) Fea, Giorgio. Folding blueprint chart titled "Trasmutazioni Artificiali" at the foot, signed by Fermi in pencil



("Fermi / P. III") in the upper left corner. 323 x 590 mm. May 1935. (3) Fermi. Autograph note signed to Prof. Giovanni Magrini, on card engraved with the insignia of the Reale Accademia d'Italia. Rome, Jan. 2, 1933. 108 x 139 mm. (4) Fermi [with Franco Rasetti and Oscar d'Agostino]. Sulla possibilità di produrre elementi di numero atomico maggiore di 92. Preprint from *Ricerca scientifica* V, vol. I (June 1934). 1 unnumbered page, on single sheet. 245 x 172 mm. Light soiling and a few small marginal tears in chart, small rust-mark from staple in upper corner of preprint, docketing in blue grease pencil on ANs, otherwise a fine collection. $22,500

An extraordinary group of autograph materials dating from 1933-35, the critical turning point in Fermi's scientific career, as it marks the beginning of his celebrated neutron bombardment experiments that led directly to his receipt of the Nobel Prize for physics in 1938. Autograph material by Fermi from this period is almost impossible to find on the market; in our nearly four decades in business, this is the first such material we have seen seen for sale.

Prior to 1934, Fermi had focused primarily on theoretical physics, but after Curie and Joliot's discovery of artificially induced radioactivity (by bombardment with alpha particles) in 1934, Fermi and his colleagues at the University of Rome embarked on a course of experiments involving the bombardment of various elements with neutrons. As Emilio Segrè, one of the members of Fermi's scientific team and himself a Nobel laureate, wrote:

> Fermi immediately saw that [Curie and Joliot's] work could be expanded tremendously by using neutrons as projectiles. . . .
>
> The neutron work started in 1934 during Easter vacation. Fermi decided to put to the experimental test his idea that neurons would be powerful projectiles for inducing nuclear transmutation. With his own hand, he built some primitive Geiger-Mueller counters of aluminum which looked very ugly but worked adequately for the purpose, and then started to bombard . . . For a few days trials did not bring success, but Fermi was a systematic man. He stuck to the order of increasing Z [atomic weight]. He started with hydrogen, and followed with lithium, beryllium, boron, carbon, nitrogen, oxygen, all with negative results. However, he was finally successful when he tried fluorine and got the expected result.
>
> This was on March 25, 1934, and the letter announcing this result was promptly sent to the "Ricerca Scientifica" (Fermi, *Collected Papers,* ed. Segrè, I, pp. 639-40).

The "ugly" homemade Geiger counter that Fermi built is illustrated in one of the photographs included in our collection. On the verso is a manuscript note in Italian (possibly written by Segrè) that translates as follows:

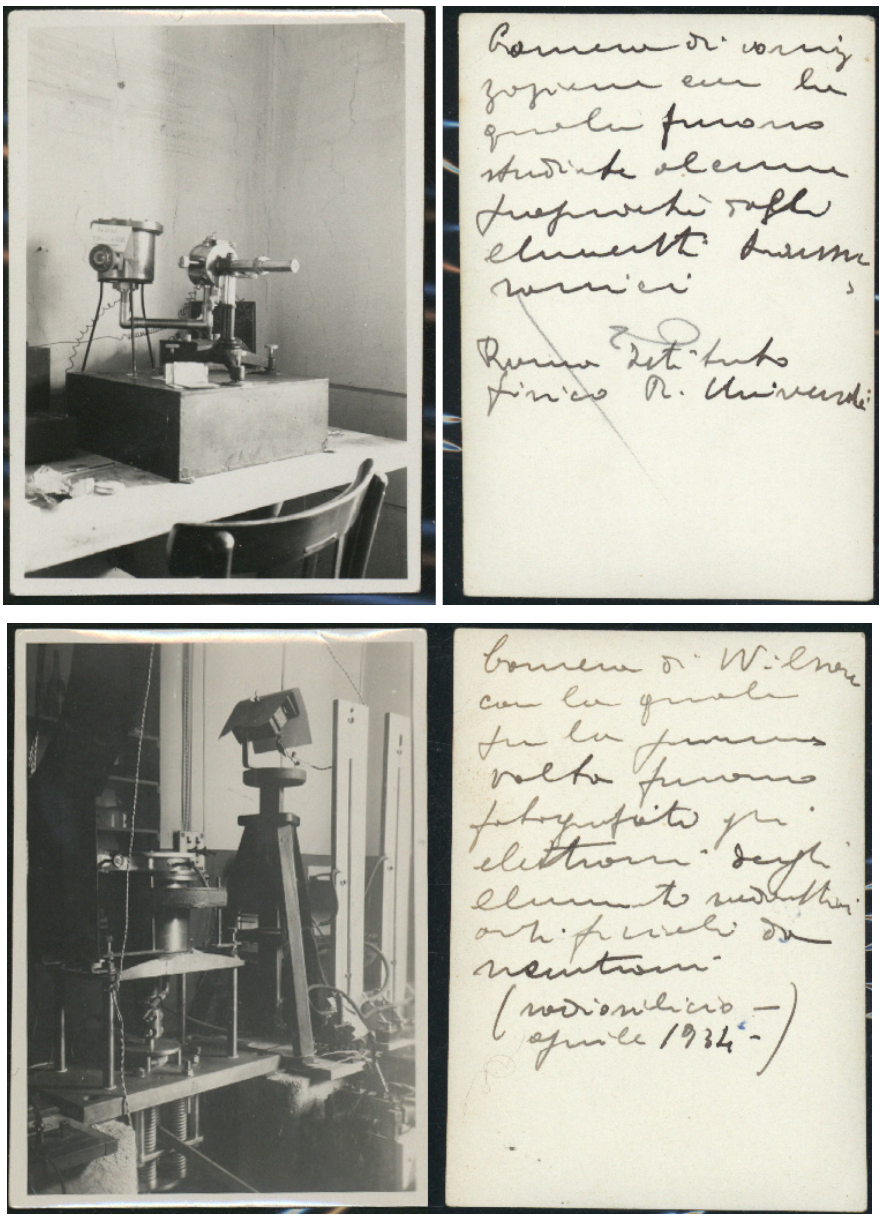
> First counter device used by Fermi and his assistants for the research on artificial neutron-induced radioactivity and for the discovery of transuranic elements. R. Institute of Physics University Panisperna Street 89B (March 1934-all year 1935).

Another photograph shows the Wilson chamber used by Fermi and his associates, which is identified by a manuscript note in Italian on the verso:

> Wilson chamber with which the electrons of the artificial neutron-induced radioactive elements were photographed for the first time (radiosilicom – April 1934).

The last photograph shows Fermi's ionization chamber, a device for measuring radioactivity. The manuscript note in Italian on the verso translates:

> Ionization chamber by which some properties of transuranic elements were studied. Rome R. Institute of Physics University.



This photograph is reproduced in Segrè's biography of Fermi, *Enrico Fermi, Physicist* (1970), indicating that Segrè had access to a print. Whether other prints of the other two photographs of equipment in Fermi's laboratory exist is unknown.

With the photographs we have Fermi's autograph postcard to Prof. Magrini, secretary-general of the National Research Council of Italy (Consiglio Nazionale delle Ricerche). The CNR published *Ricerca Scientifica*, the journal in which most of Fermi's scientific work appeared during the 1930s. Fermi's postcard confirms that Magrini acted as a liason between Fermi and *Ricerca Scientifica*; it is probable that this small collection was preserved by Magrini. The captions written on the back of the photographs are clearly intended for publication. It is probable that Fermi or one of his associates sent these photographs to Prof. Magrini for publication in *Ricerca Scientifica* as there are editorial marks over the captions.

Fermi's team continued their work during the summer of 1934, irradiating "all the substances [they] could lay their hands on" (Fermi, *Coll. Papers,* I, p. 640), all the way up to uranium, the heaviest in atomic weight of the naturally occurring elements. The results of the team's work, published in "almost weekly short letters to *Ricerca Scientifica*" (Segrè, *Fermi,* p. 74), were tabulated the following year by Giorgio Fea, whose "Tabelle riassuntive e bibliografia delle trasmutazioni artificiali" (*Nuovo Cimento* 12 [June 1935]) represents the first published

table of isotopes (radionuclides). Our collection includes Fermi's signed copy of the "blueprint" of Fea's chart, dated a month before its publication (no. 2 above). It is possible that Fermi signed this copy to approve it for publication.

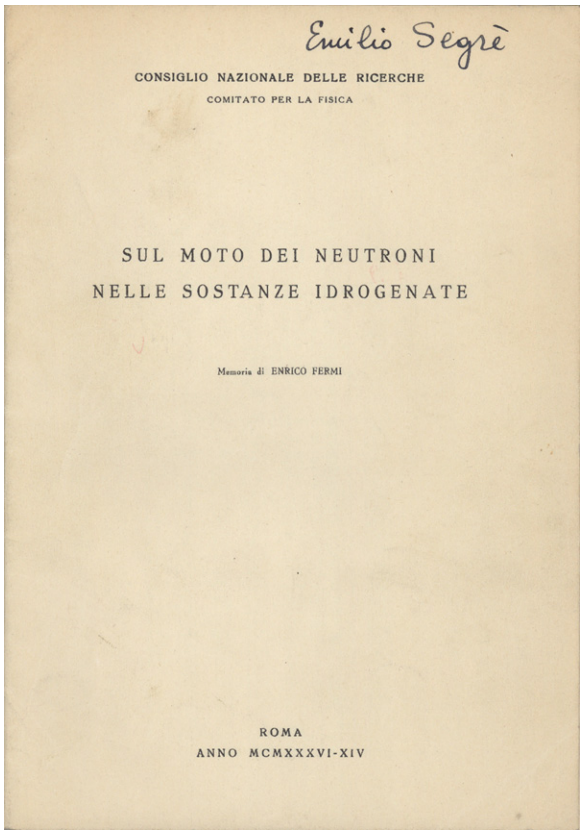
As can be seen by Fermi's notes on the photographs, and by the title of the preprint included in this collection, he and his team expected their bombardment experiments to produce transuranic elements; i.e., elements with an atomic number higher than uranium's 92. This did not take place, nor, as Segrè writes, did the Fermi team discover nuclear fission, despite the nature of their researches:

> We thought that the irradiation of uranium should produce transuranic elements, for which we expected properties similar to those of Re, Os, Ir, Pt. We proceeded to show that uranium irradiated with neutrons did not produce any elements which have an atomic number between that of lead and uranium. The proof of this fact was obtained and was correct, but the possibility of fission somehow escaped us (Fermi, *Coll. Papers*, I, p. 640).

Fermi, *Coll. Papers,* I, pp. 639-40; the preprint offered in this collection is no. 94 in the collected papers. Segrè, *Enrico Fermi, Physicist,* pp. 73-77. For Fea, see Firestone, "Overview of nuclear data" (internet reference), which illustrates Segrè's copy of the published version of Fea's table. 40017

## *Fermi's Famous Theoretical Paper on "Slow Neutrons, From the Library of Emilio Segrè*

53. Fermi, Enrico (1901-54).
(1) [with E. Amaldi] Sui gruppi di neutroni lenti. Offprint from *Ric. Scientifica*, second series, 7. 4pp. (13 April 1936). (2) [with E. Amaldi] On the absorption and the diffusion of slow neutrons. Offprint from *Phys. Rev.* 50 (1936). 899-928pp. 252 x 192 mm. Original green printed wrappers. (3) Sul moto dei neutroni nelle sostanze idrogenate. Offprint from *Ric. scientifica,* second series, 7 (1936). 42pp. 242 x 170 mm. Original cream printed wrappers. *Signed by Emilio Segrè* on the front wrapper. (4) [with H. L. Anderson, E. T. Booth, J. R. Dunning, G. N. Glasoe and F. G. Slack] The fission of uranium. Offprint from *Phys. Rev.* 55 (1939). [2]pp. 268 x 201 mm. Original green




printed wrappers. Together 4 items, from the library of Nobel Laureate Emilio Segrè (1905-89), who had been Fermi's pupil and research associate. $9500

First Editions. In October 1935 Fermi discovered that neutrons passed through substances containing hydrogen have increased efficiency for producing artificial radioactivity. These "slow neutrons" formed the basis of his research for the next several years. Between October 1935 and May 1936 Fermi and his associates published a number of papers in which, among other things, they showed that "the neutrons reached thermal energy and that neutrons of a few electron volts of energy could show sharp peaks (resonances) in the curve of the collision and absorption cross-section, versus neutron energy" (DSB). Improvements in laboratory instruments and measurement techniques were made to better interpret the radioactivity data generated by Fermi's experiments.

> During the first period of investigation by [Fermi's] group at the University of Roma, the activity measurements were taken exclusively by means of Geiger counters with thin aluminum walls. . . . However, after the discovery of the effect o hydrogenous substances, the activity had become so high that it was frequently possible to use an

ionization chamber connected to an electrometer. This technique was then developed and perfected by experimenting with new types of ionization chambers and new ways of using the electrometers. . . .

Once the interpretation of the phenomena observed on the basis of the compound nucleus's resonance levels, according to Bohr's hypothesis, had been accepted, the problem of determining the width and energy of these resonance lines naturally arose. It is treated in paper No. 116 [no. [1] above], in which use was made of various formulas whose derivation is reported in No. 119 [no. [3] above]. This work demonstrates how the mean value of the square of the distance traveled by the neutrons, before they read the resonance energy of the detector, increases as the resonance energy of the detector decreases. In this way a quantitative relation between spatial distribution of resonance neutrons and their energy was established. . . .

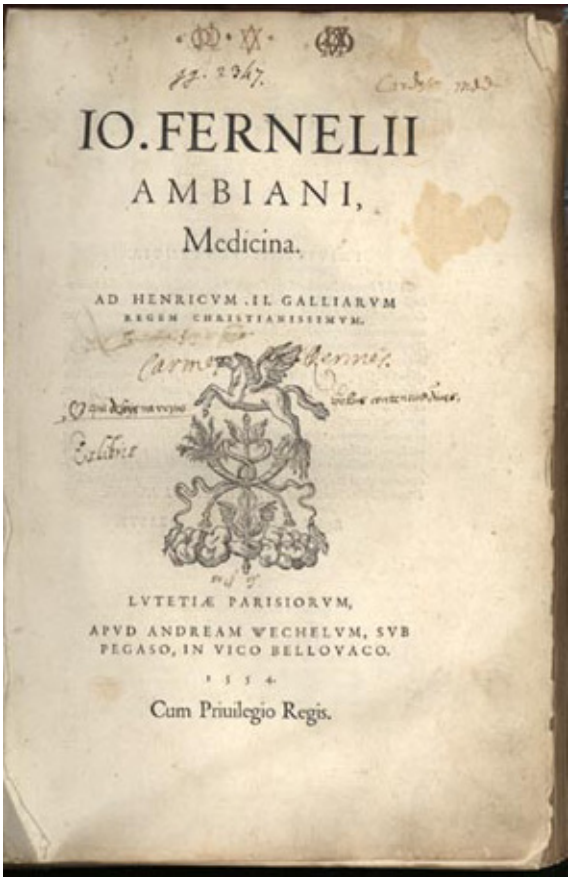
All of these and various other measurements, including the determination of the total number of neutrons emitted by a source based on the space integration of slow neutrons in a hydrogenous medium of large dimensions, are summarized and discussed in paper no. 118 [no. [2] above]. . . .

Paper No. 119 [no. [3] above] is theoretical ; it includes, besides the calculation for $r^2$ as a function of the energy, the calculations for the albedo, for the extrapolation length, for the angular distribution of neutrons leaving the surface of the moderator, and numerous other problems treated with the 'one dimensional medium model' which , according to Fermi, even many years later, was sufficient for dealing with the majority of diffusion problems. . . . The second part of [this paper] includes the theory of the effect of chemical bond on the neutron-proton collision and the theory of the radiative capture of protons by hydrogen. . . .This paper contains the seeds of nearly all of the important ideas on neutrons that Fermi developed in succeeding years" (Amaldi, "Nos. 112-119," in Fermi, *Collected Papers,* ed. Amaldi, Segrè *et al.*, Vol. I, pp. 808-11; the quote is from pp. 810-11).

Fermi's paper, co-authored with his associate Edoardo Amaldi, was originally published in Italian in Vol. 7 of the *Ric. scientifica* (1936); the English translation published in the *Physical Review* was prepared by Amaldi while they were both working in Italy.

In January 1939, with the political situation in Italy worsening, Fermi and his family moved to the United States, where he was offered a position at Columbia University in New York. Almost immediately afterwards came the news of Hahn and Strassmann's experiment showing the production of barium from the bombardment of uranium by neutrons, and of Meitner and Frisch's correct interpretation of this result as an instance of nuclear fission. Fermi instantly grasped the implications of this discovery: "[He] saw directly, that in so violent a reaction neutrons might be released too. If the arrangement were such that the emitted neutrons could produce further fissions, the process might become multiplicative. If the circumstances were favorable enough, a chain reaction might be developed and large amounts of energy released" (Anderson, "No. 129," in *The Collected Papers of Enrico Fermi,* II, p. 1). To further investigate the phenomena of fission, Fermi joined forces at Columbia with the research team headed by John Dunning, which had just completed the construction of the university's cyclotron. Shortly thereafter the team issued a preliminary report of its experiments (no. [4])—the first paper with Fermi's name on it to appear after his emigration from Europe. "Fermi knew what questions he wanted to answer. Were neutrons emitted in the fission of uranium? If so, in what numbers? How could these neutrons be brought to produce further fissions? What competitive processes were there? Could a chain reaction be developed? . . . Fermi's insistence that quantitative measurements be carried out prevailed, and in the first paper [i.e., no. (4)] written only one month after Fermi had arrived at Columbia, the value of the fission cross-section for slow neutrons as well as for fast neutrons was reported. The measurements were quite crude, but they gave numerical values to essential qualities and served in this way to begin to bring realism to pure speculation" (Anderson, p. 2).

The papers in this group are from the library of Nobel Laureate Emilio Segrè, discoverer of the element technetium, and recipient of a share of the 1959 Nobel Prize for his work on the antiproton. Segrè had been Fermi's first graduate student, and was closely involved in Fermi's neutron-bombardment experiments; it was these experiments that inspired Meitner, Hahn and Strassmann's work on uranium irradiation, which in turn led to the discovery of nuclear fission. Segrè later edited Fermi's collected papers, and wrote what is still the definitive biography of Fermi. The offprints on slow neutrons that Fermi and his team published in Italy during 1935 and 1936 are all of the greatest rarity. They were issued rapidly and distributed to the handful of people in Europe who were working in the field. Fermi, *Collected Papers*, nos. 116, 118b, 119a, 129. 38322


IO. FERNELII
AMBIANI,
Medicina.
AD HENRICVM .II. GALLIARVM
REGEM CHRISTIANISSIMVM.
LVTETIÆ PARISIORVM,
APVD ANDREAM WECHELVM, SVB
PEGASO, IN VICO BELLOVACO.
1554
Cum Priuilegio Regis.

*First Systematic Treatise on Pathology, Which also Named Pathology & Physiology—Ex Libris Nicolas Fouquet*

54. Fernel, Jean (1497?-1558).

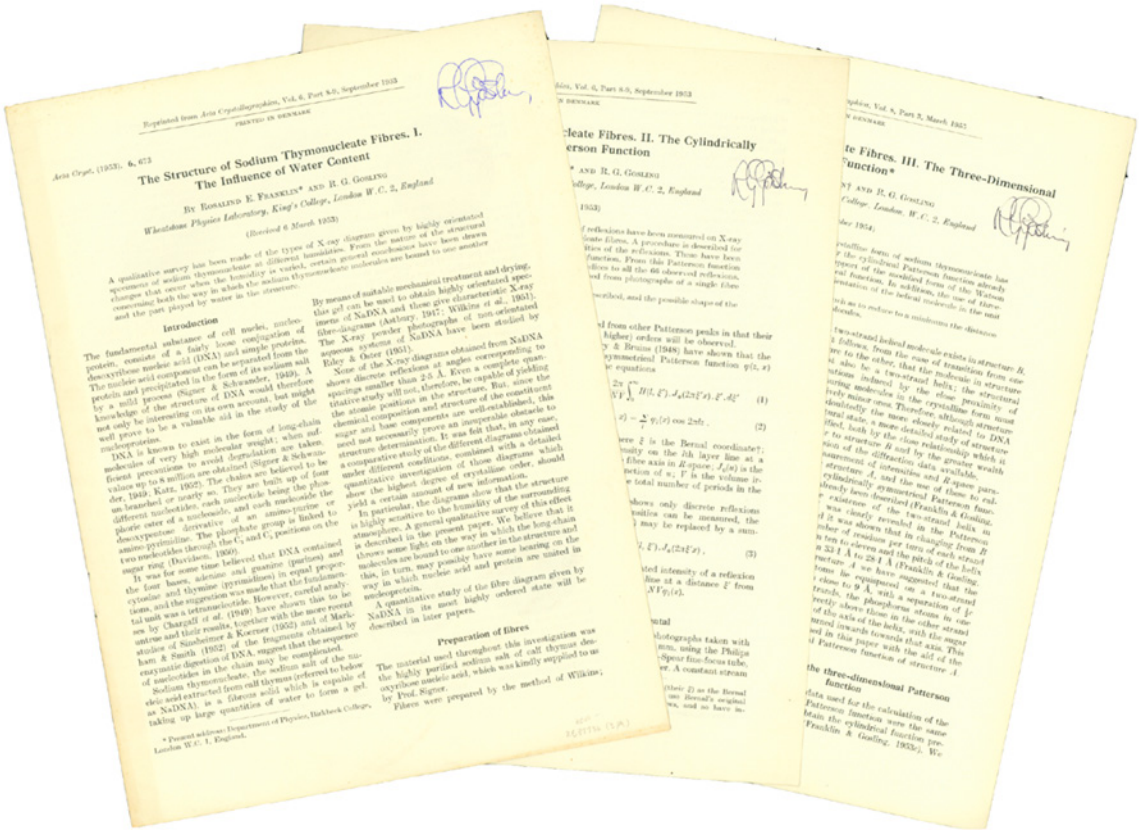
Medicina. Folio. [12], 250 (misprinted 248), [14], 238, [18], 90, [10]pp. Woodcut portrait in text. Paris: André Wechel, 1554. 338 × 226 mm. Limp vellum c. 1554, a.e.g., two binder's cords broken in upper spine, very unusual 15th-century Latin inscriptions, music and cartoons visible on inside front and back covers and inner flaps. Margins of last 10 leaves a trifle gnawed, but a fine and completely unrestored tall copy, in a full morocco suede-lined box by Lobstein. "Double-phi" cipher penned on upper margin of title of Nicolas Fouquet (1615-80), finance minister to Louis XIV. From the renowned, but undocumented library of the French non-practicing physician, music publisher, and connoiseur, Jean Blondelet. Contemporary marginalia, including index of diseases related to biblical names on final flyleaf. $17,500

First Edition. G-M 2271. The first systematic treatise on pathology, which also introduced the names for the sciences of pathology and physiology. In the second part of the above, entitled "Pathologia" (a term Fernel introduced), Fernel provided the first systematic essay on the subject, methodically discussing the diseases of each organ. The result was a succinct summary of the best available knowledge of organic abnormality in disease. Fernel's predecessor Benivieni, whose De abditis (1507) represents the foundation of modern pathology, had presented a collection of case histories without any attempt at a logical or methodical system. Fernel's contributions to the study of aneurysms were particularly noteworthy. He was the first to associate arterial dilatation with aneurysm and he differentiated true from false aneurysms. Fernel also attributed the cause of arterial aneuysms to syphilis, which was pandemic during the Renaissance.

Although Fernel's earlier treatise, *De naturali parte medicinae* (1542; PMM 68), has long been considered the earliest work devoted exclusively to physiology, Fernel actually named that science "Physiologia" as the title to the revised edition of it which forms the first part of the Medicina. Within six years after his graduation from medical school Fernel became one of the most famous physicians in France. His reputation at the court of the dauphin (later Henri II) became firmly established when he saved the life of Henri's mistress, Diane de Poitiers. Fernel was however less successful with François I, Henri's father, who died of syphilis in 1547. See the classic *Endeavour of Jean Fernel* (1946) by Sir Charles Scott Sherrington. DSB. Long, Hist. Path., pp. 38-41. Willius & Dry, *History of the heart and circulation* (1948) 40-41, 372. Acierno, *History of Cardiology* (1994)pp. 48-50, 97-99. Durling 1459. Norman 785. Waller 2993. Wellcome I, 2195. 34703

55. Franklin, Rosalind (1920-58) & Gosling, R. G.

(1) The structure of sodium thymonucleate fibres. I. The influence of water content. Offprint from *Acta Crystallographica* 6 (1953). 673-677pp. (2) The structure of sodium thymonucleate fibres. II. The cylindrically symmetrical Patterson function. Offprint from *Acta Crystallographica* 6 (1953). 678-685pp. (3) The structure of sodium thymonucleate fibres. III. The three-dimensional Patterson function. Offprint from *Acta Crystallographica* 8 (1955). Together 3 off-



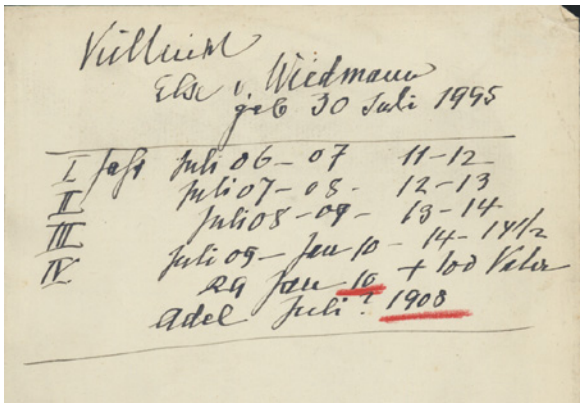

prints. 268 x 202 mm. Without wrappers as issued. Fine copies, each one *signed by R. G. Gosling* on the first page. $8000

First Separate Editions. 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 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 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). 37736

## 56. Freud, Sigmund (1856-1939).

Autograph patient record. Undated (1908 or later). Single sheet, probably removed from a casebook; the record consists of 9 lines covering a little less than half a page. 248 x 170 mm. Creased horizontally, left margin a little frayed, bottom quarter of sheet dust-soiled. Very good. $2500

Patient record, in Freud's distinctive hand, for one Else v. Wiedmann, whose birthdate Freud gives incorrectly (a Freudian slip?) as "30 Juli 1995." The record



gives what appear to be pertinent dates in his patient's history—the years of her early adolescence, the death of her father, the year her family was elevated to the aristocracy. 34647

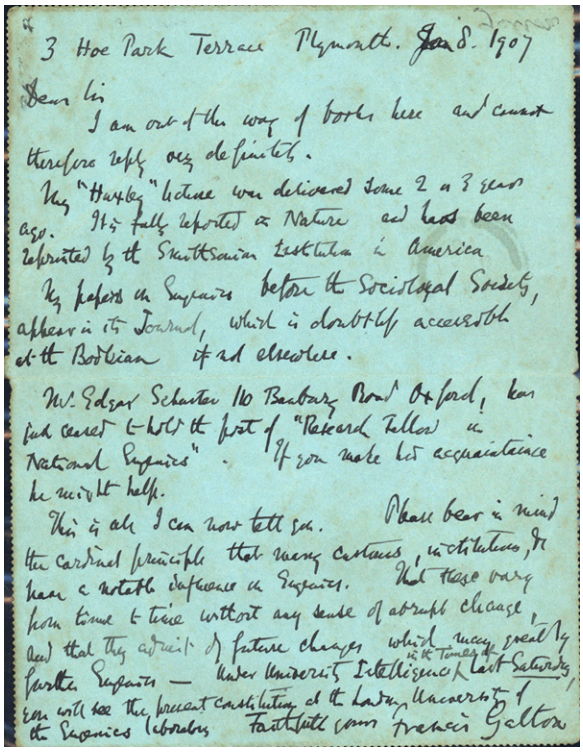
## 57. Freud, Sigmund (1856-1939).

Autograph postcard signed ("Freud"), to Dr. Gonzalo Arostegui. Vienna, Jan. 19, 1932. 105 x 148 mm. Creased vertically, light wear along fold, light toning. $2500

Freud's postcard, sent to a member of one of pre-Castro Cuba's leading families, reads: "Herzlichen Dank für Ihr freudliches Interesse" (Hearty thanks for your friendly interest). 38977

## 58. Galton, Francis (1822-1911).

Autograph letter signed to R. Dixon Kingham. Plymouth, Jan. 8, 1907. 1 page, on British Post Office "Letter Card." 161 x 122 mm. Minor foxing, one corner creased. $1250



Letter to a member of the British Eugenics Society:

> I am out of the way of books here and cannot therefore reply very definitely.
>
> My "Huxley" lecture was delivered some 2 or 3 years ago. It is fully reported in Nature and has been reprinted by the Smithsonian Institution in America.
>
> My papers on Eugenics before the Sociological Society, appear in its Journal, which is doubtless accessible at the Bodleian if not elsewhere.
>
> Mr. Edgar Schuster 110 Banbury Road Oxford, has just ceased to hold the post of "Research Fellow in National Eugenics." If you make his acquaintance he might help.
>
> This is all I can now tell you. Please bear in mind the cardinal principle that many customs, institutions, &c. have a notable influence on Eugenics. That these vary from time to time without any sense of abrupt change and that they admit of future changes which may greatly further Eugenics—under University Intelligence in the Times last Saturday you will see the present constitution at the London University of the Eugenics laboratory. Faithfully yours, Francis Galton.

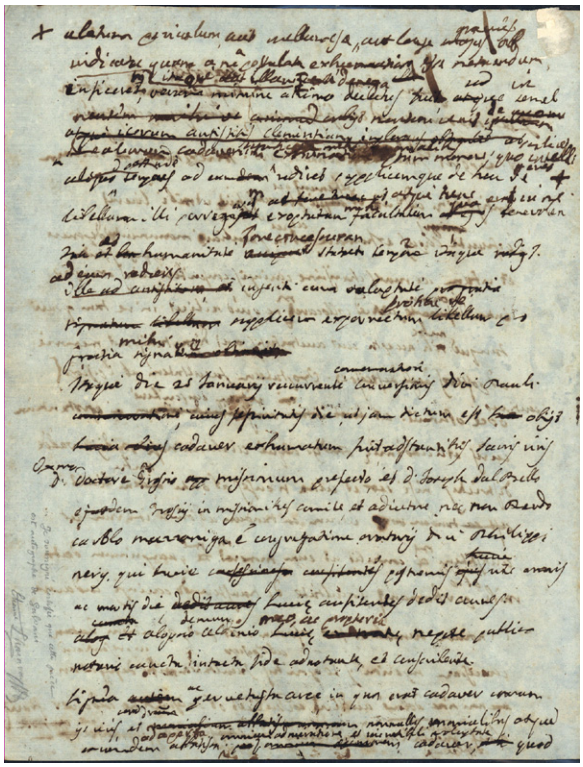
Galton was the founder of eugenics, a social philosophy advocating the improvement of human hereditary traits through various forms of intervention, such as "fitness" tests and incentives to encourage the "fittest" to breed. Galton introduced the term in 1883 in his *Inquiries into Human Faculty and its Development*, and devoted much of his energies in the last decades of his life to promoting eugenic issues. His efforts found much support among the British educated classes, who worried about the possibility of biological degeneration of the British population. Galton's "Huxley Lecture" of 1901, delivered before the Royal Anthropological Institute, made use of population data and statistical analysis to make the case for enacting and implementing eugenic social policies. In 1904 Galton helped to establish a fellowship at London University for "the *exact* study of what may be called *National Eugenics*" (quoted in Gillham, p. 330), and recommended Edgar Schuster, a biometrician, to the post. Schuster retired from the fellowship in 1906. Later that year Galton and his student Pearson formed a plan to found the Galton Laboratory for the Study of National Eugenics at London University; this plan was realized in early 1907. All of these events are touched on in the present letter. Gillham, *Life of Sir Francis Galton,* pp. 324-34. 40190

## 59. [Galvani, Luigi (1737-98).]

Unsigned autograph draft in Latin relating to Galvani's eulogy for his wife, Lucia Galeazzi, d. 1791, accompanied by 19th century Italian documentation attesting to the contents & authenticity of the draft, with second attestation of authenticity of hand penciled in margin of draft in French. 2pp. on single 4to. sheet. 1 or 2 minute flaws where ink burned through, but very good condition. [Bologna, 1791, according to documentation.] $3000

The death of Galvani's beloved wife, Lucia Galeazzi, daughter of his anatomy professor, Domenico Galeazzi, apparently occurred shortly after publication of the epochal *De viribus electricitatis* in 1791. This loss was the first of several shocks in his last years that undermined the position and psyche of the discoverer of animal electricity, who died in 1798 "in poverty and sorrow" (D.S.B.).

The much worked-over Latin draft above is, according to its accompanying documentation by a 19th century previous owner, Dr. Pedieri, Galvani's autograph draft for his eulogy for his wife. While we are confident that the material is in Galvani's hand, it is not so clear to us that this is a eulogy, as there are several references to exhuming a corpse ("cadaver" in the Latin) that strike us as peculiar in a eulogy. However, there are also phrases of personal

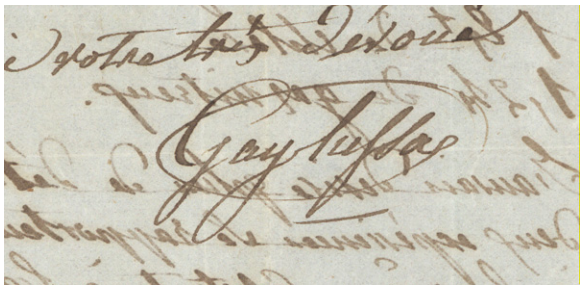


respect, which would be out of place if the document were a technical or legal statement regarding a stranger. It may be that the document relates to Galvani's wife, but is not part of her eulogy; as such it may provide further information on the event that so affected Galvani's career after his discovery of bioelectricity. (Vis-à-vis this discovery, it is narrated in the N.B.G. in 2 or 3 versions how Signora Galvani either provided the occasion for this discovery, or actually made it herself, while preparing to cook frogs—apocryphal probably but not completely impossible, and certainly a testimony to the place she occupied in both Galvani's life and the public's perception of it.) See G-M 593, Dibner 59, PMM 240. 26756

## 60. Gay-Lussac, Joseph Louis (1778-1850).

A.L.s. dated August 28, 1848, addressed to M. Larivière, préparateur de chimie au Muséum d'Histoire naturelle, Paris. 2 pp. plus integral address leaf. Lussac [postmarked St. Leonard]. 207 x 134 mm. Creased where folded, some soiling along folds, four lacunae where removed from mounting, but very good. $2000

Letter analyzing the results of Larivière's experiments with chlorine and nitrous gas, and suggesting further avenues of research with other substances such as sulfur and phosphorus. The final paragraph mentions aqua regia, on which Gay-Lussac published a paper the same year



("Mémoire sur l'eau régale," *Annales de chimie et de physique*, 3rd series, 23 [1848]: 203-229). Gay-Lussac is best known for his law of combining volumes of gases, his discovery of boron, his demonstration of the existence of hydrogen-based acids and his work on volumetric analysis. DSB. 22253

## 61. Gibbs, Josiah Willard (1839-1903).

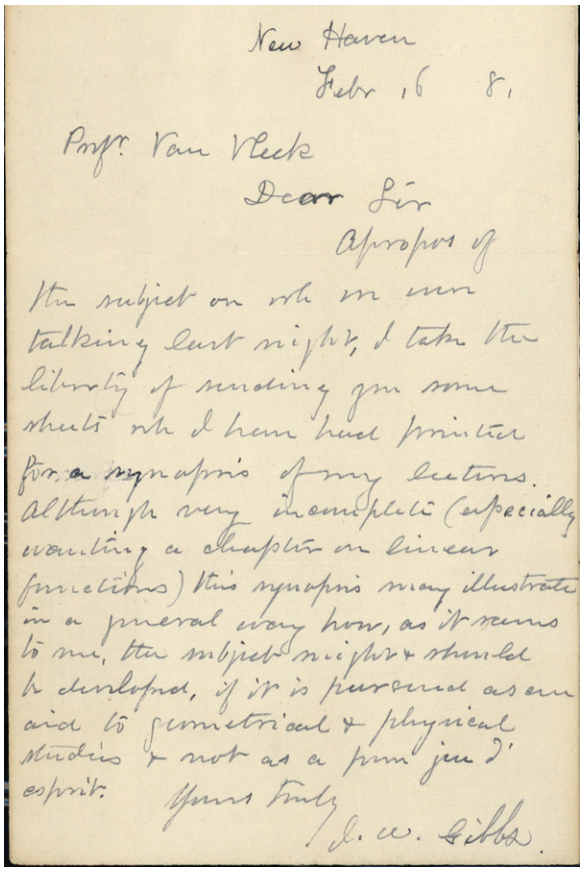
Autograph letter signed to John M. Van Vleck (1833-1912). New Haven, Feb. 16, 1881. 1 page plus integral blank. 203 x 128 mm. Light soiling along folds, pencil annotation on blank. $2750

Excellent letter pertaining to Gibbs's vector analysis, an alternative to William Hamilton's quaternions that Gibbs developed for the purpose of advancing mathematical physics. Vector analysis (which was independently developed in England by the British mathematical physicist Oliver Heaviside) represents Gibbs's major contribution to pure mathematics.

> Gibbs's reading of [James Clerk] Maxwell's *Treatise on Electricity and Magnetism* led him to a study of quaternions. . . . Gibbs decided, however, that quaternions did not really provide the mathematical language appropriate for theoretical physics, and he worked out a simpler and more straightforward vector analysis. He wrote a pamphlet on this subject which he had printed in 1881 and 1884 for private distribution to his classes and to selected correspondents. No real publication of Gibbs's version of vector analysis took place until 1901, when his student Edwin B. Wilson prepared a textbook of the subject based on Gibbs's lectures (*Dictionary of Scientific Biography*).

Gibbs's letter to Van Vleck, professor of astronomy and mathematics at Wesleyan University and grandfather of Nobel Prize-winning physicist John H. Van Vleck, was written to accompany a copy of the 1881 vector analysis pamphlet. The letter reads as follows:

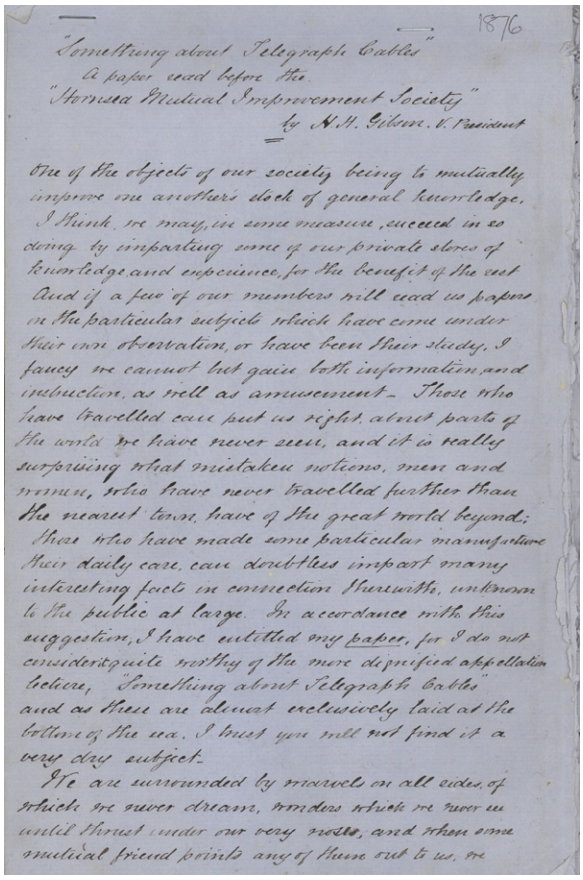
> Dear Sir, Apropos of the subject on which we were talking last night, I take the liberty of sending you some sheets which I have had printed for a synopsis of my lectures. Although very incomplete (especially wanting a chapter on linear functions) this synopsis may illustrate in a general way how, as it seems to me, the subject might & should be developed, if it is pursued as an aid to geometrical & physical analysis & not as a poor jeu d'esprit. Yours truly, J. W. Gibbs.



Gibbs's distribution list for his 1881 pamphlet, which includes Van Vleck's name, can be found in Wheeler, *Josiah Willard Gibbs*, appendix IV. Gibbs is best known for his landmark *On the Equilibrium of Heterogeneous Substances* (1876), which laid much of the theoretical foundation for chemical thermodynamics and physical chemistry. 40151

## 62. Gibson, Henry H.

Something about telegraph cables. A paper read before the Hornsea Mutual Improvement Society. Autograph manuscript signed. N.p., 1876 (date supplied in a different hand). [20]ff., stapled at the top. 318 x 203 mm. Right margins a little frayed. $2750



1876

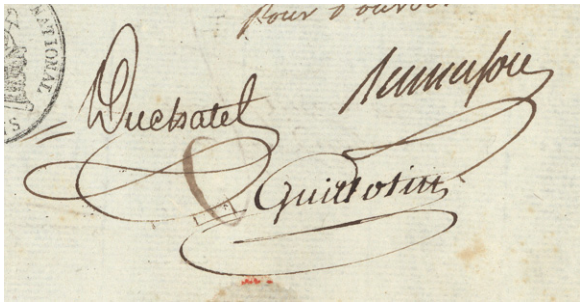
"Something about Telegraph Cables"
a paper read before the
"Hornsea Medical Improvement Society"
by W.H. Gibson. V. President

One of the objects of our society being to mutually improve one another's stock of general knowledge, I think we may, in some measure, succeed in so doing by imparting some of our private stores of knowledge and experience, for the benefit of the rest. And if a few of our members will read us papers on the particular subjects which have come under their own observation, or have been their study, I fancy we cannot but gain both information and instruction, as well as amusement. Those who have travelled can put us right about parts of the world we have never seen, and it is really surprising what mistaken notions, men and women, who have never travelled further than the nearest town, have of the great world beyond; those who have made some particular manufacture their daily care, can doubtless impart many interesting facts in connection therewith, unknown to the public at large. In accordance with this suggestion, I have entitled my paper, for I do not consider it quite worthy of the more dignified appellation believe, "Something about Telegraph Cables" and as these are almost exclusively laid at the bottom of the sea, I trust you will not find it a very dry subject.

We are surrounded by marvels on all sides, of which we never dream, wonders which we never understand, under our very noses, and when some practical friend points any of them out to us, we

Gibson was a member of the shipbuilding family that founded the firm of Edward Gibson & Son in Hull, Yorkshire; he was also vice president of the Mutual Improvement Society in Hornsea, a town on the Yorkshire seacoast connected to Hull by rail. His manuscript, the text of a lecture he delivered before the Society in 1876, includes his firsthand account of the laying of the 1873 Atlantic cable between Valentia, Ireland and Heart's Content, Newfoundland, undertaken by the Anglo American Telegraph Company seven years after the first successful Atlantic cable was laid in 1866. The 1873 Atlantic cable, like the 1866 and unsuccessful 1865 cables, was laid by the *Great Eastern,* accompanied on this trip by the companion vessels *Hibernia, Edinburgh* and *Robert Lowe.* Gibson's manuscript describes the preparations made prior to departure, the features of the *Great Eastern*, the various tasks involved in cable laying (among them being numerous "calculations . . . made every few minutes" and tabulated every half hour), the crossing, and the ship's arrival at Heart's Content. Evidence in the manuscript suggests that Gibson was heavily involved in submarine cable laying; e.g. in the raising of the Malta-Alexandria cable (laid in 1868).

Gibson's lecture begins with a brief history of telegraphy, from signal beacons and semaphores to the electric telegraph, which he regards as one of the wonders of the age: "New speeds along minute wires buried in the earth or sunk in the ocean, or stretched on poles in the air, telling of the fall of empires or the flight of kings, the price of stocks; of births and bankruptcies; of arrivals and accidents; of elopements and wrecks; of crops, or robberies, of murders and of markets; friends hundreds of miles apart may converse with one another as if in the same apartment." He describes the development of the electric telegraph from the experiments of the Bishop of Llandaff in 1784 to the technological innovations of his own day, paying special attention to the Atlantic Cable and its troubled history. He refers several times to information given to him by participants in earlier submarine cable ventures; e.g. Willoughby Smith, who gave Gibson a firsthand account of the laying of the Dover-Calais cable in 1850. 40141



## 63. Guillotin, Joseph Ignace (1738-1814).

Document signed, dated "13 vendemaire l'an trois de la République" [i.e., October 4, 1794], on official stationery of the Bureau du Domaine National. 1 sheet, 314 x 202 mm. Creased where folded, a few fox-marks, one edge a little frayed. Very good. Stamped seal of the Bureau in lower left. $1500

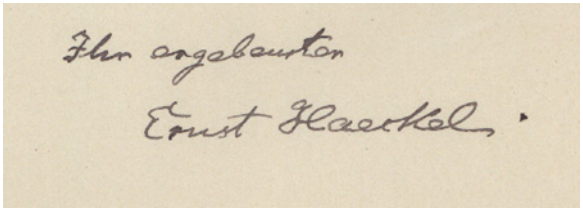
Document signed by Guillotin and two others ("Duchatel" and another illegible signature) in their official capacity as members of the Bureau du Domaine National. The document appoints one M. Ozanne as a temporary commissioner in charge of appraising and selling furniture and other movable objects seized from the houses of condemned or deported emigrants. Guillotin is best known as the man who, in the early years of the French Revolution, was responsible for reviving the infamous decapitation machine that now bears his name. E.B. N.B.G. 15502

## 64. Haeckel, Ernst (1834-1919).

Anthropogenie oder Entwickelungsgeschichte des Menschen. Keimens- und Stammes-Ges-

chichte . . . [general title]. 2 vols., 8vo, each with separate title-page. xxvi, [2], 383, [1]; [9], 388-906pp. 20 plates (some in color). Leipzig: W. Engelmann, 1891. 228 x 152 mm. 19th cent. half morocco, marbled boards, light wear. *Presentation copy,* inscribed by Haeckel on the half-title of Vol. I: "Seinem lieben Freunde Dr. phil. Paul Rottenburg mit den herzlichsten Grüssen Ernst Haeckel." $450

Inscribed copy of the fourth edition of Haeckel's work on human embryology, originally published in 1874. 37722



## 65. Haeckel, Ernst (1834-1919).

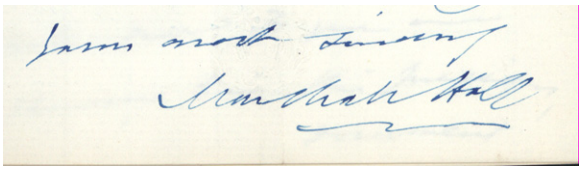
Autograph letter signed, in German, to Mrs. Wilhelmine Storch-Kuhlmann. Jena, April 8, 1918. 2pp. 223 x 142 mm. $600

Letter from the German biologist and comparative anatomist Haeckel, promoter of Darwin's work in Germany, and coiner of numerous biological terms including *phylum*, *phylogeny*, and *ecology.* Haeckel proposed the kingdom *Protista* (another of his original coinages) to cover simple one-celled or multi-celled organisms that cannot be classed as fungi, animals or plants. He originated the controversial recapitulation theory proposing a link between an organism's individual development and evolution, summed up in the phrase "ontogeny recapitulates phylogeny." He was a prolific author and an accomplished artist; one of his most famous illustrated works, *Kunstformen der Natur* (1904), is mentioned in this letter.

The letter can be translated as follows:

> You have given me great pleasure with your kind greetings of spring from your garden which you sent me yesterday with your dear little daughter. Vividly they took me back to the times of 30-40 years ago when your ingenious teacher Otto Devrient charmed us with his adaptation of Faust and in which you yourself as an exceptional artist gave special glamour to his original and much admired Luther Festival.
>
> Allow me, as a modest expression of my heartfelt thanks, to send you enclosed my monistic essay "Gott-Natur" (1914) which might interest you in regard to the special reference to Goethe (especially pages 56-61) and the "Synoptischen Tabellen" (pages 64-67).
>
> Since your dear daughter showed interest in my "Kunstformen der Natur" during her Sunday visit, I am enclosing a fascicle of it (with ten plates) for her. With repeated best thanks and cordial regards, yours truly, Ernst Haeckel.

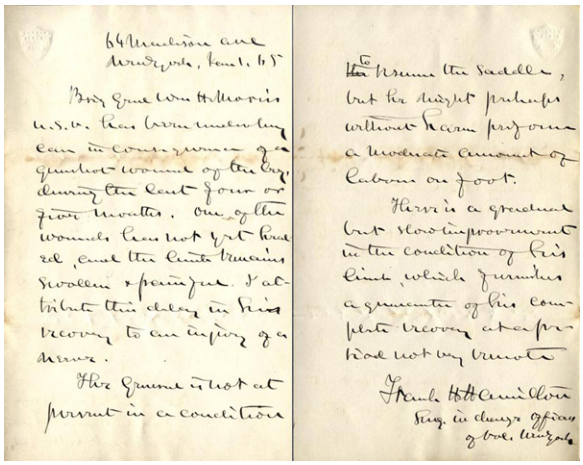
The German actor and playwright Otto Devrient (1838-94) was particularly famous for his staging of Goethe's *Faust.* Haeckel's *Kunstformen der Natur*, consisting of 100 colored lithograph prints of various organisms, was originally issued in sets of 10 plates between 1899 and 1904; it was issued in book form in the latter year. *Gott-Natur*, published in 1914, is a study of monistic religion. 40182



## 66. Hall, Marshall (1790-1857).

Four A.L.s. to George Harley (1829-96). The first letter dated March 13, 1856, from 11 Princes Street, Hanover Square, London; the remaining letters dated December 24, 26 and 27, 1856 from 37 King's Road, Brighton. 8vo. 12pp. total. 191 x 117 mm. Creased where previously folded, light soiling along folds, otherwise very good. $2000

A series of letters on medical and scientific subjects from the British neurologist Marshall Hall, author of seminal works on reflex action and epilepsy (G-M 1359 & 4812), to Dr. George Harley, who published the classic description of paroxysmal hemoglobinuria ("Harley's disease"; G-M 4171) in 1865. The letters refer to Harley's physiological experiment on a cat and what appears to be a course of investigations on the nerves using the poison *woorali,* a source of one of the constituents of curare. Hall agreed to supply Harley with *woorali,* and posed many questions and suggestions as to how Harley might proceed. Also mentioned are Claude Bernard's investigations of the pneumogastric [i.e., vagus] nerve, the work of the French physiologist Charles Brown-Séquard, and the investigations of Regnault and Reiset on respiration (G-M 932). DSB (Hall). 38114



## 67. Hamilton, Frank Hastings (1813-86).

A.L.s. dated Jan. 1, [18]65, signed by Hamilton in his capacity as the "Surg. in charge Officers of Vol. New York"; no addressee or recipient indicated. 1 sheet, 205 x 258 mm., folded to make 4 pages of which 2 contain Hamilton's letter and 2 are blank. 64 Madison Ave., New York [N.Y.]. Creased where folded, minor soiling.

$1250

A very fine letter from the Medical Inspector of the Union Army, describing the condition of Brigadier General William H. Morris (1827-1900), who had suffered a gunshot wound in the leg during the past year. "Brig. Genl. Wm. H. Morris U.S.A. has been under my care in consequence of a gunshot wound of the leg, during the last four or five months. One of the wounds has not yet healed, and the limb remains swollen & painful. I attribute this delay in his recovery to an injury of a nerve. The General is not at present in a condition to resume the saddle, but he might perhaps without harm perform a moderate mount of labor on foot. There is a gradual but slow improvement in the condition of his limb, which furnishes a guarantee of his complete recovery at a period not very remote."

Morris, a native of New York, began his service in the United States Army as a second lieutenant in the 2nd Infantry, but during the Civil War he advanced quickly to the rank of Brigadier-General, to which he was appointed on Nov. 29, 1862. He was present at a number of important battles, including Gettysburg and the Battle of the Wilderness, and was wounded at Spotsylvania Court House on May 9, 1864. It is undoubtedly this wound that forms the subject of Hamilton's letter, since Morris spent the next four months after the Spotsylvania Court House battle on sick leave in Washington, away from active fighting, before being mustered out of the army on August 24.

Although the purpose of Hamilton's letter is not explicitly stated, it was very probably written either in connection with Morris's discharge from the army, or to establish Morris's eligibility for an army pension. Intriguing in itself, the letter takes on added significance in that it refers to an officer rather than an enlisted man. According to Paul E. Steiner's *Medical History of a Civil War Regiment* (pp. 50-54), the government did not regulate and oversee officers' health care as it did the care of enlisted men, so that the diseases and disabilities suffered by Union officers often went unreported, and what records there were tended to be scattered and incomplete. Hamilton's letter may therefore be the most detailed description extant of the wound suffered by Morris during one of the bloodiest engagements of the Civil War.

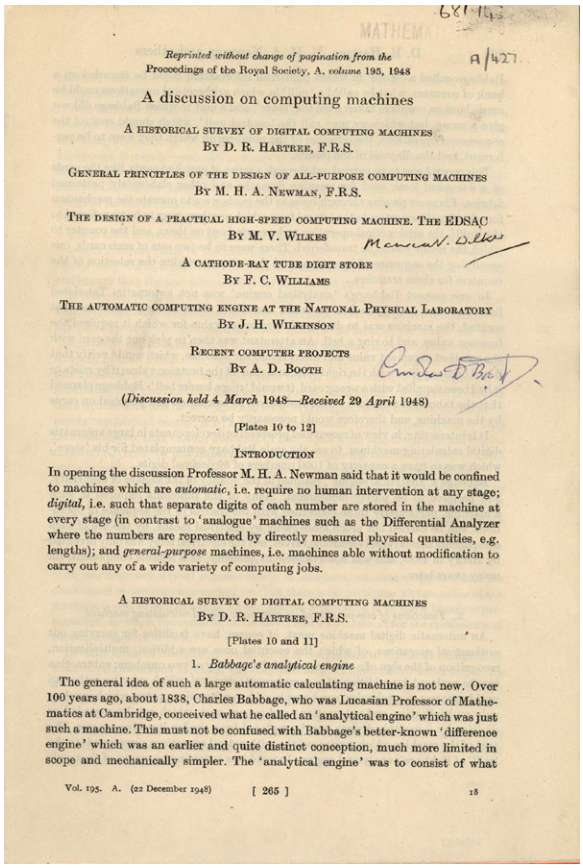
Hamilton, one of the foremost American surgeons of his day, was appointed Medical Inspector of the Union Army by President Lincoln and the United States Senate in February 1863, and served in this post with distinction until June 1865. He was the author of the first complete book on fractures and dislocations in English (*A Practical Treatise on Fractures and Dislocations*, 1860; G-M 4420) and numerous other surgical works, as well as editor of the massive *Surgical History of the War of the Rebellion* (1870-71). Kelly & Burrage. DAB re Morris & Hamilton. 29220

## 68. Hartree, Douglas (1897-1958) *et al.*

A discussion on computing machines. Offprint from *Proceedings of the Royal Society* A, 195 (1948). 8vo. 265–287pp. 2 plates; text illustrations. Errata slip inserted before p. 271. 255 x 172 mm. Unbound, boxed. Signed by Andrew D. Booth and Maurice V. Wilkes on p. 265.

$7500

First Edition. The discussion, organized by Max Newman (one of Alan Turing's professors at Cambridge), took place at the Royal Society on March 4, 1948, before an audience of two or three dozen people. It was the earliest conference on electronic digital computers held in England for which proceedings were published. Apart from Newman, who contributed a paper on "General principles of the design of all-purpose computing machines," the participants were Douglas Hartree ("A historical survey of digital computing machines"), Maurice Wilkes ("Design of a practical high-speed computing machine. The EDSAC"), Frederic C. Williams ("A cathode-ray tube digit store," possibly Williams's earliest paper on the Williams tube), James H. Wilkinson ("The automatic computing engine at the National



*Reprinted without change of pagination from the*
Proceedings of the Royal Society, A, *volume* 195, 1948

A discussion on computing machines

A HISTORICAL SURVEY OF DIGITAL COMPUTING MACHINES
BY D. R. HARTREE, F.R.S.

GENERAL PRINCIPLES OF THE DESIGN OF ALL-PURPOSE COMPUTING MACHINES
BY M. H. A. NEWMAN, F.R.S.

THE DESIGN OF A PRACTICAL HIGH-SPEED COMPUTING MACHINE. THE EDSAC
BY M. V. WILKES

A CATHODE-RAY TUBE DIGIT STORE
BY F. C. WILLIAMS

THE AUTOMATIC COMPUTING ENGINE AT THE NATIONAL PHYSICAL LABORATORY
BY J. H. WILKINSON

RECENT COMPUTER PROJECTS
BY A. D. BOOTH

(*Discussion held* 4 *March* 1948—*Received* 29 *April* 1948)

[Plates 10 to 12]

INTRODUCTION

In opening the discussion Professor M. H. A. Newman said that it would be confined to machines which are *automatic*, i.e. require no human intervention at any stage; *digital*, i.e. such that separate digits of each number are stored in the machine at every stage (in contrast to 'analogue' machines such as the Differential Analyzer where the numbers are represented by directly measured physical quantities, e.g. lengths); and *general-purpose* machines, i.e. machines able without modification to carry out any of a wide variety of computing jobs.

A HISTORICAL SURVEY OF DIGITAL COMPUTING MACHINES
BY D. R. HARTREE, F.R.S.

[Plates 10 and 11]

1. *Babbage's analytical engine*

The general idea of such a large automatic calculating machine is not new. Over 100 years ago, about 1838, Charles Babbage, who was Lucasian Professor of Mathematics at Cambridge, conceived what he called an 'analytical engine' which was just such a machine. This must not be confused with Babbage's better-known 'difference engine' which was an earlier and quite distinct conception, much more limited in scope and mechanically simpler. The 'analytical engine' was to consist of what

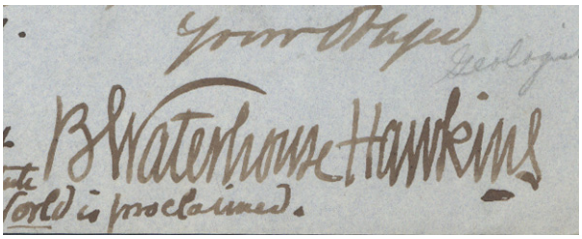
Vol. 195. A. (22 December 1948) [ 265 ] 18

Physical Laboratory," a report on Turing's ACE computer), and Andrew D. Booth ("Recent computer projects," a brief report on his automatic relay computer, the ARC). The offprint is *extremely rare. Origins of Cyberspace* 650. 38318

## 69. Hawkins, Benjamin Waterhouse (1807-89).

Autograph letter signed to Mrs. Sotheby. [London] Geological Restorations, Crystal Palace, October 19, 1854. 2pp. 202 x 127 mm. Creased where previously folded. $750

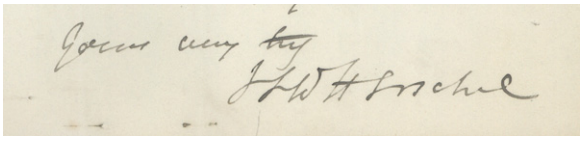
Benjamin Waterhouse Hawkins, a British sculptor and natural history artist, is best known for collaborating with Richard Owen and other scientists to create 33 life-sized concrete models of dinosaurs for display in the Crystal Palace. The dinosaur models, arranged in lifelike poses in naturalistic settings, proved to be one of the most popular features of the Crystal Palace, and served to bring these prehistoric creatures into general public awareness. Hawkins's models still exist; one of them—the Iguanodon—was so large that a dinner for 20 people was held in its interior on December 31, 1853.



Hawkins worked on his dinosaur models between 1852 and 1855; judging from the superscript, the present letter was written and sent from the location where the models were being built. The letter, which hints at the work Hawkins was involved in, reads as follows:

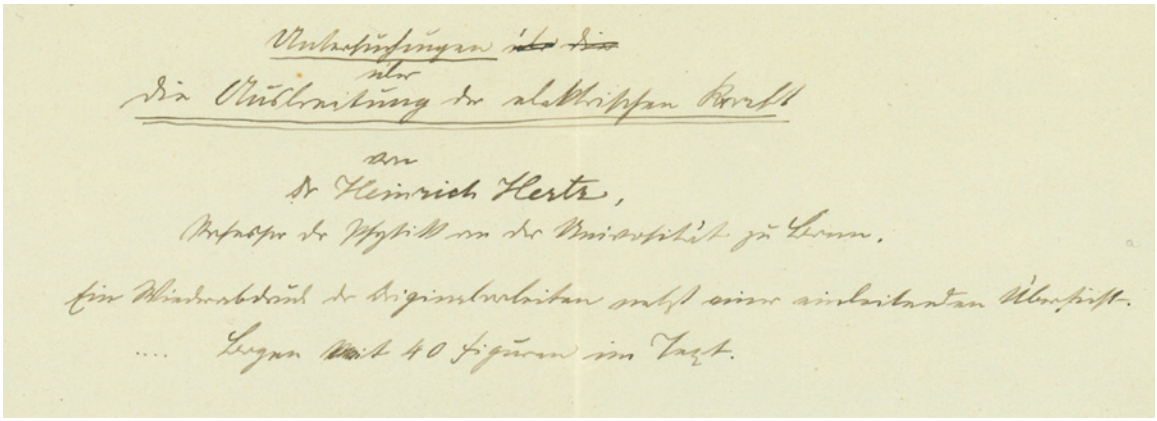
> I am glad to hear that Mr. Sotheby has returned though he has not slaughtered so many birds as he expected I doubt not that the change & excitement will be of ultimate benefit to his health though the reaction of the moment may appear depressing.
>
> I learned on Monday at Mr. Bowerlands that Mrs. Taylor of Brixton is either gone to Australia or is so near her departure as to be invisible. This I ought to have informed you of on Tuesday but my large family my very large family so divides my attention that I am only in a position to apologise for the delay. I met at Mr. Bowerlands at his Monday evening soirée a very clever & experienced photographer who would undertake to photograph professionally any wall of rock or such like objects that I might require, consequently I was thinking of the chalk at Charlton offering a good opportunity for you to get a practical lesson in outdoor manipulation and expedients. I must go to point out the exact spot to him would it not be worth your taking the trouble to go too and see him operate? He offers to do it for me and give me 2 prints for one guinea now if you could get a practical hint at the same time I should think it a bargain. . . .

Wikipedia, "Benjamin Waterhouse Hawkins." 40121



## 70. Herschel, John Frederick William (1792-1871).

Autograph letter signed to Francis Baily (1774-1844). Feb. 5, 1840. 1 page plus integral address leaf. 231 x 187 mm. Small lacuna in address leaf where seal was broken (not affecting text), a few



pin-holes, 19th-cent. printed biographical notice of Herschel tipped to top margin. $950

Herschel's letter to his friend and fellow astronomer Francis Baily refuses an invitation and alludes to his own astronomical work:

> My hands are so full that I find it impracticable to come up either tomorrow or Friday so that I must with many thanks & reluctantly deny myself the pleasure of being your guest.
>
> I have no means of pointing my telescope on the comet's place—and I have no telescope to point.
>
> Believe me, my dear sir, yours very truly, J. F. W. Herschel.

The comet mentioned in Herschel's letter might have been Comet C/1840 B1, discovered by Johann Gottfried Galle (1812-1910) in January 1840.

Herschel was one of the most important men of science of the Victorian era, making significant contributions to astronomy, mathematics, chemistry and photography. He was the author of *Results of Astronomical Observations made at the Cape of Good Hope* (1847), a survey of the stars of the Southern Hemisphere, in which he proposed the names still used today for the seven then-known satellites of Saturn. A few years later, he gave the four then-known satellites of Uranus their present names. He is also famous for having coined the term "photography" and for applying the terms "positive" and "negative" to photography. Francis Baily, whom Herschel had known since his student days at Cambridge, is best known for his description of "Baily's Beads," an optical phenomenon seen during solar eclipses. Baily was a founder of the Royal Astronomical Society. *Dictionary of Scientific Biography.* 40152

## *Hertz's Autograph Announcement of his Book on Electric Waves*

71. Hertz, Heinrich (1857-94).

Autograph manuscript in German, signed in the heading ("Dr. Heinrich Hertz") and in the text ("Prof. Hertz). 1 sheet, with small section pasted to foot. N.p., n.d. [ca. 1892]. 336 x 210 mm. Creased where previously folded, otherwise fine. Typescript transcription and English translation included. $35,000

Hertz's manuscript draft of the announcement of the publication of *Untersuchungen über die Ausbreitung der elektrischen Kraft* (1892), his treatise on electromagnetic waves. Hertz was the first to demonstrate experimentally that electromagnetic waves radiate in space at the speed of light, just as James Clerk Maxwell had predicted in his *Treatise on Electricity and Magnetism* (1873). From 1885 to 1889 Hertz became the first person to broadcast and receive electro-magnetic waves.

> Hertz's proof was the result of his experimental inventiveness. He produced electric waves with an unclosed circuit connected to an induction coil, and he detected them with a simple unclosed loop of wire. He regarded his detection device as his most original stroke, since no amount of theory could have predicted that it would work. Across the darkened Karlsruhe lecture hall he could see faint sparks in the air gap of the detector. By moving it to different parts of the hall he measured the length of the electric waves; with this value and the calculated frequency of the oscillator he obtained the velocity of the waves. For Hertz his determination at the end of 1887 of the velocity—equal to the enormous velocity of light—was the most exciting moment in the entire sequence of experiments. He and others

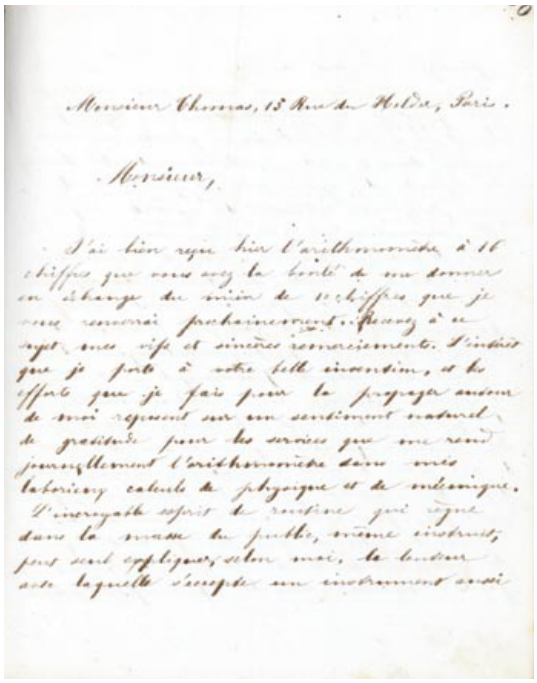
saw its significance as the first demonstration of the finite propagation of a supposed action at a distance.

Early in the course of his Karlsruhe experiments Hertz noticed that the spark of the detector circuit was stronger when it was exposed to the light of the spark of the primary circuit. After meticulous investigation in which he interposed over sixty substances between the primary and secondary sparks, he published his conclusion in 1887 that the ultraviolet light alone was responsible for the effect—the photoelectric effect. He was convinced that the effect had profound theoretical meaning for the connection between light and electricity, even though the meaning was obscure at the time . . . (DSB).

In 1905, Einstein explained the photoelectric effect as the result of light particles (photons) striking a solid body with enough energy to liberate electrons from the surface. The explanation earned him the Nobel Prize in 1921.

Hertz announced his discoveries in a series of papers published in the *Annalen der Physik* between 1887 and 1890. These papers, which reported the work described above and Hertz's further experiments demonstrating the analogy between electric and light waves, represented "the first and decisive victory for [Maxwell's] field theory and the defeat of the Newtonian idea of instantaneous action at a distance. In fact, it is no exaggeration to say that Hertz's experiments were a major turning point in the history of mankind, both socially and intellectually" (Berkson, *Fields of Force,* p. 213). Hertz's experiments also mark the beginning of modern telecommunications, for although Hertz himself did not think to profit by his electromagnetic waves, his discovery provided Marconi and others with the means to develop wireless telegraphy, radio, and other airwave technologies. In recognition of Hertz's work, the unit of frequency of a radio wave—one cycle per second—is named for him.

In 1891 Hertz was asked by J. A. Barth, publisher of the *Annalen*, to collect his papers on electric waves in book form. *Untersuchungen über die Ausbreitung der elektrischen Kraft* appeared the following year; it contained all but one of Hertz's papers on Maxwell's theory, with explanatory notes and a 31-page introduction. This was Hertz's only major work to appear during his lifetime, as he died in 1894 at the age of 36. DSB. 38541



## *Unique Manuscript Archive of his Scientific Thought*

72. Hirn, Gustave Adolfe (1815-90).
Album containing crush-paper copies of ca. 600 A.Ls.s. and Ls.s. written between 13 Sept. 1862 and 9 July 1865. [Colmar, 1862-65]. 280 x 222 mm. Original cloth, suede backstrip with cloth label, paper label on front cover, worn at edges, corners & spine. One or two small tears, otherwise very good internally. $9500

Hirn, a civil engineer, was one of the first to investigate the phenomena of the steam engine, and he made several fundamental contributions to mechanics and thermodynamics, including his *Exposition analytique et expérimentale de la théorie mécanique de la chaleur* (1862), one of the first systematic treatises on thermodynamics. The album we are offering contains crush-paper copies of ca. 600 letters that Hirn wrote between 1862 and 1865, shortly after the publication of his *Exposition analytique* (the crush-paper method of letter duplication involved pressing a freshly written letter against special absorbent paper; only one such copy could be made, so that our album is *unique*). The album almost certainly represents *the most complete manuscript archive* of Hirn's scientific thought and activity during this time, since the original letters duplicated here were sent to a number of different recipients, and many have probably not survived. Among

the letters are several written to François Napoléon Marie Moigno (1804-84), the eminent Jesuit mathematician and physicist; one of most interesting of these is Hirn's letter to Moigno of 16 February 1864, containing a long and detailed discussion, intended for publication, of the thermodynamic principles of Rudolf Clausius (1822-88). Clausius's name appears numerous times in Hirn's correspondence, along with those of physicist Léon Foucault (1819-68) and chemist Henri Étienne St. Claire Deville (1818-81).

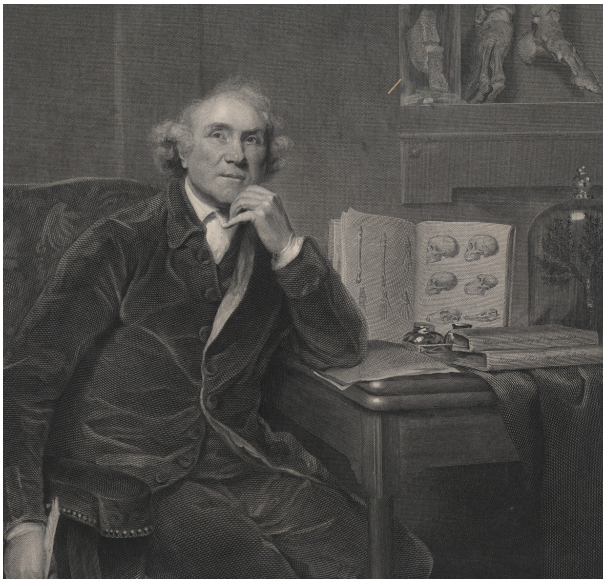
Another letter, of 13 December 1862, is to Charles X. Thomas, inventor of the first commercially successful calculator; Hirn thanked Thomas (also a native of Colmar) for the receipt of his 16-digit Thomas Arithmometer, which Hirn used daily in his "laborious calculations in physics and mechanics." Hirn was impressed enough with the Thomas de Colmar Arithmometer that he published a paper on it the following year ("Notice sur l'utilité de l'arithmomètre et de l'hydrostat," *Annales du génie civil,* 2nd part, 2 [1863]: 113-17; 152-64), which included "an exposition of advanced techniques which extended the arithmometer's reach beyond the apparent restrictions of the four basic arithmetical rules" (Johnston).

Other letters in the album relate to Hirn's interests in climatology and meteorology, or to his business activities as director of the mechanical department of the mill he managed jointly with his brother—it was his connection with this mill that first led Hirn to investigate the mechanics of heat. Time has permitted us to make only a cursory examination of this unique album; a thorough study will surely reveal other letters of equal or greater interest. DSB. NBG & Wheeler Gift for Moigno. Aspray *et al.*, *Computing before Computers,* p. 50 (Thomas). Johnston, "Making the Arithmometer Count" (internet reference). 34272

## 73. Hospitals.

Don de la metairie de Centinai. Deed of gift in French, to a hospital, perhaps of the Order of St. Jacques, in Blois. Oblong folio sheet, in ink on vellum, 34 lines & notary's signature in 14th century hand on recto, title & summary note in later hand on verso. Blois, April 30, 1368. 320 x 428 mm. Minor worming affecting 2 or 3 letters of text, but fine, with only light creasing & staining. $3750

Exceptional fourteenth century document in French recording the gift of a farm by Robert and Jehanne Fourr,, to "the hospital of Saint Jacques newly founded at Blois," "on account of the love they bear to the Church and the brothers of the hospital and for prayers for their parents and burials." This was perhaps a hospital of the Order of St. Jacques, founded in the twelfth century; the Order owned farms to support its medical work. The gift of a "metaire" or tenant-farm would have been significant; the document describes the property in detail and gives an excellent idea of the support available to a hospital six hundred years ago. Burdett III (1893) 42 re the order of St. Jacques. 7395

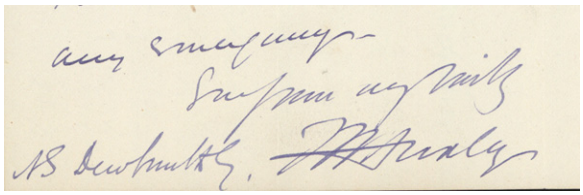


## 74. Hunter, John (1728-93).

Engraved portrait by William Sharp after the painting by Sir Joshua Reynolds (1723-92). London: William Sharp, 1788. 427 x 343 mm. in the plate, with margins extending to 540 x 437 mm. Slight soiling, traces of former mounting on the back, otherwise fine. $1950

First Edition, second state, with the caption "John Hunter" not present and the imprint reading ""London Publish'd 1st Jany. 1788 by Wm Sharp, Charles Street, Middx. Hospital." Reynolds's famous portrait shows Hunter seated at a table on which is an open folio of drawings showing a series of forelimbs and skulls. Qvist, in his biography of Hunter, notes the significance of this folio as demonstrating Hunter's evolutionary belief in the mutability of species, particularly his "concept of the evolutionary series associated with the head and hand of man" (p. 188). To the right of Hunter the bones of the feet and lower limbs of the "Irish Giant," one of Hunter's more notorious dissections, are visible. The original oil from which this engraving was made was severely damaged. In this reduced state it is preserved in the Royal College of Surgeons in London. Thus this original

engraving, obviously authorized by Reynolds, may be a more desirable representation of the image than the unattractive original. Very rare. 34469



## 75. Huxley, Thomas Henry (1825-95).

(1) Autograph letter signed to Albert George Dew-Smith (1848-1903), together with stamped cover. South Kensington, Oct. 28, 1873. 3pp. 185 x 115 mm. (2) Autograph letter signed to Dew-Smith, together with stamped cover. [London] Science Schools, Dec. 4, 1873. 2pp. 185 x 113 mm. (3) Autograph letter signed to Dew-Smith, together with stamped cover. N.p., Dec. 4, 187[5?] [cover postmarked "De 4 75"]. 1 page. 187 x 112 mm. $2500

Three letters from Huxley to the photographer and instrument maker A. G. Dew-Smith, co-founder with Horace Darwin (Charles Darwin's youngest surviving son) of the Cambridge Scientific Instrument Company. The letters touch on Huxley's activities as a science educator and promoter of Darwin's theory of evolution; Darwin is mentioned in the Dec. 4, 1873 letter. The first letter reads as follows:

> Your brother's kindness has much supplied my want for the present though I shall be happy to use the Dutchmen when they come.
>
> The fact is I find young Cod fish make excellent subjects for beginners that I am making my men to on them what they did on the Frog last year. The Cod fish I got in abundance at Billingsgate [London's famous fish market] very cheaply and their great advantages over the frogs is that the student has not to contend with minuteness in addition to his other difficulties—
>
> Please do tell Foster of this "wrinkle"—he will find it valuable.
>
> I see the 200 frogs have grown into 400—what am I to do with what the bankers call the balance? I can give them house room until they are wanted. Ever yours very faithfully, THHuxley.

Huxley was the driving force behind the establishment of biology as an academic discipline in British universities. As professor of natural history at the Royal School of Mines, Huxley taught laboratory-based courses featuring the dissection of anatomy, supplemented by microscopy, museum specimens and some elementary physiology. To assist him, Huxley trained a number of demonstrators, all of whom became leaders in biology. One of these was Michael Foster (1836-1907), who at the time this letter was written was praelector in physiology at Trinity College, Cambridge; in 1883 he became the first occupant of the university's newly created chair of physiology, a post he held until 1903. Foster is mentioned both in this letter and in the letter of Dec. 4.

Huxley's Dec. 4 letter to Dew-Smith reads:

> Best thanks for Dohrn's letter which I return—
>
> I heard from him two days ago to the same effect—in reply to a letter which I addressed to him after consultation with Mr. Darwin. I do not see what else is to be done as Dohrn does not see his way to accepting a subscription.
>
> Foster had put the matter of your going out rather too strongly—He told me you thought of going & I said that I thought such a course very desirable—for I really was anxious about Dohrn's silence—at present there does not seem to be any emergency. Ever yours very faithfully THHuxley.

"Dohrn" refers to Anton Dohrn (1840-1909), a student of Ernst Haeckel and a prominent Darwinist. In September 1873 Dohrn founded the Stazione Zoologica, an international biological research institute located in Naples, Italy that is still operating today; its purpose, according to Huxley's biographer, was "to unravel the embryology and evolution of life" (Desmond, p. 424). Huxley, who was very interested in this project,

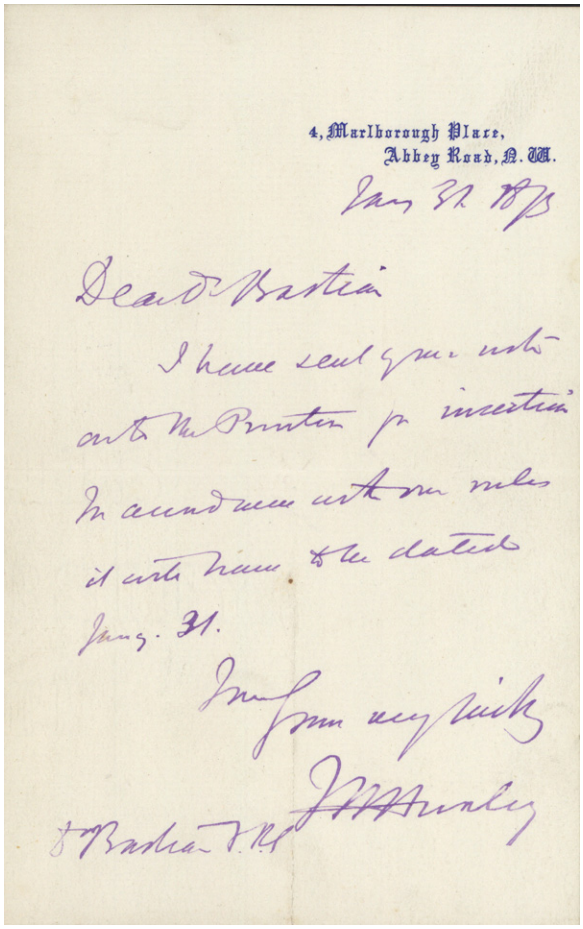
> liaised with [Charles] Darwin to raise £500 from the "land of fogs" to fund the Mediterranean enterprise. It was collected from "each according to his ability": which meant that Darwin put in £75 while Huxley had "no cash to spare" (Desmond, p. 424).

In the present letter to Dew-Smith, Huxley may be referring to a letter Dohrn sent in response to Huxley's letter to him of Oct. 17, 1873 discussing raising funds for Dohrn's institute (see Huxley, *Life and Letters* [1903], 2, p. 116).

Huxley's brief letter to Dew-Smith of Dec. 4, 1878 reads:

> I agree—In the matter of the Report I don't think we ought to make any concessions. We must have something to shew the Association for the money. Ever yours very truly THHuxley.

The "Association" is probably the British Association for the Advancement of Science, which published an annual report of its meetings. Huxley served as president of the BAAS in 1869-70. 40183


4, Marlborough Place,
Abbey Road, N.W.

Jan 31 [illegible]

Dear Bastian

I have sent your note
with Mr Brinton's invitation
in accordance with your wishes
& with mine & the date
Jany. 31.

Yours very truly
THHuxley

## 76. Huxley, Thomas Henry (1825-95).

Five autograph letters signed to Henry Charlton Bastian (1837-1915). May 15, 1865 – Jan. 31, 1873. 12pp. total. Various sizes. Portion torn from upper corner of one letter, affecting the date, a few tears along folds. $2250

Five letters from Huxley to Bastian, a physician who made notable contributions to the emerging specialty of clinical neurology, and a pioneer writer on theories of the origin of life. Bastian published important papers on aphasia (see G-M 4622, 4629) and was the first to demonstrate "Bastian's law": that complete section of the upper spinal cord abolishes reflexes and muscular tone below the level of the lesion. Bastian is best known, however, for his defense of the doctrine of spontaneous generation (abiogenesis) in the face of accepted biological and bacteriological opinion. Bastian argued that there was no fixed boundary between organic and inorganic life, stating that "since living matter must have arisen from nonliving matter at an early stage in evolution, such a process could still be taking place" (*Dictionary of Scientific Biography*). He can thus be seen as one of the first to consider the question of the origins of life from a scientific standpoint. Huxley found Bastian's views unacceptable and clashed with him over his beliefs and experimental methodology; see Desmond, *Huxley*, pp. 392-93.

The first letter in this collection, dated May 15, 1865, was written shortly after Huxley had taken up editorial duties for the *Reader*, a weekly periodical devoted to the advancement of liberalism and the spirit of scientific inquiry. The periodical was intended to be the voice of the X Club, founded in 1864 by Huxley and eight of his Darwinist friends to promote the cause of science (the *Reader* failed, but the experience gained was put to good use by the X Club when it founded the journal *Nature* in 1869). Huxley here arranges for Bastian to write a book review for the *Reader*:

> As I take an active place in the present management of the scientific position of the "Reader" the note addressed to the Editor has in due course come into my hands.
>
> We are old acquaintances and my recollection of you is such that I can but rejoice that the Reader is to have the benefit of your assistance—
>
> I send the book by this post. You will find many pencil notes & references at the end, of my making—
>
> In fact I took the book with me into the country having half undertaken to review it and the pencil marks are set against various remarkable theories of translation upon which I intended to comment—
>
> However, partly on account of pressing occupations, & partly for other reasons I would much rather have nothing to do with the book—the more so as I can put it in such competent hands as your own.
>
> I think the article had better not exceed three columns. I am, very faithfully yours, THHuxley.

The second letter, dated May 1, 1868 (the year supplied in a different hand), reads:

> Many thanks for the very interesting paper on the "Passage of the red blood corpuscles etc." It opens a prospect of great new lights in Physiology & Pathology.
>
> Let me be among the first also to congratulate you on your election to the Fellowship of the Royal Society yesterday. I am yours very truly THHuxley.

Another letter, dated only "April 24", reads as follows:

> I should particularly like to have the opportunity of observing the very interesting facts you mention—but unfortunately my wife & children are out of town & I shall be going down to seen them on Sunday.
>
> Many thanks however for recollecting me. I am yours very truly THHuxley.
>
> PS. Ladd does not seem to be able to get another of the immersion lenses.

The fourth letter, dated March 2[remainder of date torn away], 1870, reads:

> I have but just returned from Cambridge or I should have answered your note before—I am very sorry I cannot come to you on Sunday morning, as I have promised a friend of mine to go & be photographed—
>
> The more I think of your results the more entirely I am perplexed by them! I am yours faithfully, THHuxley.

The "facts you mention" and "results" may refer to Bastian's experimental work in support of his views on abiogenesis—some of which, contrary to Bastian's intent, ended up advancing the progress of bacteriology. It was Bastian, for example, who showed that boiling did not destroy all bacteria, a finding that led to the discovery of heat-resistant spores.

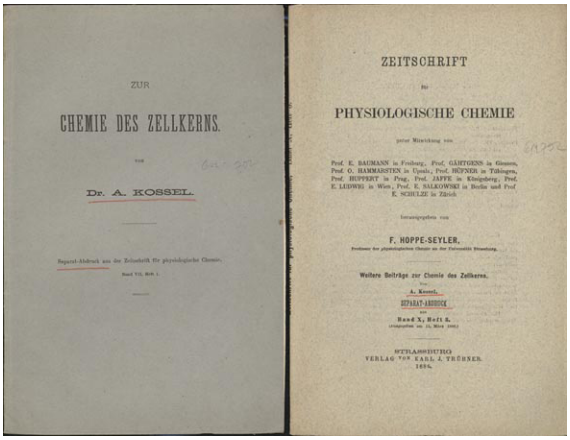
The last letter, dated Jan. 31, 1873, reads:

> I have sent your note on to Mr. Preston for insertion. In accordance with our rules it will have to be dated Jany. 31. I am yours very truly THHuxley.

40184

## *Miescher's Copies of Kossel's papers on Nucleic Acids*

77. Kossel, Albrecht (1853-1927).
(1) Zur Chemie des Zellkerns. Offprint from *Zeitschr. phys. Chem.* 7 (1882). 7-22pp. Original printed wrappers. (2) Weitere Beiträge zur Chemie des Zellkerns. Offprint from *Zeitschr. phys. Chemie* 10 (1886). 248-264pp. Original printed wrappers, vertically creased. (3) 14 offprints detailing Kossel's researches on nucleins (nucleoproteins), as listed below. 1879-1912. Complete listing available. One of the offprints is signed by


ZUR
CHEMIE DES ZELLKERNS.
Dr. A. KOSSEL.
ZEITSCHRIFT
PHYSIOLOGISCHE CHEMIE
F. HOPPE-SEYLER.
Weitere Beiträge zur Chemie des Zellkerns.

Kossel; 8 of the offprints bear the booklabel and stamp of Johann Friedrich Miescher (1844-95), discoverer of nuclein; see G-M 695.
$12,500

First Editions, Offprint Issues. G-M 702 (nos. [1] and [2]). Kossel was awarded the Nobel Prize in 1910 "in recognition of the contributions to our knowledge of cell chemistry made through his work on proteins, including the nucleic substances." His researches on "nucleic substances" represent an early stage in the development of molecular biology.

In 1869 J. F. Miescher, then working in Felix Hoppe-Seyler's biochemical laboratory in Tübingen, discovered in the cell nucleus an acid-insoluble, alkali-soluble, high-phosphorus containing substance that he named nuclein; we now know it as DNA. Kossel's researches on nuclein, begun ten years after Miescher's discovery, led to the development of reliable methods for isolating, purifying and analyzing the nucleus, identification of the chemical makeup of nuclein, and the discovery of the nitrogen bases adenine, thymine, cytosine and uracil, familiar to us now as some of the fundamental components of DNA and RNA (guanine, the remaining DNA nitrogen base, had been discovered previously). Kossel and his students working in Berlin

> demonstrated that these, together with xanthine, hypoxanthine, and guanine (sarcine), are breakdown products of nucleic acids, which can be used to distinguish between the true nucleins of the cell nucleus and the spurious nucleins found in milk and egg yolk, which he termed "paranucleins." . . . From physiological studies Kossel correctly concluded that the function of nuclein is neither to act as a storage substance nor to furnish energy for muscular contraction; rather, it must be associated with the formation of fresh tissue [i.e. the production of proteins] (DSB).

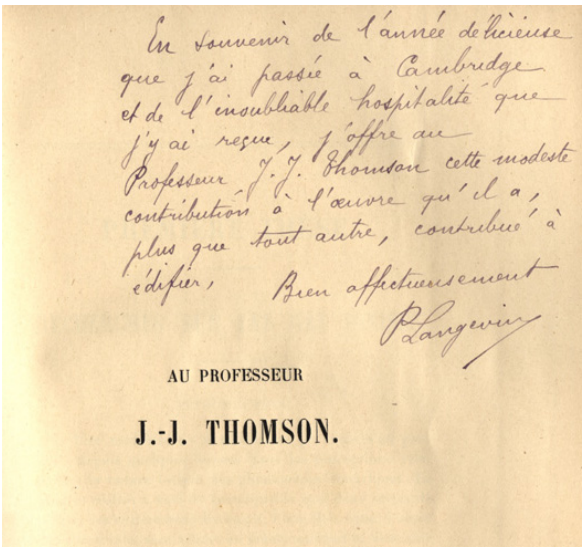
By the end of the nineteenth century, Kossel had characterized nucleins as unique substances—acidic substances, for which Richard Altmann introduced the term "nucleic acid" in 1889. Our collection of offprints includes seven of the papers on nucleins cited in the DSB's article on Kossel (nos. 1, 2, 3, 4, 5, 6, 8 below), plus two of the three papers cited as Garrison-Morton 702 (nos. [1] and [2] above). Kossel never specifically linked his work on nucleic acids to heredity, but he was aware of their general role in the production of proteins. After his receipt of the Nobel Prize he speculated publicly on the source of biological specificity, particularly in his Herter Foundation lecture (no. 14 below), in which he "clearly recognized the potential diversity of polypeptides and saw in the structure of proteins the chemical basis of biological specificity"(DSB).

Eight of the offprints in this collection bear the ownership marks of Miescher, whose discovery of nuclein in 1869 is referenced above. Both Miescher and Kossel had been students of Felix Hoppe-Seyler, a founder of the science of physiological chemistry. Magill, *Nobel Prize Winners* (phys. & med.), pp. 139-47. Wolf, "Friedrich Miescher, the man who discovered DNA" (internet reference). 40021

## *Dedication Copy, in a Special Presentation Binding*

78. Langevin, Paul (1872-1946).

Thèses présentées à la Faculté des Sciences de l'Université de Paris. . . . Recherches sur les gaz ionisés. . . . Soutenues le 17 [in ms.] décembre 1902. . . . 8vo. [viii], 207, [1]pp. Text diagrams. Paris: Gauthier-Villars, 1902. 234 x 154 mm. Special presentation binding of full maroon morocco, gilt-lettered spine, raised bands (sl. worn), a.e.g., silk endpapers, inner gilt dentelles. *The Dedication Copy, presented by Langevin to J. J. Thomson* (1856-1940), with Langevin's inscription on the dedication leaf: "En souvenir de l'année délicieuse que j'ai passé à Cambridge et de l'inoubliable hospitalité que j'y ai reçu, j'offre au Professeur J. J. Thomson cette modeste contribution à l'oeuvre qu'il a, plus que tout autre, contribué à édifier. Bien affectueusement, P. Langevin." Preserved in a cloth slipcase (faded, light wear). $4500


En souvenir de l'année délicieuse que j'ai passé à Cambridge et de l'inoubliable hospitalité que j'y ai reçu, j'offre au Professeur J. J. Thomson cette modeste contribution à l'œuvre qu'il a, plus que tout autre, contribué à édifier, Bien affectueusement P. Langevin

AU PROFESSEUR

J.-J. THOMSON.

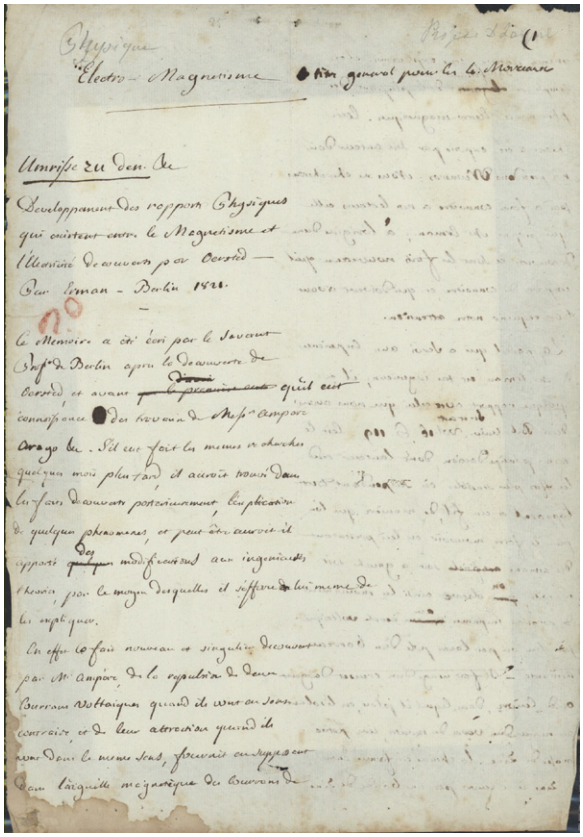
First Edition of Langevin's doctoral thesis. Langevin, France's leading practitioner and expositor of mathematical physics, studied under Jean Perrin and Pierre Curie (a close friend of both Curies, he was present at the birth of the study of radioactivity). His doctoral thesis, on the ionization of gases, was based on work he had begun at the Cavendish Laboratory in Cambridge with Nobel Laureate J. J. Thomson; under Thomson's direction Langevin "worked on ionization by X rays, in the process discovering, independently of Sagnac, that X rays liberate secondary electrons from metals" (DSB). Langevin's thesis included a method of calculating the mobility of both positive and negative ions during their passage through a condenser by considering their diffusion and recombination. Langevin's thesis was published by Gauthier-Villars, who published Marie Curie's thesis on radioactivity a year later.

Langevin is best known for his important work on piezoelectricity and on piezoceramics, and for inventing underwater sonar for submarine detection during World War I. He is also remembered for his scandalous love affair with the widowed Marie Curie, which nearly ruined her scientific career.

Langevin's presentation inscription to Thomson can be translated as "In memory of the delightful year that I spent at Cambridge and of the unforgettable hospitality that I enjoyed there, I offer to Professor Thomson this modest contribution to the discipline that he, more than anyone else, has helped to build. With great affection, P. Langevin." DSB. 39501

79. [La Rive, Gaspard de (1770-1834).]

Electro-Magnetisme—titre general pour les l[ivres] nouveaux. Umrisse zu den &c. [Review of *Umrisse zu den physischen verhaltnissen des von Herrn Professor Oersted entdeckten elektro-chemis-*



*chen Magnetismus* (1821), by Paul Erman (1764-1851)] Incomplete autograph manuscript draft, consisting of the title, the first two paragraphs and a good portion of the third. 2 pp. 277 x 190 mm. Written chiefly on the left column of a sheet folded into two columns, allowing for revisions. Creased where previously folded, small dampstain in lower corner, one upper corner a little chipped, but otherwise very good.

$1500

An intriguing autograph manuscript review of Paul Erman's *Umrisse zu den physischen verhaltnissen des von Herrn Professor Oersted entdeckten elektro-chemischen Magnetismus* (1821), reflecting the extraordinary ferment in physical science aroused by the recent discoveries of Oersted, Ampère, Arago and others re the relationship of electricity and magnetism. The review was written for the *Bibliothèque Universelle,* Geneva's foremost scientific and literary review, by Gaspard de la Rive, an editor of this journal and himself a physicist and experimenter in electrical science whose work is summarized in the D.S.B.; he is best known for his defense and helpful criticism of Ampère's theory of magnetism. The present review focuses on the work of Paul Erman, professor of physics at the University of Berlin and perpetual secretary of Berlin's Royal Academy. The review is certainly closely connected with Ampère's work, and, according to Ampère's most recent biographer, James R. Hofmann, the account of Erman's experiments contained in it influenced Ampère's investigations of induction in July 1821, in which he very nearly anticipated Faraday's landmark discovery of electromagnetic induction a decade later. The third paragraph of La Rive's work may be translated as follows:

> The apparatus used in M. Erman's experiments is very ingenious; it bears some resemblance to that which we described [in] Bib. Univ. vol. 16 s. 119. It is the same principle of action, whose effects the author renders more obvious by suspending the entire apparatus from a wire, in such a way that one can make it move by presenting magnets on either its right or its left side; one thus observes the rotation movements printed on a voltaic [carde?] by one or the other pole of a bar magnet. He makes use of a silver or copper crucible, in which he places a small amount of zinc, isolated by means of a watch-glass; the chain between the zinc and copper is formed by a band of zinc. . . .

The first sentence in the above paragraph refers to La Rive's own "flotteur électrique," a simple device demonstrating the action of a magnet on a simple current loop, which was first described in La Rive's "Notices sur quelques expériences électro-magnétiques" published in Vol. 16 of the *Bibliothèque Universelle* (1821). Hofmann, in his account of Ampère's July 1821 induction experiments, notes the influence of both Erman and La Rive on Ampère's work:

> An interesting experiment by Paul Erman caught Ampère's eye when it was reported in the *Bibliothèque Universelle* early in 1821 [i.e. most probably in the published review of which we are offering the manuscript draft]. . . . Erman had used a bar magnet detector in his own experiment; Ampère would use bar magnets in 1821. . . . Similarly, in March, 1821, Gaspard de La Rive had used a bar magnet to demonstrate attractions and repulsions of a vertical current loop. Consequently, by early in 1821 Ampère was thoroughly familiar with apparatus in which steady currents in vertical current loops were rotated using magnets (Hofmann, *André-Marie Ampère*, [1995] pp. 284-85).

Earlier in his review La Rive notes that Erman wrote his work after Oersted's discovery of electromagnetism (spring 1820), but before learning of the researches of Ampère and Arago that began the following September. He refers to Ampère's discovery of the relationship of current-flow to magnetism (1820) as "le fait nouveau et singulier decouvert par M. Ampère, . . . [qui] fournit en supposent

dans l'aguille magnetique des courrans de meme nature, une explication claire simple et satisfaisant de la plupart des phenomenes electro-magnetiques" [the new and singular fact discovered by M. Ampère, . . . [which], supposing that the currents in a magnetic needle are of the same nature, provides a clear, simple and satisfying explanation of most electromagnetic phenomena].

Study of the bibliography of Ampère's writings published by Hofmann confirms that in 1821 Ampère published 8 papers, of which no less than 5 appeared in La Rive's *Bibliothèque Universelle des Sciences, Belles-lettres et Arts*. One of these was entitled "Lettre de M. Ampère à M. Erman . . . ." Another paper published slightly later in the year was entitled "Extrait d'une lettre de Mr. Ampère au Prof. De La Rive". This manuscript fragment, representing certainly a major portion of La Rive's review, was preserved in a Victorian album of 120 autographs by scientists and explorers we recently acquired. It was the first document preserved in the album, and was misidentified by the member of the Paget family who put the album together. Why this particular leaf was preserved without its conclusion will remain a mystery. A complete transcription and translation of the document is attached. 32310

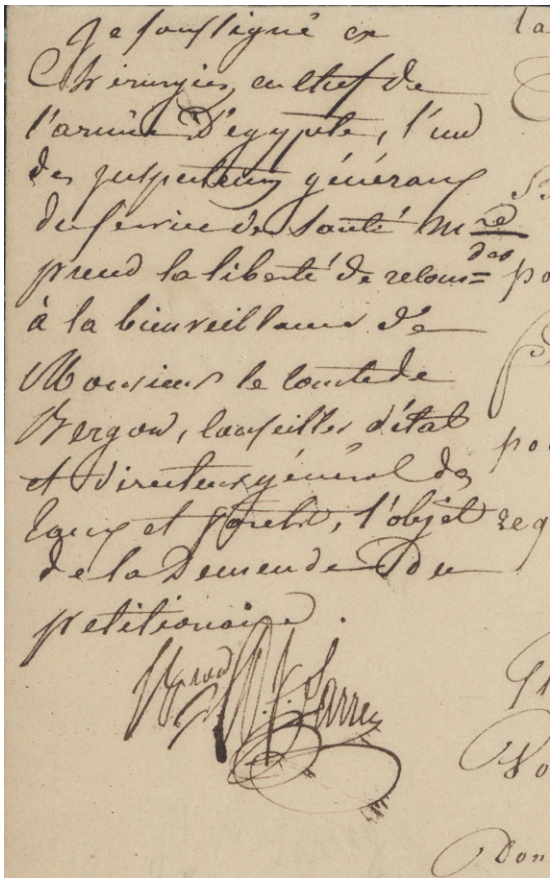
## 80. Larrey, Dominique Jean (1766-1842).

Autograph note signed, written in the margin of a manuscript petition signed by Jacques Rajade and addressed to M. Bergon, Conseiller d'État, Directeur-général des Forêts. August 28, 1811. 1 page, plus integral blank. 325 x 197 mm. Light toning, creased where previously folded, upper edge frayed, one corner chipped, small pinhole not affecting text. $1250

Larrey's note was written to strengthen the petition of Jacques Rajade, who had served as a dragoon in Napoleon's army during the Egyptian campaign; having been mustered out of the army, Rajade was asking the French government for a position as a forester. The note reads:

> Je soussigné en Chirurgien et Chef de l'Armée d'Egypte, l'un des […] généraux de service de Santé […] prend la liberté de recom[mander] à la bienveillance de Monsieur le comte de Bergon, Conseiller d'État et Directeur général des Eaux et Forêts, l'objet de la […] du pétitionnaire. D. J. Larrey.

Larrey was the greatest military surgeon in history. He invented the "flying ambulance" for removing wounded soldiers from the battlefield, performed some of the first amputations at the hip-joint, gave the first descriptions of

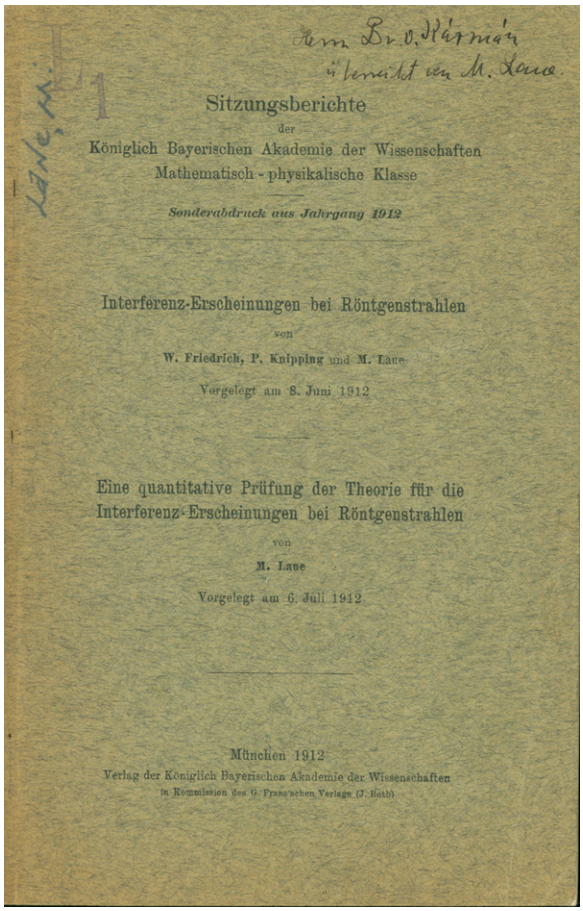


trench-foot and the therapeutic effects of maggots on wounds, and invented several surgical operations. He was also the first to observe the contagiousness of trachoma, a disease encountered by Napoleon's army shortly after its successful invasion of Egypt in 1798. 34553

## *"One of the Most Beautiful Discoveries in Physics"—Presented by Laue to Theodore von Kármán*

## 81. Laue, Max (1879-1960); Friedrich, Walter (1883-1968) & Knipping, Paul (1883-1935).

Interferenz-Erscheinungen bei Röntgenstrahlen. . . . Eine quantitative Prüfung der Theorie für die Interferenz-Erscheinungen bei Röntgenstrahlen. Offprint from *Sitzungsb. k. Bayer. Akad. Wiss., math.-phys. Klasse* (1912). 8vo. 303-322, 363-373pp. 5 photographic plates. Munich: Verlag der k. Bayer. Akad. Wiss., 1912. 221 x 143 mm. Original printed wrappers, small crease in front wrapper. Fine copy. *With Laue's presentation inscription to Theodore von Kármán* (1881-


Herrn Dr. v. Kármán
überreicht von M. Laue.

Laue, M.

1

Sitzungsberichte
der
Königlich Bayerischen Akademie der Wissenschaften
Mathematisch-physikalische Klasse

*Sonderabdruck aus Jahrgang 1912*

Interferenz-Erscheinungen bei Röntgenstrahlen
von
W. Friedrich, P. Knipping und M. Laue
Vorgelegt am 8. Juni 1912

Eine quantitative Prüfung der Theorie für die Interferenz-Erscheinungen bei Röntgenstrahlen
von
M. Laue
Vorgelegt am 6. Juli 1912

München 1912
Verlag der Königlich Bayerischen Akademie der Wissenschaften
in Kommission des G. Franz'schen Verlags (J. Roth)

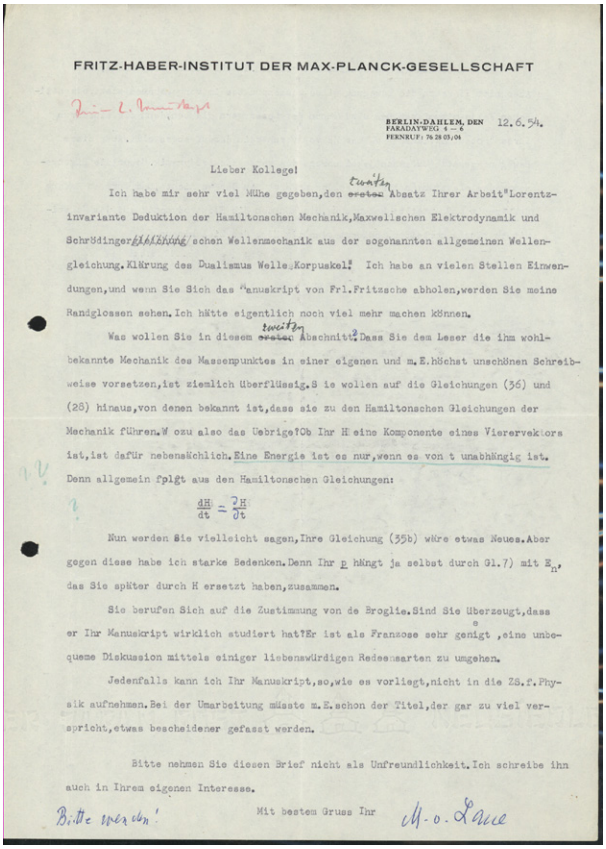
1963) on front wrapper: "Herrn Dr. v. Kármán / überricht von M. Laue." Docketed and stamped by Kármán in upper left corner of front wrapper. In a half morocco box. $15,000

First Separate Edition. PMM 406a. After Röntgen's discovery of x-rays in 1895, scientists speculated that the rays were actually composed of very short electromagnetic waves, but this supposition resisted proof, as it was impossible to construct a diffraction grating with intervals small enough to measure the wavelength. In 1912, Laue came up with the idea of sending x-rays through crystals, arguing that the supposed regular structure of their atoms would approximate the intervals of a diffraction grating. Laue's associate Walter Friedrich, together with student Paul Knipping, began experimenting on 12 April 1912, and found that the irradiation of a copper sulfate crystal with x-rays produced a regular pattern of dark points on a photographic plate placed behind the crystal. Laue's discovery of the diffraction of x-rays in crystals, which Einstein called one of the most beautiful in physics, earned him the 1914 Nobel Prize in physics. The discovery was of dual importance: it allowed the subsequent investigation of x-radiation by means of wavelength determination, and it provided the means for the Braggs' structural analysis of crystals, for which they received the Nobel Prize in 1915. X-ray analysis of crystals, as initially developed by Sir Lawrence Bragg, became the most widely used technique for the investigation of molecular structure, leading to incalculable advances in both inorganic and organic chemistry and in molecular biology. It is employed by hundreds of thousands of researchers around the world.

Laue presented this copy of his paper to Hungarian physicist Theodore von Kármán, who shortly before had published with Max Born the paper "Über Schwingungen der Raumgittern" (1912), in which was set forth the Born-Kármán theory of the specific heat of crystals. This theory assumed that the atoms in crystals were arranged in a three-dimensional lattice structure, an assumption verified experimentally by Laue in the present paper—"it was a great satisfaction to me that shortly after Born and I announced our proof of the concept of the crystal lattice, Max von Laue in Germany and Sir William Bragg in England verified it by means of x-ray photographs of crystals" (Kármán, *The Wind and Beyond*, p. 68). DSB. Norman 1283. Weber, *Pioneers of Science,* pp. 49-50. 38544

## 82. Laue, Max von (1879-1960).

(1) T.L.s. in German with typed and ms. corrections, dated 12.6.54 (June 12, 1954), to Rolf Hosemann (b. 1912), addressed to "Lieber Kollege" (dear colleague). 1-1/3pp., on single sheet with letterhead of the Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin. (2) T.L.s. in German to Hosemann dated 19.7.54 (July 19, 1954). 1 page, on letterhead of the Institut as above. (3) Undated T.L.s. (draft) in German, written in 1954 or later, to an unnamed member of the Stiftenverband für die Deutsche Wissenschaft. 2-1/4pp., on 2 sheets. (4) Printed circular letter in German dated 1.11.53 (November 1, 1953) with von Laue's autograph signature at the foot and Hosemann's name and the date "3.5.1952" filled in by typewriter. 1 sheet, on letterhead of the Institut as above. (5) Printed thank-you note in German dated 9 October 1953, signed in ink by Laue, with a portrait photograph of von Laue (85 x 114 mm.) attached. 4pp. 211 x 149 mm. Together 5 items, comprising the thank-you note and 4 letters on 5 sheets total, all measuring 292 x 211 mm.; all sheets punched for a two-hole binder. Letters creased



FRITZ-HABER-INSTITUT DER MAX-PLANCK-GESELLSCHAFT

BERLIN-DAHLEM, DEN FARADAYWEG 4 – 6 FERNRUF: 76 28 05/04 12.6.54.

Lieber Kollege!

Ich habe mir sehr viel Mühe gegeben, den ~~ersten~~ zweiten Absatz Ihrer Arbeit "Lorentz-invariante Deduktion der Hamiltonschen Mechanik, Maxwellschen Elektrodynamik und Schrödingerschen Wellenmechanik aus der sogenannten allgemeinen Wellengleichung. Klärung des Dualismus Welle-Korpuskel" Ich habe an vielen Stellen Einwendungen, und wenn Sie Sich das Manuskript von Frl. Fritzsche abholen, werden Sie meine Randglossen sehen. Ich hätte eigentlich noch viel mehr machen können.

Was wollen Sie in diesem ~~ersten~~ zweiten Abschnitt? Dass Sie dem Leser die ihm wohlbekannte Mechanik des Massenpunktes in einer eigenen und m.E. höchst unschönen Schreibweise vorsetzen, ist ziemlich überflüssig. S ie wollen auf die Gleichungen (36) und (28) hinaus, von denen bekannt ist, dass sie zu den Hamiltonschen Gleichungen der Mechanik führen. W ozu also das Uebrige? Ob Ihr H eine Komponente eines Vierervektors ist, ist dafür nebensächlich. Eine Energie ist es nur, wenn es von t unabhängig ist. Denn allgemein folgt aus den Hamiltonschen Gleichungen:

$$\frac{dH}{dt} = \frac{\partial H}{\partial t}$$

Nun werden Sie vielleicht sagen, Ihre Gleichung (35b) wäre etwas Neues. Aber gegen diese habe ich starke Bedenken. Denn Ihr p hängt ja selbst durch Gl. 7) mit $E_n$, das Sie später durch H ersetzt haben, zusammen.

Sie berufen Sich auf die Zustimmung von de Broglie. Sind Sie überzeugt, dass er Ihr Manuskript wirklich studiert hat? Er ist als Franzose sehr geneigt, eine unbequeme Diskussion mittels einiger liebenswürdigen Redensarten zu umgehen.

Jedenfalls kann ich Ihr Manuskript, so, wie es vorliegt, nicht in die ZS. f. Physik aufnehmen. Bei der Umarbeitung müsste m.E. schon der Titel, der gar zu viel verspricht, etwas bescheidener gefasst werden.

Bitte nehmen Sie diesen Brief nicht als Unfreundlichkeit. Ich schreibe ihn auch in Ihrem eigenen Interesse.

Bitte werfen! Mit besten Gruss Ihr M. v. Laue

where previously folded, slight soiling and wear, thank-you note a little dust-soiled and browned with thumbtack holes in each corner, but very good. English translations included.

$9500

Max von Laue received the Nobel Prize for physics in 1914 for his discovery of the diffraction of x-rays in crystals, a discovery that Einstein called one of the most beautiful in physics. "Subsequently it was possible to investigate X radiation itself by means of wavelength determination as well as to study the structure of the irradiated material. . . . The new field of X-ray structural analysis that Laue established developed into an important branch of physics and chemistry" (DSB). Laue continued to develop his theory of X-ray interference in the following decades, and did some important work on superconductivity as well. An early supporter of Einstein's theory of relativity, Laue was one of the few members of the Prussian Academy of Sciences to protest Einstein's dismissal from that organization in 1933 following the Nazi rise to power; that same year, Laue also successfully prevented the Academy from admitting Johannes Stark, the pro-Hitler physicist who believed relativity to be a "world-wide Jewish trick." After World War II Laue played an active role in rebuilding German science, founding the German Physical Society and re-establishing both the German Research Association and the Physikalisch-Technische Bundesanstalt. In April 1951, at the age of 71, Laue took over the directorship of the Fritz-Haber-Institut der Max-Planck-Gesellschaft, a post he occupied until his death nine years later.

This collection of materials contains two letters from Laue to Rolf Hosemann, his chief assistant at the Fritz-Haber-Institut. Hosemann had submitted a paper to Laue for review, and in (1), the first of his letters to Hosemann, von Laue critiques it thoroughly:

> I have gone to a lot of trouble with the second section of your work, "Lorentz-invariant deduction of Hamiltonian mechanics, Maxwellian electrodynamics and Schrödinger wave mechanics from the so-called general wave equation. Clarification of the wave-particle dualism." I have objections in many places. . . .
>
> What do you want to do in this second section? The fact that you present the reader the mechanics of the mass point, which are well known to him, in a peculiar and most unpleasant notation, in my opinion, is rather superfluous. You want to begin with Equations (36) and (28), which are known to lead to the Hamiltonian equations of mechanics. What is the rest for? . . .
>
> You refer to de Broglie's agreement. Are you sure that he has actually studied your manuscript? Being French, he has a strong tendency to avoid an uncomfortable discussion by using some pleasing phrases.
>
> In any case, I cannot accept your manuscript as submitted for the Zeitschrift für Physik. In my opinion, the rewriting must rephrase the title, which promised entirely too much, to something more modest. . . .
>
> I have now also read Section III. In this section you state that Section II has already covered the movement of a mass point in a specified electromagnetic field. The reader would be happy to believe that, because of the introduction of your "potential four-vector" $p_e$ was directed to that from the beginning. But these laws of motion do not by any means include all of electrodynamics. . . . The claim you make at the beginning of the work, that you can derive electrodynamics from the relativity principle, completely misses the target.

Hosemann then apparently sent Laue a rewrite of his paper, to which Laue responded in (2):

> I began yesterday to read your manuscript, the boomerang, and must admit that this manuscript makes an infinitely better impression than the previous one. . . . I have made many marginal comments, but they only concern format. I will continue reading, and hope that we will very quickly agree when we next meet. But I hope that the important content of your work will find a form adequate for it.
>
> In order to inform you at once of some of my reservations:
>
> At more than one point in your proof you refer to equations which appear later. I have convinced myself that this is superfluous in all of these cases, and therefore not harmful. But the reader, seeing something like that, immediately expects circular reasoning, as you derive the later equations from the earlier ones. . . .

No. (3), the draft of a letter from Laue to the Stiftenverband für die Deutsche Wissenschaft (Society for the Support of German Science), contains a great deal of information about Hosemann and his work at the Fritz-Haber-Institut, as well as the type of research the Institut was engaged in, and some insight into how the Institut obtained its funding during the 1950s:

> Over the last four years, my chief assistant, Professor R. Hosemann, established an X-ray department at my Institute concerned particularly with study of the structures of non-crystalline substances (e.g., high polymers or colloids). . . . The Institute first worked with fundamental problems of diffraction. For example, the theory of the ideal paracrystal was published (*Z. Physik* 128, 1 & 465 [1950]), as well as the diffraction theory of the lamellar bundle (*Z. Physik* 127, 16 [1950]; *Koll. Z.* 117, 13 [1950]). The monograph, "The statistical character of the fine structure of high-molecular weight and colloidal substances," was published in "On the Structure and Matter of Solids," Springer-Verlag, 1952. . . .
>
> Independent of that, experimental studies initially concerned primarily with fundamental problems were started at this Institute (see, for example, *Die Naturwissenschaften* 41, 440 [1954]). But many of these works are so well completed that it is possible to start studying practical problems (e.g., X-ray interferences in colloidal systems such as latex emulsions, crystal structure studies with the counting tube goniometer, etc.)
>
> Unfortunately, we have not yet been able to realize adequate support for the completion of this work at the Max Planck Society. Given the existing controls, then, we fear that Prof. Hosemann will lose his coworkers, who have worked very intensively and successfully for the last four years in this new and rather difficult field of work. . . .

No. (4) is a printed circular letter addressed to Hosemann, concerning an agreement between the Institut and the Deutschen Forschungshochschule Berlin-Dahlem; no. (5) is a printed thank-you notice with original photograph, apparently sent to all who participated in the October 9, 1953 celebration of Laue's 74th birthday and the 50th anniversary of his receiving the doctorate.

Despite all his researches mentioned in no. (3) above, Laue's correspondent and assistant Hosemann is not mentioned in our reference works on the history of 20th century physics. OCLC and RLIN cite three monographs written or co-written by Hosemann: *Die Erforschung der Struktur hochmolekular und kolloider Stoffe mittels Kleiwinkelstreuung* (1952), mentioned in Laue's letter; *Lichtoptische Herstellung und Diskussion der Faltungsquadrate parakristaller Gitter* (1956); and *Direct Analysis of Diffraction by Matter* (1962). DSB. Weber, *Pioneers of Science,* pp. 49-50. 32972

## 83. Lebert, Hermann (1813-78).

(1) 18 A.Ls.s. to his publisher Jean Baptiste Baillière, Various sizes (the largest 226 x 145 mm.). V.p. (Paris, Zurich, Breslau), August 30, 1850 – May 14, 1870. 33pp. total (excluding integral address leaves). (2) Autograph manuscript autobiography, signed. Breslau, June 7, 1860. 4pp. 212 x 135 mm. With what appears to be a 2-page summary of Lebert's ms. in another hand. (3) Printed prospectus for Lebert's *Traité d'anatomie pathologique générale et spéciale* (1857-61). 4pp. Paris: Baillière, [ca. 1860]. 224 x 142 mm. (4) Verzeichniss der von demselben Verfasser bekannt gemachten grösseren Werke und sonstigen wissenschaftlichen Arbeiten. Apparently an extract from Lebert's *Die Krankheiten des Magens* (Tübingen, 1878), listing Lebert's book and journal publications. [561]-567pp. 238 x 163 mm. (5) Sepia-toned albumin photograph of Lebert, seated, in a photographer's studio. Mounted. 137 x 98 mm. (image size). Letters and ms. creased where previously folded, some foxing to no. (3), no. (4) a bit toned, but a fine collection. $5000

Lebert, a native of Breslau (now Wroclaw, Poland), studied medicine and natural science in Berlin, Zurich,


and in Paris, where his primary teachers were Guillaume Dupuytren and Pierre-Charles-Alexandre Louis. Much of his career was spent in Switzerland, at first in the town of Bex (canton of Vaud), and later in Zurich, where he held the post of professor of clinical medicine from 1853 to 1859. In 1859 Lebert was invited to succeed Friedrich Theodor Frerichs as professor of clinical medicine and director of the hospital at Breslau. In 1879 he returned to Bex where he spent the remainder of his life.

Lebert was one of the first to use the microscope in pathological anatomy. His *Physiologie pathologique* (1845; G-M 543.1) played a significant role in introducing the cellular theory of pathology (anticipating Virchow), and his monumental two-volume *Traite d'anatomie pathologique générale et spéciale* (G-M 2297.1), published in parts between 1857 and 1861, was one of the most comprehensive and important illustrated works on general and special pathology. Lebert was also a noted 19th-century cancer researcher, publishing a book (*Traité pratique des maladies cancereuses,* 1851) and several articles on the subject. He was the author of over 100 books and papers on medical and scientific subjects, most of which are listed in no. (4) above.

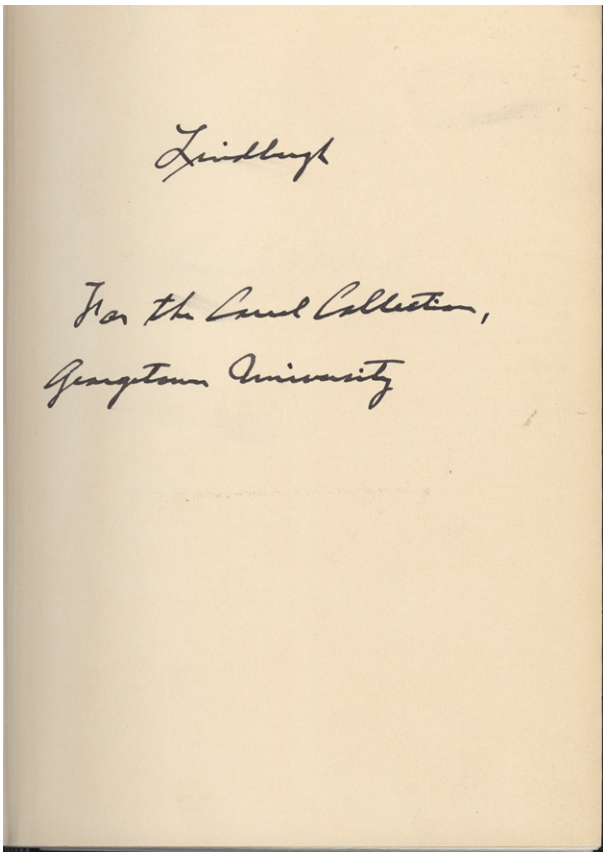
The eighteen letters in no. (1), written to his publisher Jean Baptiste Baillière, cover the twenty-year period between 1850 and 1870, during which time Baillière's publishing firm issued Lebert's work on cancer and his *Traité d'anatomie pathologique générale et spéciale*. Both works are mentioned numerous times in the correspondence, beginning with the first letter, in which Lebert asks Baillière for a brief meeting to discuss "à quel moment nous pouvons commencer l'impression de l'ouvrage sur le cancer et pour causer avec vous sur mon plan d'un ouvrage iconographique d'anatomie pathologique" (at what time we can begin to print the work on cancer, and to chat with you about my plan for an iconographic work on pathological anatomy). Later letters in the correspondence mention the drawings made for the plates of the *Traité* and the correction of proofs; in one of the letters, written on December 30, 1864, Lebert refers to the *Traité* as "one of the best of my works." The letters also contain several requests made by Lebert to his publisher for medical and scientific works, and references by Lebert to his publications in various medical journals. Prominent French and Swiss physicians—Frerichs, Rayer, Guérin, Hippolyte Larrey, Louis—are mentioned in the correspondence.

Accompanying the letters is a brief autobiographical manuscript in Lebert's hand (no. [3]), dated 1860, together with a two-page summary in a different hand. Lebert probably submitted this autobiographical information to Baillière for use in promoting his *Traité.* Some of the information in the manuscript appears in no. (4), Baillière's prospectus for the *Traité,* issued during the publication in parts of the second volume. The prospectus is particularly interesting in that it gives the price per fascicle (15 francs), the publication schedule (one fascicle issued approximately every six weeks) and the composition of each part (30-40 pages, 5 plates). Also accompanying the letters is a fine photograph of Lebert, showing him seated in a photographer's studio against a "natural" background.

Letters, manuscripts and ephemera by and about Lebert are *extraordinarily rare*—neither OCLC nor RLIN cite any libraries containing such materials. Goldschmid, *Entwicklung und Bibliographie der pathologisch-anatomischen Abbildung* (1925), pp. 198-200. Hirsch. 38368

## *Inscribed by Lindbergh*

84. [Lindbergh, Charles A. (1902-74)]. Carrel, Alexis (1873-1944) & Lindbergh. The culture of organs. 8vo. xix, [3], 221, [1]pp. Illustrations. New York: Paul Hoeber, 1938. 235 x 157 mm. Original cloth. Tiny tape-stains on front free endpaper and half-title. *Presentation*




*copy*, signed by Lindbergh on the half-title and inscribed by him on the front free endpaper: "Lindbergh. For the Carrel Collection, Georgetown University." $4750

First Edition. See G-M 858.1. Describes the experimental program for the cultivation of whole organs devised by Carrel and the celebrated aviator. Lindbergh developed a perfusion pump that maintained a sterile, pulsating circulation of fluid through excised organs, and enabled Carrel to keep organs such as the thyroid and kidney alive and functioning. Lindbergh's pump was the forerunner of apparatus now in use in heart surgery, etc. Carrel was awarded the 1912 Nobel Prize for his work on preserving tissues. Copies of this work inscribed by Lindbergh are rare.

In W. Sterling Edward and Peter D. Edwards' biography of Carrel, Lindbergh contributed a preface discussing his own association with Carrel, from which we quote:

> My first meeting with Doctor Carrel took place at the Rockefeller Institute for Medical Research, where he headed the Department of Experimental Surgery. . . .

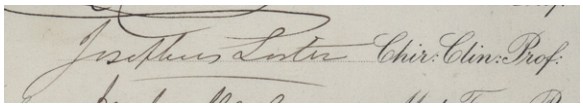
I was introduced to Carrel through a mutual friend, Doctor Paluel Flagg, an anaesthetist. The circumstances give insight to Carrel's character and standing, and to the status of surgery in 1930. They root into a family emergency.

My wife's older sister had developed a seriously defective heart valve as a complication of rheumatic fever. I had asked her doctor why surgery would not be beneficial. He replied that the heart could not be stopped long enough to permit a surgical operation. I asked why an artificial heart could not be used during the operation. He said he didn't know, and showed little interest in the problem. I asked other doctors. To my amazement, none of them could tell me, and none seemed to have much interest until I came to Paluel Flagg. He said that while he could not answer my questions, he had a friend who could—the French surgeon Alexis Carrel.

In his department and during lunch at the Rockefeller Institute, Carrel explained problems of coagulation, hemolysis, and infection. He said he had been trying for years to develop an apparatus similar to an artificial heart, one that would perfuse living organs isolated from the body. He showed me two mechanical devices that had been unsuccessful. I told him I thought I could construct a better perfusion apparatus. He replied that I would be welcome to the facilities of his department in the attempt to do so.

My original objective in working with Carrel was to develop a successful perfusion apparatus as a step toward an artificial heart. My interest in such an apparatus soon became secondary to my interest in Carrel himself and the elements of life he worked with. . . .

I listened to Carrel discuss the causes of aging and the character of time, watched him transfusing blood from one dog to another, designed an experimental centrifuge-head that would let him replace the plasma of blood cells held in suspension, devised a quick method of obtaining serum in large quantities. I spent midnight hours with my microscope in the Department's incubator room studying living cells that had once composed a body. They could be kept alive forever in Carrel's culture flasks. Why, then, did the body they came from have to die? Since every body consisted of trillions of such individually-living cells, why should one think of oneself as an individual? But if man was not an individual, what was he? (Lindbergh, "Alexis Carrel", in Edwards and Edwards, *Alexis Carrel: Visionary Surgeon*



[Springfield, IL: Charles C Thomas, 1974], pp. v-viii).

39811

## 85. [Lister, Joseph (1827-1912).]

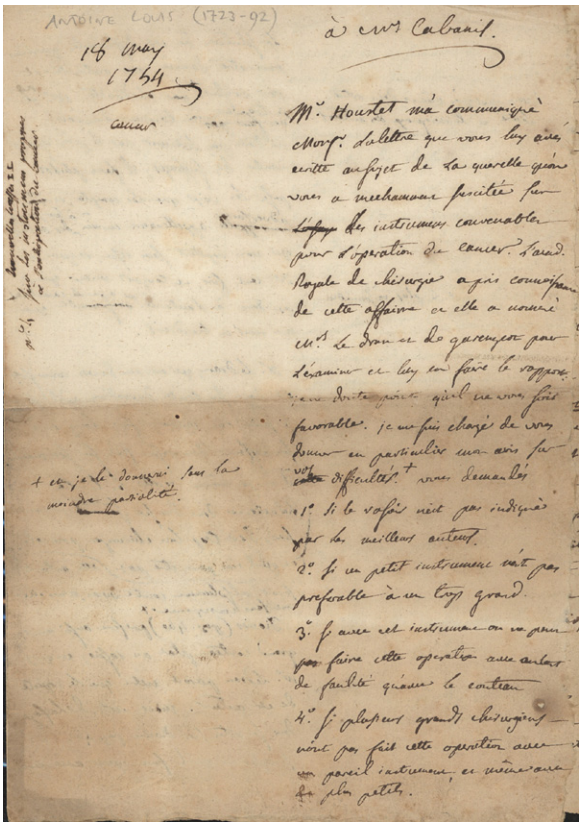
Medical diploma issued on 1 August 1872 by Edinburgh University to William Stirling (1851-1932), signed by Lister and 29 others. 378 x 506 mm. Lithographed, with seal of Edinburgh University. Traces of previous mounting, light dust-soiling, but very good. $1500

The diploma issued to physiologist William Stirling, one of the great teachers of the subject, and author of *Some Apostles of Physiology* (1902; G-M 1576); see also G-M 629 for his prize-winning thesis on electrical stimulation of the skin. The diploma is signed by Joseph Lister as Professor of Clinical Surgery. Among the other notable signers are physician John Hughes Bennett (1812-75), author of the first definite description of leukemia (see G-M 3061); toxicologist Robert Christison (1797-1882; see G-M 2076); physicists Peter Guthrie Tait (1831-1901) and Fleeming Jenkin (1833-85); chemist Alexander Crum Brown (1838-1922); astronomer Charles Piazzi Smyth (1819-1900); oceanographer Charles Wyville Thomson (1830-82); and geologist Archibald Geikie (1835-1924). All but the first two of these are noticed in the DSB. 34413

## 86. Lister, Joseph (1827-1912).

Autograph letter signed to [René] Vallery-Radot. In French. 1p. on Lister's Park Crescent notepaper, envelope with Lister's baronial crown on back flap preserved, both edged in mourning black. Note lightly creased but fine. Portland Place, November 5, 1900. $750

Thank-you note in French to René Vallery-Radot for a copy of his just published *Vie de Pasteur*, the standard biography. Lister has already read some of it—"everyone will be very glad that you have carried out this great task so excellently." Pasteur's papers from the 1860s on microbes provided Lister with the key to the causes of sepsis, and he was always grateful to him. A significant autograph, and a handsome document as well. See G-M 83, note (publication date incorrect, however). 7811

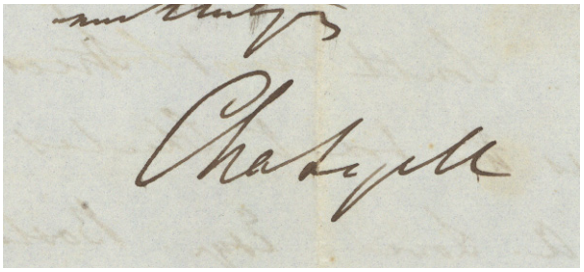


## 87. Louis, Antoine (1723-92).

Autograph draft (probably incomplete) of a letter to Pierre Jean Georges Cabanis (1757-1808). 4pp. N.p., May 18, 1754. 260 x 186 mm. Creased where previously folded, some browning, tiny hole in first leaf not affecting text, otherwise very good. English translation included. $1500

From the pioneer French medical jurisprudence authority (see G-M 1730-31) to a medical colleague, discussing the type and size of cutting instrument appropriate for removal of a cancerous tumor in the breast. Cabanis had been involved in a dispute over whether a smaller instrument, such as a lancet, was preferable to the razor recommended by several authorities for such an operation. The Royal Academy of Surgery had asked Louis to give his opinion on this matter, which he did in the present draft. Louis took Cabanis's side in preferring the smaller instrument, citing the writings of Delahaye, Garangeot and Fayet to back his judgment, while noting the opposing opinions of LeDran and Dionis. "When one tries to understand the reasons and the different procedures expounded in the different methods of operating, one sees that the razor and the large knife are recommended only for cutting off the breast with

one blow. . . .And if you have the memoirs of the Royal Academy of Surgery, vol. 1, page 681 in the quarto edition, you will read a memoir of M. Fayet of a tumor of the breast, you will see that one must have one's fingers in the incision made and the circumference of the tumor in order to judge the depth, the hardness and the way it is attached, in order to detach the tumor more easily. Since the removal of a cancer is a dissection, where each step is based on what one must do after it and it is the only was to precisely remove the whole body of the tumor, then how can one do this dissection with a large knife which will only serve to cut out, if I dare to speak this way, the cancer with one cut." Hirsch. NBG. 32304



## 88. Lyell, Charles ((1797-1875).

A.L.s. to William T. Russell Smith (1812-96). Philadelphia, Oct. 2, 1841. 2pp. plus integral address leaf. 252 x 197 mm. Creased where previously folded, fragment torn from address leaf (not affecting text), small lacuna where seal was broken. $1500

In August 1841 Charles Lyell and his wife, Mary, traveled by steamship to the United States, where he had been invited to deliver the prestigious Lowell Lectures in Boston. The Lyells remained in North America for over a year, touring the United States and Canada from Nova Scotia to the Mississippi valley so that Lyell could study the geology of the continent in detail. During this time Lyell also visited American scientists and gave lectures in various North American cities. After his return to England, Lyell published his *Travels in North America* (1845), "a work unusual among descriptions of America by British travelers in its fairness and insight, and incorporating much discussion of the geology of North America" (DSB).

Though he inherited the title of baronet, Lyell did not inherit significant wealth, and he derived much of his income from royalties from his numerous books. He also received considerable income from his lectures in the United States. According to the letter we are offering here, his lectures were attended by "an audience of 4000."

The Lyell letter we are offering here is to the Scottish-American artist Russell Smith, who furnished the bird's-eye view of Niagara Falls—described by a contemporary newspaper as being "very large and beautiful"—that Lyell used in the Lowell Lectures in October 1841, as well as in other lectures. Lyell had been particularly impressed with Niagara Falls, and collected geological evidence showing that the Niagara gorge had been produced by the gradual recession of the falls toward Lake Erie. The frontispiece to the first volume of his *Travels in North America* is a bird's-eye view of the Falls (possibly by or after the one by Smith) showing both scenic and geological representations of the area.

The letter, written while Lyell and his wife were staying at the U.S. Hotel in Philadelphia, reads as follows:

> My dear Sir
>
> You will have the goodness to deliver the box containing the large picture & section; 2d the smaller sketch & section; 3d the drawings of Mr Bakewell, & lastly my two small, coloured, memorandums (section & plan) in a box to Mr. Kirk B. Wells, at the house of J. & Y. Ralston & Co., 4 South Front Street Philadelphia. Address the box to Charles Lyell Esq. care of John A. Lowell Esq. Boston Mass.
>
> When I pass through this city on my return some nine or ten days hence, I will in case of my not having time to see you, pay the 25 dollars to Mr. Jos. Sill of Chesnut Street, unless you direct me to pay it to some other.
>
> Let me find a letter at this Hotel on my return that I may know immediately on my arrival whether the box has been delivered. If you should wish to explain any thing to me personally, I will post a letter to you on my arrival to give you an opportunity of seeing me that morning if I should find that I was not to start too early.
>
> After your sketch I feel great confidence in your producing an effective illustration & you will share with me the satisfaction of its being seen by an audience of 4000 as each lecture is repeated in the theatre.
>
> Hoping to renew our intercourse in future [...] am most truly yrs.
>
> Cha. Lyell

"Mr Bakewell" refers to the son of British geologist Robert Bakewell (1768-1843), author of the widely read *Introduction to Geology* (1813 and later eds.). In the

"Description of Plates and Maps" found in Vol. II of the *Travels in North America,* Lyell notes that

> Mr. Bakewell, Jun., son of the distinguished geologist of that name, gave me his original coloured sketches of the Niagara district in 1841. . . . When I visited the Falls of Niagara in 1841, I conceived the idea of combining Mr. Bakewell's pictorial view with a correct geological representation of the rocks as determined by Mr. Hall, who accompanied me to the Falls (*Travels in North America* [1845], Vol. II, p. 235).

Russell Smith, a native of Glasgow, emigrated with his family to Pennsylvania in 1819. He studied painting under James Reid Lambdin, and made a name for himself as a scientific illustrator, theatrical designer and painter of landscapes in the style of the Hudson River School. He was responsible for preparing the illustrations for the geological survey of Pennsylvania. Wilson, *Lyell in America*, p. 90. 40113

89. Martius, Karl F. P. von (1794-1868).

A.L.s. in German to an unnamed correspondent. Munich, July 17, 1848. 4pp. 262 x 218 mm. Creased along folds, a few small tears along creases, a few words blurred but still legible, traces of former mounting in left margin of first leaf. Transcription of the text, together with English translation, provided. $950

From the German botanist Martius, author of the 15-volume *Flora Brasiliensis* (1840-1906; continued after Martius's death by Eichler, Urban and others) and other important works on Brazilian flora, fauna and ethnology; he is also known for having discovered the cause of the devastating European potato blight of the 1830s and 1840s. In 1817 Martius formed part of the Austrian scientific expedition to Brazil, an event that laid the foundations of his future success:

> . . . as a result of the expedition [Martius] was appointed a member of the Royal Bavarian Academy and assistant conservator of the botanic garden. In 1826, when King Ludwig I had transferred Landshut University to Munich, Martius was appointed professor of botany, and in 1832, when Schrank retired, he was named principal conservator of the botanic garden, institute, and collections (DSB).

In the present letter, written to a young Protestant clergyman being considered as a tutor to Martius's 10-year-old son, Martius discusses the spiritual and educational requirements of the post, and alludes to the political unrest that was affecting the German states and other parts of Europe at the time. 26725


## *A.L.s. from America's First Woman Astronomer, Together with Signed Carte-de-Visite*

90. Mitchell, Maria (1818-89).

Important A.L.s. to an unidentified correspondent, dated from Boston, Feb. 4, [18]79. 4pp. 204 x 126 mm. Lightly creased where previously folded, slight soiling, traces of former mounting, but very good. With: Carte-de-visite *signed by Mitchell*, with mounted sepia-toned photograph (head and shoulders) on recto and photographer's name and address on the verso. Boston, n.d. 102 x 62 mm. Fine. Together 2 items. $3000

Outstanding letter, labeled by Mitchell "Confidential" focusing on the scientific activities and ambitions of America's first female astronomer, who gained international fame in 1847 by winning a gold medal offered by the King of Denmark for discovery of a previously unknown telescopic comet (i.e., one invisible to the naked eye). From 1847 to 1865 Mitchell worked for the U.S. Nautical Almanac Office computing the ephemerides of the planet Venus, and in 1865 she was

named professor of astronomy and director of the observatory at the newly-founded Vassar College, "positions that she filled with great distinction until her death" (DSB).

In the present letter, written to a colleague who was a member of the National Academy of Sciences, she discusses one of her scientific papers, which she had originally planned to read before that organization:

> I sent your note (which contained no private matter) to Prof. [John Huntington Crane] Coffin [mathematician & meteorologist, 1815-90] of Navy Dept.—and got no answer—so I did not go to the meeting of the Nat. Acad. and read my paper. The paper I desired to read at your Acad. I subsequently read at our Am. Acad. [i.e., the American Academy of Arts and Sciences, of which she was the first female member] in Boston, and have just sent it to Supdt.[i.e. Superintendent] as a Report. . . . Measuring my paper at its cost to me in labor I still cling to it lovingly and would still like, if entirely proper and in good taste to read it at your Acad.—At all events I want to have you, Ferell [?meteorologist William Ferrel (1817-91)] and Schott [probably geodesist Charles Anthony Schott (1826-1901)] hear it and discuss it a little. . . .

Mitchell's paper made a favorable impression on [Oliver] Wolcott Gibbs (1822-1908), Rumford professor of chemistry at Harvard University and a founding member of the National Academy of Sciences, best known for his contributions to analytic and inorganic chemistry.

> The members of the Acad. seemed to like it [i.e., Mitchell's paper] and Prof. Wol. Gibbs said he regretted that I had not read it at the Nat. Acad.—moreover he very kindly said he meant to exert himself to have me made a member of that Institution. I told him that I was very sure you were of the same mind and purpose. Of course I would like this very much, and it is the motive of this note (which I need not mind with an old friend) to remind you of it. Of course I have never said—nor can say a word to Prof. Gibbs about it again. It has doubtless passed from his mind but not from yours.

Mitchell headed her letter "Confidential," perhaps because of the sensitive nature of her request to be admitted as the first female member of the National Academy of Sciences.

We are offering with this letter Mitchell's carte-de-visite, with photograph showing her in middle age. Of obvious rarity, this may be the only example of her carte-de-visite available on the market today. DSB, DAB (Mitchell & Gibbs). Kass-Simon & Farnes, *Women of Science*, pp. 75-80. Debus for Coffin, Ferrel & Schott. 32507

## 91. [Mivart, St. George Jackson (1827-1900)].

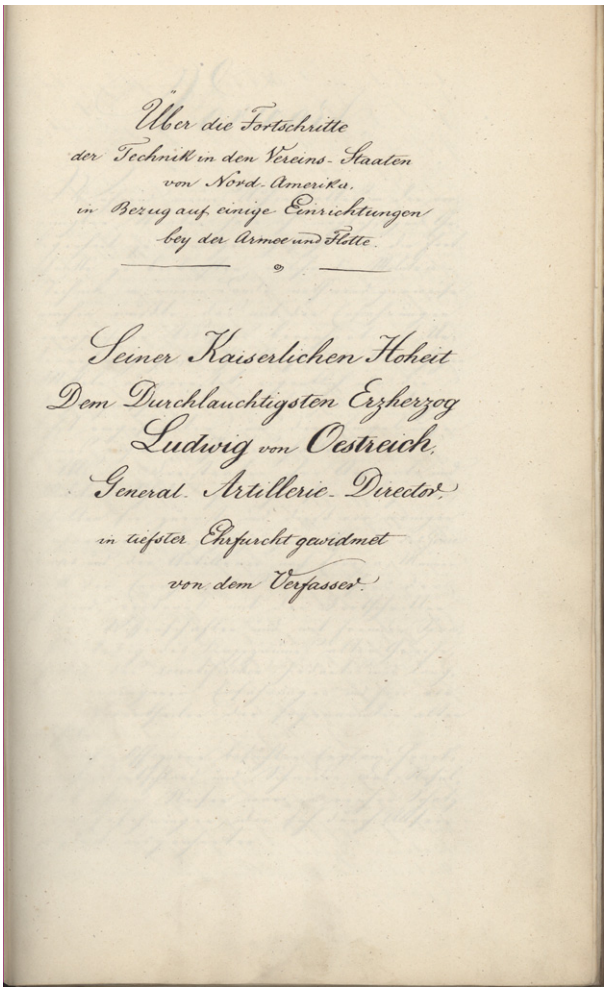
Paley, Frederick Apthorp (1815-88). Autograph manuscript signed, consisting of a draft of Paley's review of Mivart's *Lessons from Nature* (1876). N.p., n.d. [1876]. 7pp. 235 x 184 mm. Minor foxing, small rust-stain from paper clip, edges a little frayed. $950

The autograph manuscript draft of a review of Mivart's *Lessons from Nature as Manifested in Mind and Matter* (London: Murray, 1876) written for the *British Quarterly* by Frederick Apthorp Paley. Paley, a classical scholar and (like Mivart) a Catholic, was the grandson of William Paley (1743-1805), author of the influential *Natural Theology* (1802), a work that attempted to prove the existence of God from the evidence of the beauty and order of the natural world. Frederick Paley's anti-Darwinian views are evident throughout the review.

The British scientist St. George Mivart studied under Huxley and made important contributions to biological research, particularly with regard to the anatomy of insectivorous and carnivorous mammals. Mivart was a critic of Darwinian theory: he acknowledged the operation of natural selection in the "natural" world, but his strong Catholic faith prevented him from accepting that the human intellect was also a product of evolutionary forces. He expounded these views in several works, the best known being *On the Genesis of Species* (1871). Darwin of course never accepted Mivart's insistence on the fundamental difference between human and animal natures; however, he did take Mivart's other criticisms seriously, in particular Mivart's claim that natural selection, as described in the *Origin of Species* (1859), failed to adequately explain the incipient stages of useful structures. Darwin addressed Mivart's criticism effectively in later editions of the *Origin*. 40170

## 92. Möring, Karl (1810-70).

Über die Fortschritte der Technik in den Vereins-Staaten von Nord-Amerika in Bezug auf einige Einrichtungen bei der Armee und Flotte [On technological progress in the United States of North America with regard to some mechanisms in the army and navy]. Manuscript signed (probably autograph), in German. 135 numbered pages, 12 beautifully executed and finely detailed folding watercolor and ink paintings each containing several captioned illustrations; mostly signed by Möring. 1844-45. 397 x 242 mm. Cloth c. 1845, spine a bit worn and faded.


Über die Fortschritte
der Technik in den Vereins-Staaten
von Nord-Amerika,
in Bezug auf einige Einrichtungen
bey der Armee und Flotte.

Seiner Kaiserlichen Hoheit
Dem Durchlauchtigsten Erzherzog
Ludwig von Oestreich,
General-Artillerie-Director,
in tiefster Ehrfurcht gewidmet
von dem Verfasser.

Light dust-soiling at edges, minor marginal tear in first drawing, otherwise fine. $25,000

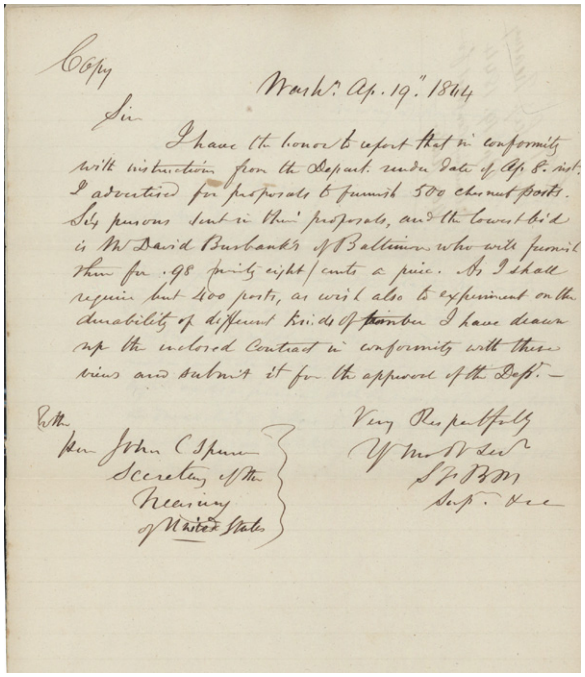
According to a note in the author's hand on the flyleaf, this is one of two copies of this extraordinary manuscript created by the author. The other, which Möring donated to Archduke Ludwig of Austria, is now in Austria's Kriegsarchiv. Karl Möring (his signature appears as "Carl Moering" on p. 135) was an Austrian lieutenant field marshal, diplomat and journalist who played a significant role in the Revolution of 1848 as it played out in the Habsburg Empire. An 1829 graduate of the Ingenieur-Akademie in Vienna, Möring was a member of the Austrian army's engineering corps, participating in military building projects in Milan, Split, Venice and Vienna; he also took part in the Austrian invasion of Syria. During this time he became increasingly disenchanted with the Austrian Empire's corrupt and reactionary regime, headed *de facto* by Prince Metternich, and risked the disapproval of his superiors by expressing his liberal ideas on the political, social and economic questions of his day. In 1841-43 Möring was sent on a tour of Western Europe and North America in order to learn about technological advances in these regions. His observations of the technological innovations he saw while visiting American military bases and arms factories are recorded in the present manuscript; they were also published in 1848 under the title *Armee und Flotte der Vereins-Staaten bezüglich einiger technishcen Einrichtungen* (Vienna: Tendler). This work must have been published in a very small edition as no copies appear in the online databases of OCLC and RLIN. A search of the Austrian, German and Swiss libraries included in the Karlsruher Virtueller Katalog (www.ubka.uni-karlsruhe.de/hylib/en/kvk.html) shows only two listings: the Oesterreichische Landesbibliotheken and the Union Catalog of Northern Germany (GBV).

During the 1848 revolution in Vienna, Möring wrote several pamphlets under the pseudonym "Cameo," and published his best-known work, the two-volume *Sybillinische Bücher aus Oesterreich* (1848), in which he attacked the Metternich government and called for the formation of a new Austria. He also served briefly as a delegate to the Frankfurt national assembly. After the collapse of the revolution and the restoration of the monarchy, Möring continued to serve in the army engineering corps. In 1868, two years before his death, he was appointed a governor of Trieste.

The remarkable large colored paintings in Möring's manuscript each contain several detailed illustrations, most with captions, increasing the actual number of illustrations in this work to more than sixty. According to Möring's forward to his manuscript, most of the drawings were made on site. Five of the drawings depict innovations made by the American navy (Ericsson's steam engine and ship's propeller, W. W. Hunter's steam frigate "Union," etc.), and the remaining seven show technological improvements made by the American army. *Neue deutsche Biographie.* 39530

## 93. Morse, Samuel F. B. (1791-1872).

Group of documents relating to Morse's construction of the first electromagnetic telegraph line, as follows: (1) Spencer, John C. (1788-1855). L.s. from Spencer, secretary of the Treasury, to Morse. [Washington, DC], April 8, 1844. 1 page, plus integral leaf bearing Morse's autograph docketing on the verso: "Approval of / Secretary to proposals / for obtaining chesnut [sic] / posts to Baltimore & drawing / wire from pipe. — / April 8, 1844." 255 x 203 mm. (2) Morse. A.L. to Spencer, signed with Morse's initials "SFBM," marked "Copy" in Morse's hand



Copy

Washn. Apl. 19th 1844

Sir

I have the honor to report that in conformity with instruction from the Depart. under date of Apl 8. inst. I advertised for proposals to furnish 500 chesnut posts. Six persons sent in their proposals, and the lowest bid is Mr David Burbank of Baltimore who will furnish them for .98 [ninety eight] cents a piece. As I shall require but 400 posts, as will also to experiment on the durability of different kinds of timber I have drawn up the inclosed Contract in conformity with these views and submit it for the approval of the Dept.—

Very Respectfully
Your Obt Servt
S F B Morse
Supt. T. Line

Hon John C Spencer
Secretary of the
Treasury
of United States

in the upper left corner. Washington, D.C., April 19, 1844. 1 page. Docketed on verso in Morse's hand: "Copy / To the Sec'y Treasury / Apr. 19, 1844 / Submitting contract for / 400 posts." 331 x 202 mm. (3) Spencer. L.s. from Spencer to Morse. [Washington, DC], April 22, 1844. 1 page, plus integral leaf bearing Morse's autograph docketing on the verso: "Instructions / Sec'y of Treasury / Approval of Contract / with David Burbank / for Posts for Telegraph." 255 x 203 mm. (4) Burbank, David. Autograph document signed, headed "Sales of old Lead pipe on a/c of Professor S. F. B. Morse." Baltimore, October 11, 1844. 1 page. Docketed on verso: "Voucher no. 770. / D. Burbank / nett proceeds of sales / of Lead pipe." 167 x 196 mm.

$25,000

Samuel F. B. Morse became attracted to the study of electricity while attending Yale College, where he heard lectures by Jeremiah Day and Benjamin Silliman. Although he at first pursued a career as an artist, Morse maintained his interest in electricity and electrical machines. During a trip to Europe in 1830, he observed the French optical telegraph, and conceived the idea of transmitting messages by electric spark. On the return voyage aboard the ship Sully in October and November 1832, Morse designed his first telegraph, using a simple code of dots and dashes that would later evolve into the Morse code. He built a prototype device in 1835, and in 1837, after going into partnership with Leonard Gale and Alfred Vail (see no. 208) , he took out his first patent.

On March 3, 1843, nearly twelve years after Morse first conceived the idea for his electric telegraph, Congress approved a bill appropriating $30,000 for the construction of a test telegraph line between Washington, DC, and Baltimore. The telegraph appropriation was administered by Treasury Secretary John C. Spencer, with Morse, as the newly appointed superintendent of United States Telegraphs, acting as general contractor. Construction of the line began later that year. Morse's original plan had called for laying the telegraph wires underground in lead pipes, in accordance with a method proposed by the British engineer Charles Wheatstone, a co-inventor of the telegraph. However, after spending a large portion of his budget on wire and lead pipe, Morse found that the underground method would not work: the wires were not properly insulated, and had a tendency to ground out. At this low point in the project, Morse's partner Alfred Vail read in a British journal of an alternative method devised by Wheatstone, that of stringing the wire above ground on poles. Vail persuaded Morse to adopt this plan, and Morse began ordering poles in February 1844. The new method proved to be quite satisfactory: construction of the overhead lines was completed in May, and on May 24, 1844, Morse telegraphed his famous message: "What hath God wrought!"

On April 8, 1844—six and one-half weeks before the telegraph was completed—Treasury Secretary Spencer sent Morse no. (1) above, in which he stated that

> the Department is gratified to learn by your report of the 6th Instant of the successful result of the plan adopted, of suspending the conductors for the Electromagnetic Telegraph above ground on Posts

and granted Morse permission to install telegraph poles between the town of Bettsville, Maryland, and Baltimore:

> authority is accordingly given you to invite proposals through the public prints for the supply of Five hundred chesnut [sic] posts, and to contract for the same with the lowest bidder. Permission is also given as proposed by you, to withdraw from the leaden pipe on hand sufficient wire to make the connection between Bettsville and Baltimore.

No. (2) is an autograph copy, made for his own records, of Morse's reply of April 19:

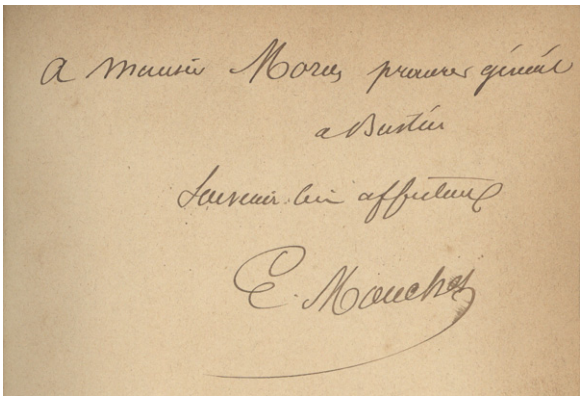
> I have the honor to report that in conformity with instruction from the Depart. under date of Apr. 8 inst. I advertised for proposals to furnish 500 chesnut [sic] posts. Six persons sent in their

proposals, and the lowest bid is Mr. David Burbank's of Baltimore who will furnish them for .98 (ninety-eight) cents a piece. As I shall require but 400 posts, [and] wish also to experiment on the durability of different kinds of timber I have drawn up the enclosed contract in conformity with these views and submit it for the approval of the Dept.

On April 22, Spencer responded with no. (3):

> It appearing by your letter of the 19th Instant that Mr. David Burbank's bid is the lowest under the proposals invited by you for furnishing Five hundred Chesnut [sic] posts for the use of the Electromagnetic Telegraph, you are authorized to contract with Mr. Burbank for supplying Four hundred posts (which number you state will be sufficient) at the rate of ninety eight cents a piece. With the view, as state, of testing the durability of different kinds of timber, there is no objection to you substituting seventy five posts of other kinds of wood in the place of that number of Chesnut [sic] wood.

Burbank evidently proved to be a useful connection: no. (4), the last document in this collection, is his itemized record of the sale, on Morse's account, of some of the defective lead pipe. The sales were made in August and September 1844; the amount realized was $539.68. *Origins of Cyberspace* 178. 39141



## 94. Mouchez, Ernest (1821-92).

La photographie astronomique à l'Observatoire de Paris et la carte du ciel. Extracted in part from the Bureau des Longitudes' *Annuaire pour l'an 1887*. 8vo. 107, [1]pp. 7 plates, including 4 with original photographs tipped to mounts, each with printed tissue guard. Paris: Gauthier-Villars, 1887. 188 x 121 mm. Marbled boards c. 1887, rebacked. Paper evenly toned, some light foxing in the plate leaves, otherwise very good. *Presentation copy,* inscribed by the author on the front flyleaf: "A Monsieur Moru, procurer général a […], Souvenir bien affectueux, E. Mouchez." $5750

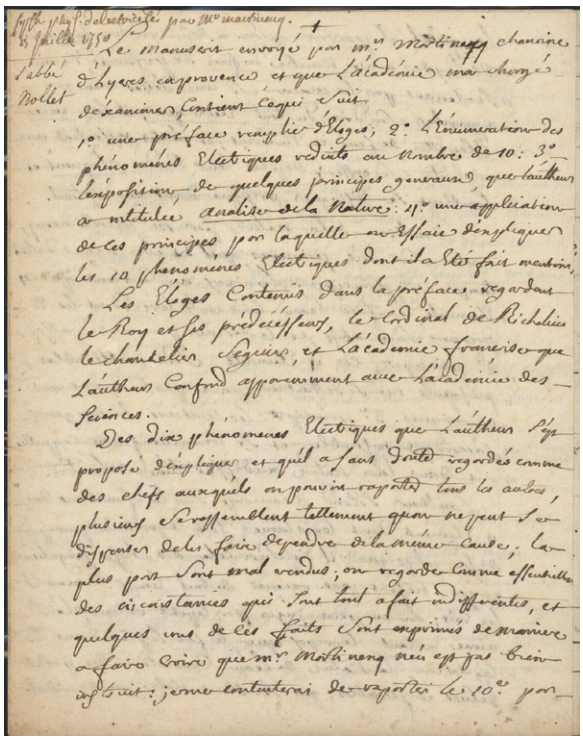
First Edition. In 1880, with the appearance of gelatin-silver bromide plates, "whole programs of astronomical photography were launched, with real scientific vigor and on a scale appropriate to the potential of the photographic medium. Heavenly bodies—stars, galaxies—are visible only by virtue of their emission of light, which can be faithfully recorded on a photographic plate, beyond even the capacity of the human eye. . . . From that moment the 'known' universe was no longer defined by limits of human vision, and, since light is only a small part of the totality of electromagnetic radiation, these limits were pushed further and further back as different wavelengths of light were discovered" (Frizel, p. 278).

In 1884 Paul and Prosper Henry, astronomers at the Paris Observatory, adopted photography as a means of augmenting their ability to record stars of the third degree, which give off very little light. They had a special lens made for the purpose, which they used in conjunction with equatorial and refracting telescopes, the movements of which exactly compensate for the earth's rotation in order to prevent any blurring or deformation of the star image during the necessarily long exposure times. In 1887 Rear-Admiral Ernest Mouchez, an astronomer and cartographer, launched a plan to compile a photographic map of the sky, enlisting the help of over a dozen observatories using the Henry's photographic telescope. The present work describes this plan; it includes four striking original photographs of the moon, Saturn, Jupiter and the Hercules Cluster. Mouchez, who became director of the Paris Observatory in 1888, expected that a complete photographic star map would be produced by 1891; however, the project still remains incomplete and may never be realized. Frizel, ed., *A New History of Photography*, pp. 278-79; illustrating one of the plates from this book on p. 273. 38349

## 95. Nollet, Jean-Antoine, *Abbé* (1700-1770).

Autograph manuscript signed. Paris, July 13, 1750. 6-1/2pp., written on 2 half sheets folded to make 4 leaves (inner sheet made up of 2 quarter sheets pasted together). Creased horizontally where previously folded, negligible offsetting, otherwise fine. $7500

Nollet trained for the priesthood, but abandoned theology for science shortly after being ordained. He became famous in the 1730s for his *cours de physique*, a



series of scientific demonstrations performed on some 350 different instruments, constructed for the most part by himself. "These were not mere shows, as one sees from their expanded syllabus, the famous *Leçons de physique,* which appeared in six volumes between 1743 and 1748 and was often reprinted. The presentations are lively, comprehensive and up-to-date, with full directions for realizing the effects under study and excellent illustrations of apparatus" (DSB). In 1739 Nollet entered the Academy of Sciences (where he would become one of its leading members), and a few years later he was appointed to the University of Paris's first professorship of experimental physics. In 1845 he developed a theory of electrical attraction and repulsion that supposed the existence of a continuous flow of electrical matter between charged bodies. Nollet's theory at first gained wide acceptance, but met its nemesis in 1852 with the publication of the French translation of Franklin's *Experiments and Observations on Electricity*. Franklin and Nollet found themselves on opposite sides of current debate about the nature of electricity, with Franklin supporting action at a distance and two qualitatively opposing types of electricity, and Nollet advocating mechanical action and a single type of electric fluid. Although Nollet's theory was eventually abandoned, the arguments between the two factions ended up strengthening Franklinian theory: "Under prodding from Paris the Philadelphia system was progressively refined into classical electrostatics. In particular, the need to come to terms with Nollet colored the reforms of Aepinus (1759); and Nollet himself, by spreading the dualistic theory of Robert Symmer in Italy, set in train developments that culminated in the invention of the electrophorus (1775), which in turn forced the excision of the last vestiges of the traditional theories (the 'electrical atmospheres') from Franklin's system" (DSB).

The present manuscript is a lengthy analysis of a manuscript treatise on electricity submitted to the Academy of Sciences by one M. Martinenq of Hyers in Provence. Martinenq's treatise was based on the following three principles: (1) the existence of only four elements (air, fire, water and earth); (2) the unchangeable nature of these elements, which cannot be altered by chemical means; and (3) the existence of affinities between like elements that would allow, for example, the "fire" in one object to communicate with the "fire" in another. It was largely on the basis of this last principle that Martinenq proposed to provide explanations for ten electrical phenomena; however, according to Nollet's critique,

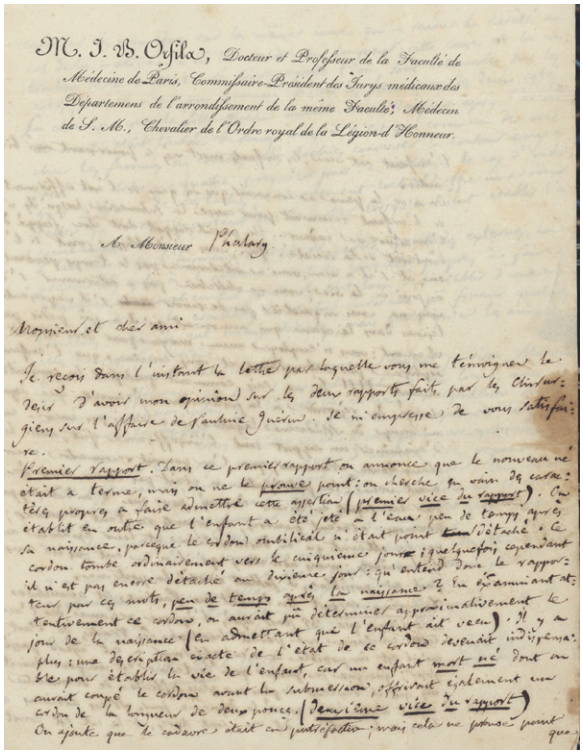
> several [of these phenomena] resemble each other so much that one cannot help assigning them to the same cause; the majority are badly expressed; the author believes certain circumstances to be essential when in fact they are immaterial, and certain of these facts are so expressed as to make one believe that Mr. Martinenq has not been well instructed in this subject.

In the course of debunking Martinenq's system, Nollet discusses electrical phenomena such as friction, the attraction between electrified bodies, the generation of sparks and noise, and brush discharge. He ended by recommending that the Academy of Sciences not publish Martinenq's treatise, since "quant aux phenomènes électriques, il m'a paru que l'auteur n'etait pas suffisamment au fait de la matière" (as for electrical phenomena, it seems to me that the author is not sufficiently grounded in the matter). 38302

## *From a Pioneer in Forensic Medicine*

### 96. Orfila, Mathieu Joseph Bonaventure (1787-1853).

(1) A.L.s. to M. Lemott Phalary Jr., dated 22 April 1824. 3pp. plus address, on Orfila's printed letterhead. 248 x 205 mm. Creased where previously folded, minor staining, small chip where seal was broken slightly affecting one word, but very good. (2) 49 signatures, on 3ff., of persons who visited Orfila on Jan. 1, 1853. Explanation note on first page. 6 leaves total (3


M. J. B. Orfila, Docteur et Professeur de la Faculté de Médecine de Paris, Commissaire-Président des Jurys médicaux des Départemens de l'arrondissement de la même Faculté; Médecin de S. M., Chevalier de l'Ordre royal de la Légion-d'Honneur.

A Monsieur Pinlary

Monsieur et cher ami

Je reçois dans l'instant la lettre par laquelle vous me témoignez le désir d'avoir mon opinion sur les deux rapports faits par les Chirurgiens sur l'affaire de Pauline Guerin. Je m'empresse de vous satisfaire.

Premier rapport. Dans ce premier rapport on annonce que le nouveau né était à terme, mais on ne le prouve point: on cherche en vain de constater, par des preuves, à faire admettre cette assertion (première vice du rapport). On établit en outre que l'enfant a été jeté à l'eau peu de temps après sa naissance, parceque le cordon ombilical n'était point détaché. Ce cordon tombe ordinairement vers le cinquième jour; quelquefois cependant il n'est pas encore détaché au neuvième jour: qu'entend donc le rapporteur par ces mots, peu de temps après la naissance? En examinant attentivement ce cordon, on aurait pu déterminer approximativement le jour de la naissance (en admettant que l'enfant ait vécu). Il y a plus: une dégénération cystée de l'état de ce cordon devenait indispensable pour établir le vice de l'enfant, car un enfant mort né doit en avoir coupé le cordon avant la putréfaction, offrant également une ouverture de la longueur de deux pouces. (Deuxième vice du rapport) On ajoute que le cadavre était en putréfaction; mais cela ne pouvait pas

blank), 201 x 160 mm. Very good apart from some light staining and soiling. Translation of letter included. $1250

An important and extremely detailed letter from one of the founders of modern legal medicine, rendering his opinion in the case of one Pauline Guerin, who had been accused of drowning her newborn infant. The crucial question in this case was whether Guerin's infant had been born alive or dead; however, this had not been satisfactorily answered in the two reports prepared by the investigative surgeons, whom Orfila here lambastes for their carelessness and inability to obtain any useful data.

> It is difficult to conceive that the gentlemen of the profession affirm that the cause of the child's death was drowning, when they haven't opened the body. What? You don't establish whether or not the child lived, and if it lived, you do not determine the length of time the child enjoyed life; you do not attempt to find out if it could have lived; you do not trouble yourself to know whether or not there are any lesions of the skull which indicate that the child could have died during the delivery; you employ no means to reassure yourself that there was asphyxiation by submersion and you conclude that the child was drowned while alive! . . . [In the second report, the surgeons] establish that Pauline gave birth and the visit did not take place until 35 days after the presumed time of delivery. This conclusion seems rash to me. The Masters of the art are of the opinion that it is impossible to affirm anything in this matter past the 10th day; although I feel that this is a little limiting, I am of the opinion that it becomes more and more difficult to judge whether the delivery took place past the 10th day. . . . To summarize my opinion of the second report, I would say, sir, that I would not affirm that the delivery took place, nor would I state that it did not take place. I will only add that the report as it stands is far from proving the fact.

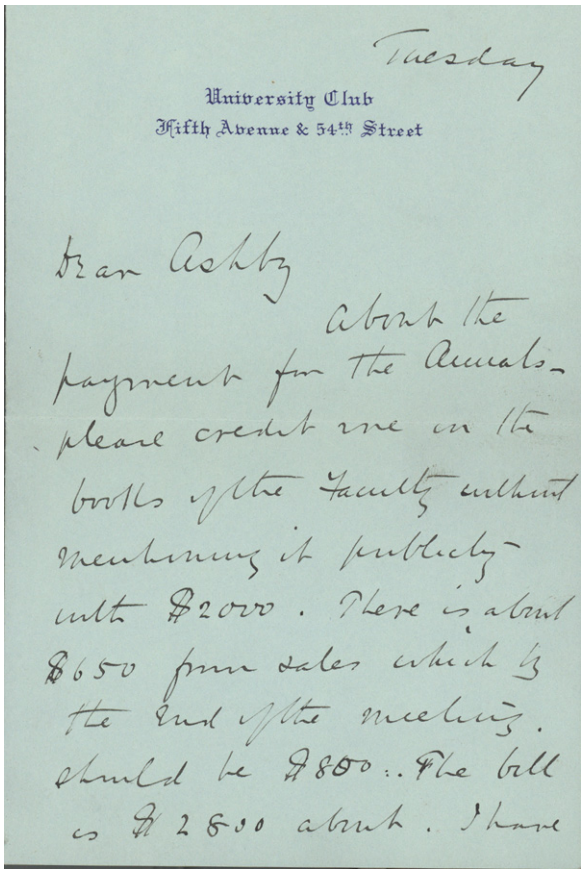
Orfila was the leading medico-legal expert of his time, the author of important works on toxicology (1814-15; G-M 2072) and forensic medicine (1821), and this letter shows him at the height of his powers.

Included with the above letter is a 3-page set of signatures, including those of important medical figures such as Cazenave, Delpech, Tardieu, Ricord, Labarraque, Jobert de Lamballe, etc. According to the explanatory note, "these few leaves, kept by Dr. Orfila's concierge, were used to hold the signatures of people who visited him on January 1, 1853. There are 49 signatures among which are those of several famous people." Perhaps a few of Orfila's distinguished visitors were consulting him on medico-legal problems like the Guerin case. NBG. Nemec, *Highlights in Medico-Legal Relations,* 358. 32305

## 97. Osler, William (1849-1919).

A.L.s. to [Dr. Thomas A.] Ashby (1848-1916), on stationery of the University Club [New York], with cover postmarked Apr. 26, 1904. 3 pp., written on sheet folded to 174 x 112 mm. Creased where folded, cover a little soiled. Very good. $3000

Letter regarding Osler's financial support of the publication of Eugene F. Cordell's *Medical Annals of Maryland* (1903), published by the Maryland Medical and Chirurgical Faculty in commemoration of its 100th anniversary. In 1897-98 Osler sent circulars to members of the medical profession asking for $2 subscriptions to finance the production of the book, one of his purposes being "to supply a scholarly physician in Baltimore [Cordell], who was in needy circumstances, with a literary task he was well fitted to accomplish" (Cushing, p. 465). However, subscriptions were few and the book's expenses heavy, and Osler ended up subsidizing its publication in the amount of $2000—upwards of $50,000 in today's money. Elsewhere (p. 473) Cushing states that "there is no written record" of Osler's contribution; however, our letter proves him mistaken: "About the payment for the Annals—please credit me on the books of the Faculty


Tuesday

University Club
Fifth Avenue & 54th Street

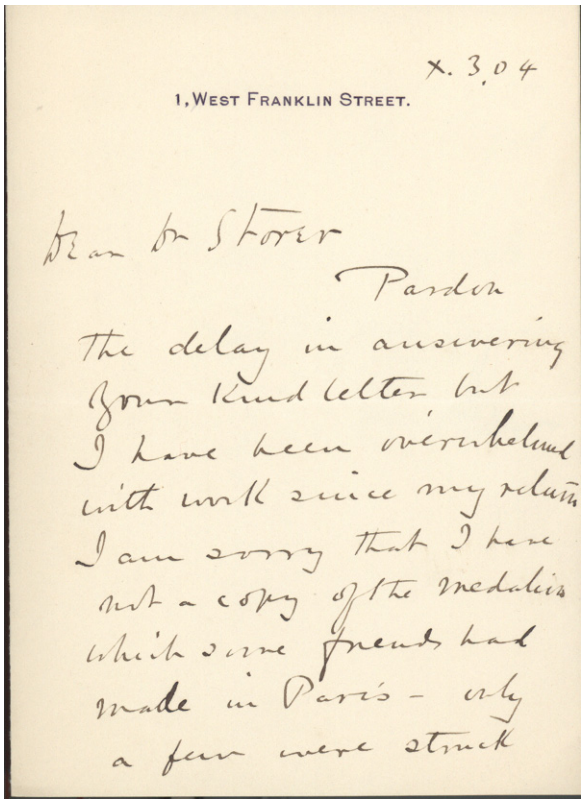
Dear Ashby

About the payment for the Annals— please credit me on the books of the Faculty without mentioning it publicly— with $2000. There is about $650 from sales which by the end of the meeting should be $800. The bill is $2800 about. I have

without mentioning it publicly with $2000. . . . I intended all along when I urged that no expense be spared to make up any deficit. Say as little about it as possible." Dr. Thomas A. Ashby, the recipient of this letter, was professor of the diseases of women at the University of Maryland; see DAMB (Kelly & Burrage). 30422

## 98. Osler, William (1849-1919).

A.L.s. to [Horatio] Storer (1830-1922), dated X.3.04 [i.e., October 3, 1904], on stationery engraved with Osler's 1, West Franklin Street address. [Baltimore], 1904. 2 pp., on sheet folded to 161 x 116 mm. Creased where folded, but very good. $2250


X. 3. 04

1, West Franklin Street.

Dear Dr Storer

Pardon the delay in answering your kind letter, but I have been overwhelmed with work since my return. I am sorry that I have not a copy of the medalion which some friends had made in Paris— only a few were struck

Letter to Storer, the medical numismatist and author of *Medicina in nummis* (G-M 6633). "Pardon the delay in answering your kind letter, but I have been overwhelmed with work since my return. I am sorry that I have not a copy of the medalion [sic] which some friends had make in Paris—only a few were struck off. Perhaps next year I may be able to get you one." The "medalion" Osler referred to was certainly the famous Vernon Plaque, commissioned by Henry Barton Jacobs in 1903 from Frédéric C. V. de Vernon, France's premier medallist. See Cushing, *Life of Osler*, p. 611. DAMB (Kelly & Burrage) re Storer. 30419

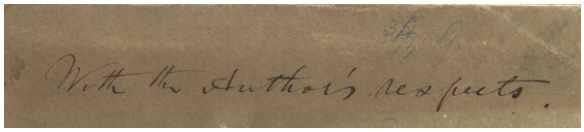
## 99. Owen, Richard (1804-92).

Autograph letter signed to Mr. Barlow. [London] Coll. Chir. [i.e., College of Surgeons], Dec. 9, 1851. 1 page plus integral blank. 182 x 116 mm. $650

Owen thanks his correspondent for procuring a ticket for his wife and son to attend "the coveted lectures of Faraday"—most probably the Royal Institution's annual Children's Christmas Lecture, founded by Michael Faraday (1791-1867) in 1826 and held there every year since (except during World War II). The letter reads as follows:

> Accept my best thanks for the Friday evening's ticket, and add to them those of Mrs. Owen & William for the favor of the entré you have kindly granted them to the coveted Lectures of Faraday. & believe me ever your's Rd. Owen.

40169



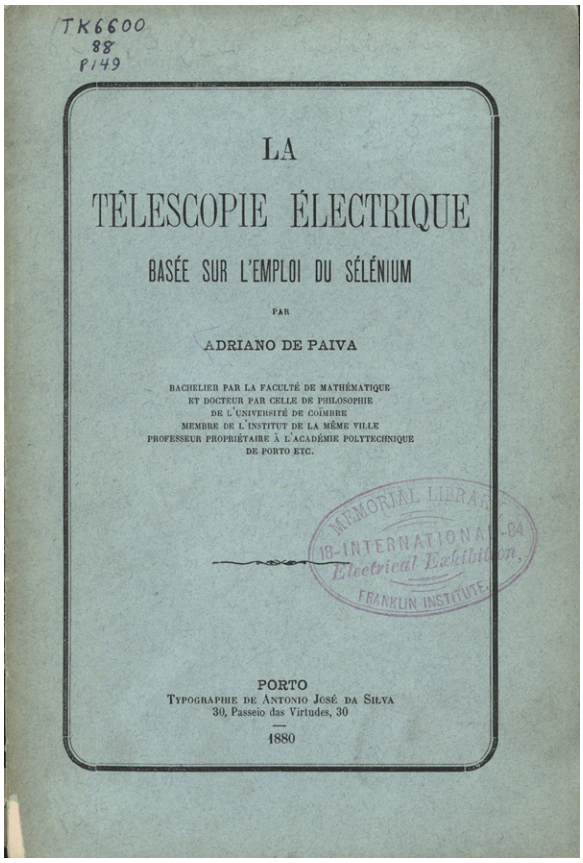

100. Owen, Richard (1804-92).
On the archaeopteryx of von Meyer, with a description of the fossil remains of a long-tailed species, from the lithographic stone of Solenhofen. Offprint from *Phil. Trans.* 153 (1863), part 1: 33-47. 4 lithographed plates (1 quadruple-page folding). 301 x 228 mm. Modern quarter calf, original plain front wrapper preserved. Wrapper browned, minor foxing and soiling, small tears along folds of folding plate. *Presentation copy,* inscribed by Owen on the front wrapper: "With the author's respects." University of London bookplate, stamp and withdrawal stamp.
$1500

First Edition, Offprint Issue of Owen's classic description of the earliest known fossil bird, spectacularly illustrated with a "life-size" quadruple-page fold-out plate of the fossil in the soft limestone, and three other fine detail plates. This is the only inscribed offprint of Owen's paper that we have seen in our four-plus decades in business.

In 1861 the German paleontologist von Meyer published two papers on two recently discovered fossils (a feather and a partial skeleton) of the oldest known bird, which von Meyer named *Archaeopteryx lithographica*. On Owen's recommendation, the *Archaeopteryx* skeleton was purchased by the British Museum, and Owen described the "feathered fossil" in the present paper, substantially longer than von Meyer's brief description. Owen renamed the fossil *Archaeopteryx macrurus* because of its long tail; however, Owen's nomenclature failed to gain acceptance, despite his argument that the British Museum's fossil might represent a species separate from that described by von Meyer. *Archaeopteryx* has often been considered a link between birds and dinosaurs, since it possesses both avian and dinosaur characteristics. Rupke, *Richard Owen*, 70-75. DSB for von Meyer. 40195

## *First Separate Publication on Television—Presentation Copy*

101. Paiva, Adriano de (1847-1907).
La télescopie électrique basée sur l'emploi du sélénium. 48pp. Porto: Antonio José da Silva,



LA
TÉLESCOPIE ÉLECTRIQUE
BASÉE SUR L'EMPLOI DU SÉLÉNIUM
PAR
ADRIANO DE PAIVA
BACHELIER PAR LA FACULTÉ DE MATHÉMATIQUE
ET DOCTEUR PAR CELLE DE PHILOSOPHIE
DE L'UNIVERSITÉ DE COIMBRE
MEMBRE DE L'INSTITUT DE LA MÊME VILLE
PROFESSEUR PROPRIÉTAIRE À L'ACADÉMIE POLYTECHNIQUE
DE PORTO ETC.

PORTO
TYPOGRAPHIE DE ANTONIO JOSÉ DA SILVA
30, Passeio das Virtudes, 30
1880

1880. 232 x 157 mm. Original printed wrappers, small chip at foot of spine; boxed. Very minor creasing, but fine otherwise. *Presentation copy,* inscribed "Hommage de l'auteur" on the half-title. Stamps of the Franklin Institute Memorial Library on the front wrapper, half-title and p. 19, commemorating the Institute's 1884 International Electrical Exhibition; F. I. Library reference stamp on the verso of the front wrapper.
$7500

First Edition. The first separate publication on television. *Rare*—OCLC and RLIN cite only three copies in the United States (Burndy Library, Lib. Congress, Cal. State Lib.), and the Karlsruhe database shows two copies in Portugal, one copy in Italy and one in France.

Paiva, a professor of chemistry and physics at the Polytechnic Academy at Porto (Portugal), became interested in the possibility of transmitting visual images by wire after the demonstration of Alexander Graham Bell's telephone in Lisbon in November 1877, and after reading L. Figuier's report, published in *L'Année Scientifique et Industrielle* (June 1877, but read by Paiva after November 1877), of the "telectroscope," an

instrument supposedly invented by Bell for the purpose of visual transmission. In February 1878 Paiva submitted a paper on a proposed telectroscope to the Portuguese journal *O Instituto*; the paper appeared in the March issue. Paiva's paper described an apparatus similar to that reported by Figuier, but was the first to suggest "televising" images by means of a selenium-covered plate, which would make use of selenium's peculiar electrical sensitivity to light (discovered in 1873 by Willoughby Smith) to convert light from images into electricity:

> The experiments we intended to make, and which we shall still attempt to realize, consisted in the employment of selenium as the sensitive plate of the camera of the telectroscope. This body possesses the remarkable property, recently discovered, of,—when interposed in an electric circuit which passes through a galvanometer,—making the needle of the latter deviate sensibly whenever a luminous ray incides on the selenium, and this deviation varies with the color of the light (p. 47).

According to Lange's *Histoire de la télévision* (histv2.free.fr/de_paiva/Paiva_contribution.htm), Paiva's 1878 paper represents "la première formulation théorique de la possibilité d'utiliser le sélénium pour transmettre les images à distances" [the first theoretical formulation of the possibility of using selenium to transmit images at a distance]. In October 1879 Paiva published a paper in *Commercio da Portuguez* in which he presented another plan for a telectroscope, in which a selenium plate would be scanned by a metal point. As far as is known, Paiva never attempted to test his ideas experimentally.

In 1880, in the interests of establishing priority, Paiva published *La téléscopie électrique*, which included reprints of his 1878 and 1879 papers (in both Portuguese and French), several articles on the telectroscope reprinted from scientific journals and newspapers, and an English translation of Paiva's 1878 paper made by his student William Macdonald Smith. This small pamphlet represents not only the first separate publication of Paiva's papers, but their first appearance in languages well known in the wider scientific community. This copy of *La téléscopie électrique* was presented by Paiva to the Franklin Institute in Philadelphia, which featured the work in its 1884 International Electrical Exhibition, the first exhibition on electricity held in the United States. Abramson, *History of Television*, pp. 8-9, 13. Shiers & Shiers, *Early Television: A Bibliographic Guide,* no. 142 ("the first publication of its kind on 'television'"). 40037

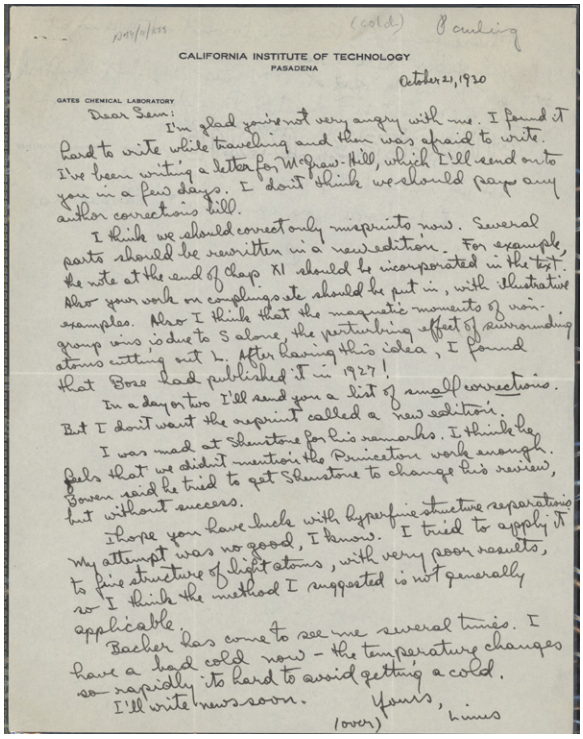
102. Pasteur, Louis (1822-95).
Signed autograph inscription in French (4 lines plus signature). N.p., n.d. Approx. 173 x 118

mm. Translation included. With: Lawford, T. Hamilton. Hand-colored mezzotint portrait of Pasteur, signed by the engraver in pencil, after the painting by Albert Edelfelt (1854-1905). Printed on proof paper (323 x 238 mm.) and mounted on larger sheet. Bristol, England: Frost and Reed, 1934. The two items matted and framed together to archival standards under UV-free plexiglass; frame measures 343 x 616 mm.
$5000

Pasteur's inscription reads: "Le plus grand dérèglement de l'esprit est de croire les choses parce qu'on veut qu'elles soient" (The greatest disorder of the mind is to believe things because one wants them to be true). The inscription, written on stationery with a red filigree border, is framed with Lawford's superb hand-colored portrait of Pasteur in his laboratory, after the painting by the 19th-century Finnish artist Albert Edelfelt, whose works "possess great qualities of light and a design alive with feeling" Edelfelt's painting is the most famous portrait of Pasteur. It is preserved in the Louvre. (Benezit). 38161

## *The Pauling-Goudsmit Correspondence*

103. Pauling, Linus (1901-94).
Autograph correspondence, consisting of 14 A.Ls.s, 5 T.Ls.s, 1 T.N.s. and 3 unsigned carbons, between Pauling and Samuel Goudsmit (1920-78), concerning their joint work *The Structure of Line Spectra* (1930) and other topics. V.p., 1927-72. Creased where previously folded, very minor chipping & soiling to one letter,



CALIFORNIA INSTITUTE OF TECHNOLOGY
PASADENA

GATES CHEMICAL LABORATORY

October 21, 1930

Dear Sam:

I'm glad you're not very angry with me. I found it hard to write while traveling and then was afraid to write. I've been writing a letter for McGraw-Hill, which I'll send on to you in a few days. I don't think we should pay any author corrections bill.

I think we should correct only misprints now. Several parts should be rewritten in a new edition. For example, the note at the end of chap. XI should be incorporated in the text. Also your work on couplings etc. should be put in, with illustrative examples. Also I think that the magnetic moments of ion-group ions is due to S alone, the perturbing effect of surrounding atoms cutting out L. After having this idea, I found that Bose had published it in 1927!

In a day or two I'll send you a list of small corrections. But I don't want the reprint called a "new edition".

I was mad at Shenstone for his remarks. I think he feels that we didn't mention the Princeton work enough. Bowen said he tried to get Shenstone to change his review, but without success.

I hope you have luck with hyperfine structure separations. My attempt was no good, I know. I tried to apply it to fine structure of light atoms, with very poor results, so I think the method I suggested is not generally applicable.

Bacher has come to see me several times. I have a bad cold now - the temperature changes so rapidly - its hard to avoid getting a cold.

I'll write news soon. Yours,

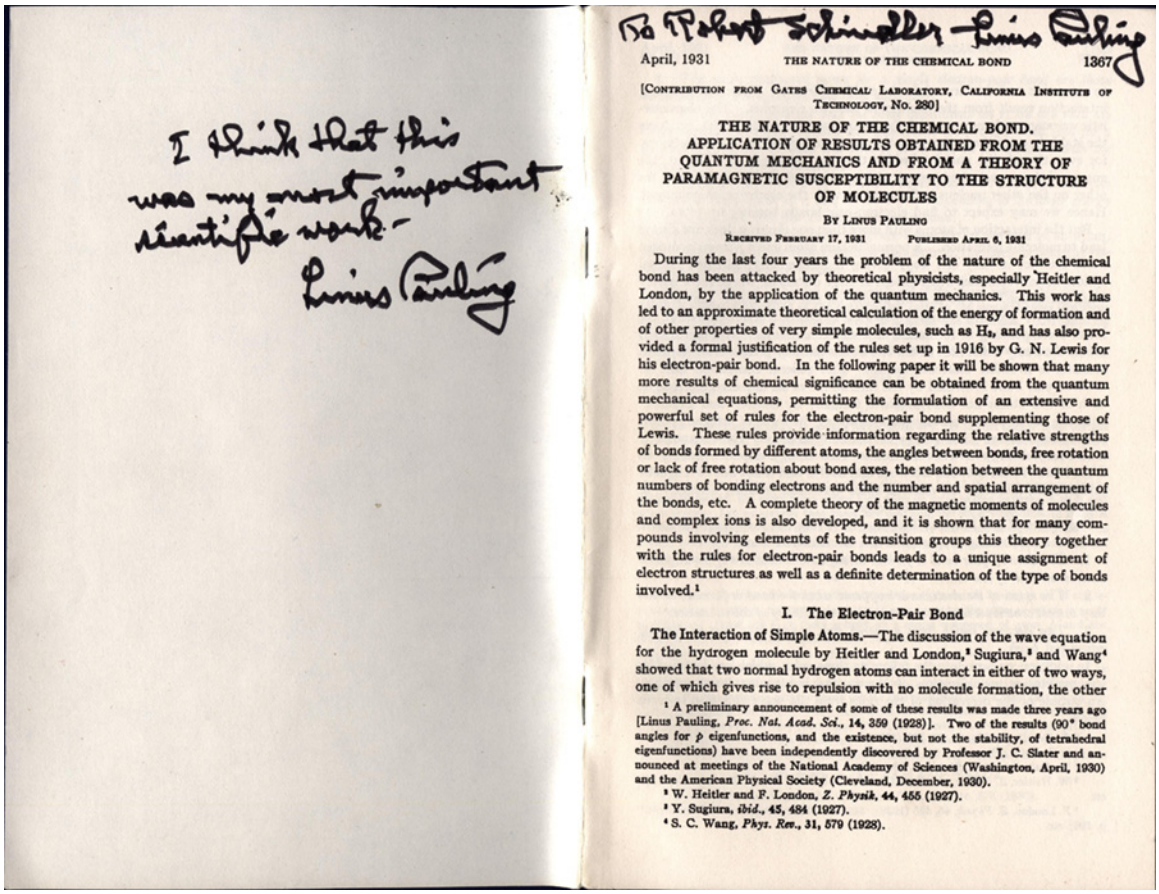
(over)

otherwise fine. A complete listing of the correspondence is available. $12,500

Fascinating series of letters between Pauling and Goudsmit, reflecting their long scientific and personal association. Most of the letters in this collection were written during the 1930s; about half of these have to do with Pauling and Goudsmit's *Structure of Line Spectra*, a pioneering textbook that had its origin in Goudsmit's doctoral thesis, but which was translated and extensively reworked by Pauling and Goudsmit over nearly three years before its publication in 1930. This was the first work in book form by either author to be published.

At the time most of these letters were written, Pauling was assistant professor / professor of chemistry at the California Institute of Technology, and Goudsmit was professor of physics at the University of Michigan in Ann Arbor. Pauling and Goudsmit met in either 1926 or 1927 in Europe, where Pauling had gone on a Guggenheim fellowship to study quantum mechanics (in his 4/28/31 letter to Goudsmit, Pauling described their month of collaboration in Copenhagen as "the happiest period of scientific cooperation in my life, and the most profitable for me"), and they continued their friendship until Goudsmit's death in 1978. At their time of meeting, Goudsmit had already published his important work on electron spin (1925) and was continuing his investigations into complex spectra and the Zeeman effect. A few years later (1931), Pauling published his famous paper on the nature of the chemical bond based on quantum mechanical principles, which he described in his 4/19/31 letter to Goudsmit as "the best work I've ever done." The historic significance of this paper was later confirmed by the Nobel committee, which awarded him the Nobel Prize in chemistry in 1954 for his work on the chemical bond (Pauling also received the Nobel Peace Prize in 1962).

The original letters to Goudsmit are sprinkled with references to other famous or noted physicists: W. L. Bragg (1890-1971), sharer with his father W. H. Bragg of the 1915 Nobel Prize for physics for their studies in x-ray crystallography; George Uhlenbeck (1900-1988), collaborator with Goudsmit on electron spin; Robert Bacher (b. 1905), Goudsmit's first graduate student, who played a major role in America's development of the atomic bomb; Robert Millikan (1868-1953), Nobel laureate in 1923 for his work on electron charges and the photoelectric effect; Arthur Noyes (1866-1936), professor of chemistry at Cal Tech, and the man who was most influential in directing Pauling's intellectual focus away from physics toward physical chemistry; Richard Tolman (1881-1948), thermodynamics expert and co-author of the first American commentary on relativity theory; astrophysicist Fritz Zwicky (1898-1974); John Slater (1900-1976), influential professor of physics at MIT; physicist Hendrik Kramers (1894-1952), a close collaborator with Niels Bohr; spectroscopist Harrison Randall (b. 1898); physicist David Locke Webster (1888-1976), who made important contributions to understanding the relationship between x-rays and quantum theory; Ernest O. Lawrence, professor of physics at U. C. Berkeley, developer of the cyclotron and winner of the 1939 Nobel Prize for physics; chemist Moses Gomberg (1866-1947), preparer of the first stable free radical; and crystallographer Paul Ewald (1888-1985), an expert in x-ray diffraction. Many of these men were associates of Pauling at Cal Tech, where the majority of the letters in this collection were written. In 1969, after an illustrious career at Cal Tech, Pauling joined the faculty of Stanford University, where the final letter in this collection was written; it is a note to Goudsmit in his capacity as editor of the *Physical Review*, a position Goudsmit had occupied since 1952. 38597




104. tPauling, Linus (1901-94).
(1) The nature of the chemical bond. Application of results obtained from the quantum mechanics and from a theory of paramagnetic susceptibility to the structure of molecules. Later reprint of the offprint from *J. Am. Chem. Soc.* 53 (1931). 1367-1400pp. 218 x 141 mm. Without wrappers. Inscribed and signed by Pauling on the first page ("To Robert Schindler Linus Pauling") and on the verso of the final (blank) leaf ("I think that this was my most important scientific work—Linus Pauling"). (2) The nature of the chemical bond and the structure of molecules and crystals. 8vo. xiv, 429 [3]pp. Text illustrations. Ithaca, NY: Cornell U. P., 1939. 230 x 151 mm. Original cloth, a little shaken, light wear at edges and extremities. Very good copy. Inscribed and signed by Pauling ("To Robert Schindler Linus Pauling") on the front free endpaper. $15,000

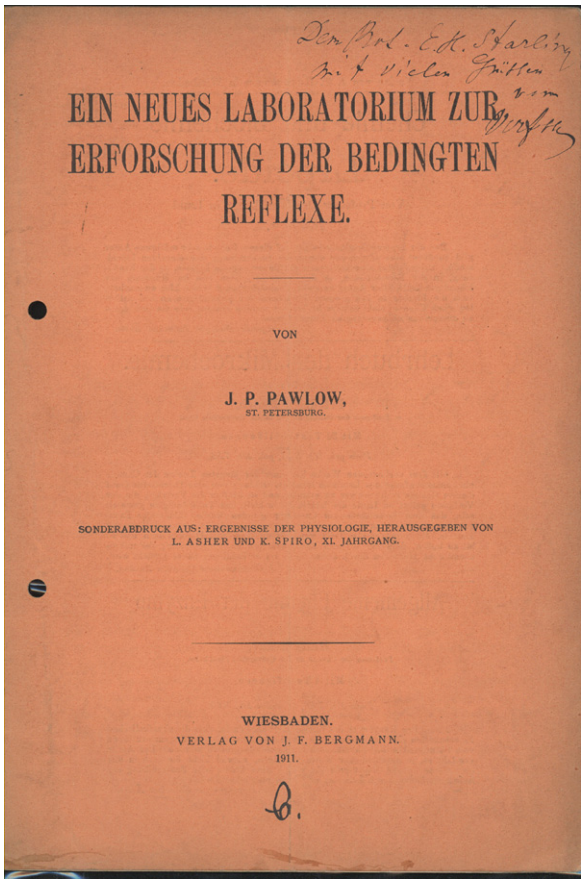
(1) Pauling's greatest work, containing the first exposition of his "six rules" for determining molecular structure, for which he received the Nobel Prize in chemistry. Pauling's paper sets forth his valence-bond theory based on the quantum-mechanical concept of resonance between two energy states, which led to his highly innovative idea that the hybridization of orbitals (electron waves) between atoms is what makes molecular structure possible. Pauling's work "taught a couple of generations of chemists that the sizes and electrical charges of atoms determine *exactly* [emphasis ours] their arrangement in molecules" (Judson, *The Eighth Day of Creation,* p. 57); in biochemistry, it proved essential to understanding the helical structure of DNA and other complex proteins. Pauling was awarded the Nobel Prize for chemistry in 1954 for his research into the nature of the chemical bond.

This later reprint of the offprint of Pauling's paper was both inscribed and signed by Pauling, apparently late in his life, as the handwriting is a little shaky. Pauling's inscriptions are *rare*—we have never seen an inscribed copy of the first printing of the offprint, and have come across only a very few inscribed or signed examples of Pauling's early work.

(2) First Edition. Pauling's classic textbook, expounding his valence-bond theory in greater detail. This and James Watson's *The Double Helix* are the most famous books in the history of molecular biology. "The detailed discussion in the following chapters is based to a large extent on seven papers with the general title 'The Nature of the Chemical Bond,' published between 1931 and 1933 in the *Journal of the American Chemical Society* and the *Journal of Chemical Physics*, and on other papers by my collaborators and myself" (Pauling's preface, p. viii). This copy was signed late in Pauling's life; we do not know of any copies that Pauling signed at the time the book was published. Signed copies of this book are extremely rare; we have seen only one other in our four decades in the rare book business. Judson, *The Eighth Day of Creation,* pp. 51-70. James, *Nobel Laureates in Chemistry*, pp. 368-78; 422-26. Goertzel & Goertzel, *Linus Pauling*, pp. 66-77. 39631

## 105. Pavlov, Ivan Petrovich (1849-1936).

(1) Ein neues Laboratorium zur Erforschung der bedingten Reflexe. Offprint from Ergebnisse der Physiologie 11 (1911). 8vo. 357-371pp. 250 x 168 mm. Original printed wrappers, creased vertically, holes punched in left margin. Inscribed by Pavlov to physiologist Ernest Henry Starling (1866-1927) as follows: "Dem Prof. E. H. Starling mit vielen Grüssen vom Verfasser." (2) Das Experiment als zeitgemässe und einheitliche Methode medizinischer Forschung. Tr. A. Walther. 46, [2]pp., plus 4pp. adverts. Wiesbaden: Bergmann, 1900. 247 x 162 mm. Orig. printed wrappers, a bit soiled, holes punched in left margin, bookseller's label on recto and verso of front wrapper. From the library of British neurologist James Purves-Stewart (1869- ), with his signature on the front wrapper. (3) (with Parastschuk, S. W.) Über die ein und demselben Eiweissfermente zukommende proteolytische und milchkoagulierende Wirkung verschiedener Verdauungssäfte. Offprint from Hoppe-Seyler's Zeitschr. f. physiologische Chemie 42 (1904). 8vo. 415-452pp. 233 x 151 mm. Original printed wrappers, a bit chipped, creased vertically, small tears along spine. Pavlov's presentation inscription on the front wrapper: "Hommage de


Dem Prof. E. H. Starling
mit vielen Grüssen
vom
Verfasser

EIN NEUES LABORATORIUM ZUR ERFORSCHUNG DER BEDINGTEN REFLEXE.

VON

J. P. PAWLOW,
ST. PETERSBURG.

SONDERABDRUCK AUS: ERGEBNISSE DER PHYSIOLOGIE, HERAUSGEGEBEN VON L. ASHER UND K. SPIRO, XI. JAHRGANG.

WIESBADEN.
VERLAG VON J. F. BERGMANN.
1911.

8.

l'auteur, I. P." Stamps of the Yale School of Medicine Library. (4) Sur la sécrétion psychique des glandes salivaires. Offprint from Arch. internat. de physiol. 1 (1904). 8vo. 119-135pp. 246 x 160 mm. Original printed wrappers, a little chipped & soiled, creased vertically, holes punched in left margin. Inscribed by Pavlov on the front wrapper: "Hommage de l'auteur." (5) Die normale Tätigkeit und allgemeine Konstitution der Grosshirnrinde. Offprint from Skandin. Archiv f. Physiol. 44 (1923). 8vo. 32-41pp. 213 x 148 mm. Original printed self-wrappers, creased vertically. Inscribed by Pavlov on the front wrapper: "With the compliments of the author." $7500

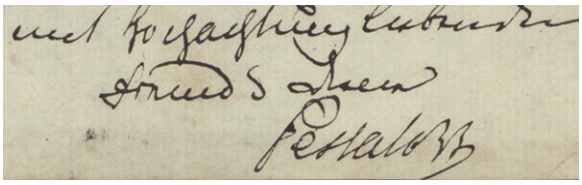
First / First Separate Editions, except for (2), which is the first edition in German. Pavlov received the 1904 Nobel Prize in physiology / medicine for his studies of the physiology of digestion, which revealed the part that the nervous system plays in controlling digestive secretions.

Pavlov's scientific career was devoted to three major areas: the physiology of the circulation of the blood (1874-1888); the physiology of digestion (1879-1897); and the physiology of the brain and of higher nervous activity (1902-36). In conducting his researches, Pavlov introduced the method of long-term or continuous experimentation, which-in contrast with traditional vivisectional methods-allowed him to study the operation of physiological processes in healthy animals under normal conditions over extended periods of time. His investigations of the nervous system's role in digestion led him to explore the phenomenon of "psychic" stimulation; i.e., salivary secretion prompted by the sight or smell of food rather than by direct contact. In Pavlov's hands this became a powerful tool for investigating the functions of the cerebral cortex and the physiology of behavior. The most famous outcome of his researches is, of course, the artificial conditioned reflex, in which physiological processes such as salivation are arbitrarily associated with stimuli such as the ringing of a bell.

Pavlov presented the first paper in this collection to the British physiologist Ernest Henry Starling, co-discoverer (with Bayliss) of pancreatic secretin (1902; see G-M 1024) and co-developer (again with Bayliss) of the theory of hormonal control of internal secretion (1905; see G-M 1122). Pavlov had been a strong advocate of the "nervist" doctrine of physiology, which held that the nervous system controlled most body activities; however, Starling and Bayliss's discovery of secretin, which confirmed the humoral (rather than nervous) transmission of impulses from the intestine to the pancreas, forced Pavlov to rework his theories of digestion (see Babkin, Pavlov, pp. 228-230). Another paper in this collection is from the library of British neurologist James Purves-Stewart, author of *The Diagnosis of Nervous Diseases* (1911 and later eds.). A third paper, inscribed in English by Pavlov, was most likely presented to either Starling or Purves-Stewart. Presentations in English by Pavlov are highly unusual. Magill, *The Nobel Prize Winners: Physiology or Medicine*, pp. 61-68. 38346

## 106. Pestalozzi, Johann Heinrich (1746-1827).

Autograph letter signed to an unnamed correspondent. N.p., n.d. 1 page. 220 x 170 mm. Pinholes in upper margin, 19th cent. printed biographical notice tipped to upper right corner. $1500



Pestalozzi, a Swiss pedagogue and educational reformer, became the first applied educational psychologist by putting Rousseau's ideas on education into practice. His educational principles, which stressed the individuality of the child and the necessity for teachers to be taught how to develop rather than to try to implant knowledge, laid the groundwork for modern elementary education.

The present letter is a letter of introduction written on behalf of a Mr. Langston. It translates as follows:

> Dear Friend—
>
> Mr Langston, an Englishman who spent some time with his family in Yverdun a few years ago and with his presence gave me continual evidence of his friendship and his well-meaning attention to my endeavors, has written me that he is traveling home from Italy via Zurich. And since it is of great importance to me that this noble man become acquainted with the people in Zurich whom I most admire, I have this letter for him in order to introduce him to you. I ask that you do what you can so that his stay in Zurich is as pleasant as possible and that you consider him a man whom I admire in all respects. Fare well and trust in me, your admiring and respectful Friend and Servant, Pestalozzi

40142

## 107. Phillips, John (1800-1874).

Autograph letter signed to Charles Waterton (1782-1865). Yorkshire Museum, January 6, 1837. 1 page plus integral address leaf. 230 x 185 mm. Creased where previously folded, light soiling on address leaf. $700

Phillips was the nephew and ward of the famous British geologist William Smith. After completing his education, Phillips accompanied his uncle on various research tours made in connection with Smith's geological maps, and assisted Smith in giving courses of geological lectures in York. In 1826 Phillips became keeper of the Yorkshire Museum and secretary of the Yorkshire Philosophical Society. In 1831 he helped to found the British Association for the Advancement of Science, and served as the BAAS's first assistant secretary from 1832 to 1859. In 1834 Phillips was appointed professor of geology at King's College, London; and in 1856 he succeeded William Buckland to the readership of geology at Oxford University. During his tenure at Oxford Phillips helped to found the Oxford Museum, and served as curator of the Ashmolean Museum from 1854 to 1870.

The English naturalist Charles Waterton, to whom Phillips's letter is addressed, is best known for introducing the anesthetic agent curare to Europe, and for his scientific explorations of Guyana, described in his *Wanderings in South America* (1825). He is also credited with building the world's first nature and wildfowl reserve (located on the grounds of his estate in Yorkshire), and for inventing the bird nesting box. Waterton was famed for his eccentricities, which included pretending to be a dog and biting the legs of his dinner guests under the table!

Phillips's letter to Waterton, written in his role as secretary of the Yorkshire Philosophical Society, is an attempt to persuade Waterton not to relinquish his membership in the Society. Phillips appeals to Waterton's interest in ornithology:

> Ever since I received your letter requesting that your name might be withdrawn from the list of Hon. Members of the Yorkshire Philosophical Society I have been hoping that some fortunate circumstance might arrive on which I could found a reasonable plea to intreat you not to persevere in your intention of withdrawing your name—and I would fain hope that the progress now making in our Museum toward a more adequate representation of ornithology might be admitted as such a plea. I can assure you that when I mentioned the subject to the Council of the Society a very general expression of regret followed. On such matters no step is ever taken by the Council till the Annual Meeting in February (the first Monday), after which day, if unfortunately we can not prevail with you to remain associated with us, I shall very unwillingly omit your name in the next printed list. . . .

Wikipedia, "John Phillips, geologist," and "Charles Waterton." 40122

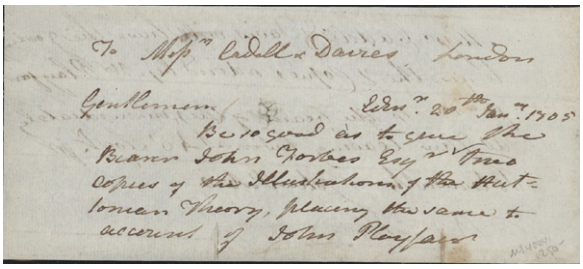
## 108. Phillips, William (1775-1828).

Autograph letter signed to William Upcott (1779-1845). George Yard [London], Feb. 13, 1827. 1 page. 240 x 192 mm. Mounted on album leaf annotated with biographical information about Phillips in a neat 19th-century hand. $850

Letter with good geology content from Phillips, who helped to found the Geological Society of London in 1807, and wrote, together with William Conybeare, the *Outlines of the Geology of England and Wales* (1822), which had a major influence on the development of geology in Great Britain. His correspondent, William Upcott, was a librarian at the London Institution and the greatest autograph collector of his time; he discovered and edited the diary of John Evelyn (1620-1706), which was first published in abridged form in 1818. Phillips's letter reads as follows:

> Some crystals of a mineral from Colombia, new to us in England, have just come to my hands—they were described by Cordier in a number of the Annales de Chimie into which I look'd last evening at the Institution—and being desirous of improving a new edit. of my Mineralogy, (if one shd. be demanded) I have a favor to beg—wch. is that the Annales de Chimie for last year may be detained from the bindery for a few days, to give me an opportunity of extracting what Cordier has said on the mineral in question—& about wch. the peep I had last evening induced me to believe him to be in the wrong. I am very truly, Wm. Phillips.

"Cordier" refers to the French geologist Pierre-Louis-Antoine Cordier (1777-1861), president of the Conseil des Mines, known for his studies of volcanic rock and for introducing the use of the polarizing microscope in studying the constituents of rocks. Phillips also refers to his own *Outlines of Mineralogy and Geology* (1815 and later eds.), a new edition of which was issued in 1828. DSB. DNB for Upcott. 40143



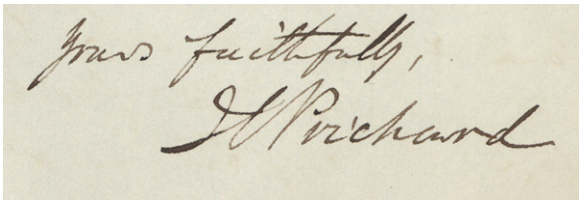
## 109. Playfair, John (1748-1819).

Autograph note signed, to Messrs. Cadell and Davies. Edinburgh, Jan. 20, 1805. 81 x 182 mm. Tiny paper flaw and one or two faint spots, otherwise fine. $1250

Playfair's note to the London publishers Cadell & Davies requests that "the Bearer John Forbes Esqr." be given "two copies of the Illustrations of the Huttonian Theory," to be charged to Playfair's account. Playfair's *Illustrations of the Huttonian Theory* (1802), his most famous work, was largely responsible for the widespread acceptance of James Hutton's Uniformitarian theory of the earth, which was the first to recognize the cyclical, "timeless" nature of geologic processes. Hutton had published his own account of the theory in 1788, but Playfair's version was far more accessible; the *Illustrations* also gave many terms their modern geological meaning,

and introduced important new phrases, such as "geological cycle," into scientific literature.

The recipient of Playfair's gift may have been the Scottish judge John Hay Forbes (1776-1854). On the verso of the A.N.s. is Forbes's signed manuscript note to Cadell and Davies requesting them "to give the 2 copies ordered by Mr. Playfair for me to the bearer of this immediately as I am leaving town at 4 o'clock for Portsmouth." *Dictionary of National Biography* for Forbes. 40041



## 110. Prichard, James Cowles (1786-1848).

Autograph letter signed to Mr. J[ohn] Arch, Booksellers. Bristol, May 28, 1835. 3pp. plus address. 231 x 188 mm. Second leaf repaired where seal was broken, affecting 2 words.

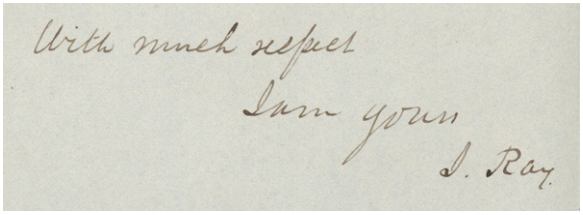
$1500

Letter from Prichard discussing preparation of the five-volume third edition of *Researches into the Physical History of Man* (1836-47), Prichard's classic work on anthropology originally issued in two volumes in 1813. Prichard's interest in anthropology was stimulated by one of the pressing questions of his day: Did all the races of mankind have a common origin, as stated in the Scriptures, or did they spring from different ancestral stocks? Prichard, a confirmed monogenist, sought to demonstrate the common origin of the human races by compiling evidence from a variety of fields, including anatomy, physiology, comparative psychology, linguistics and cross-cultural studies. As his work proceeded Prichard became increasingly convinced that the last two categories were the most important in determining the history of races, so much so that he devoted four volumes of the five-volume third edition of *Researches* to cultural and linguistic "artifacts."

Prichard's letter to the bookseller John Arch, publisher of the first and third editions of Prichard's *Researches,* reads as follows:

> I have been now engaged for some time closely in preparing the first volume of a new edition of my Physical Researches and have made considerable progress in it. I hope to be able in a few months to complete the first division of the work, which will terminate at the end of the history of the African nations: this part will be enlarged proportionally much more than the succeeding parts & will form an octavo volume of more matter, I think, than the first vol. of the 2nd edition. When completed I should wish to have it printed that I may get it entirely off my hands and go on with the remaining parts, & likewise to prevent my being in any manner forestalled.
>
> There are two or three works which will assist me in some degree about which I shall be obliged by your making inquiries.
>
> I wish to see Balbi's Ethnography, or Ethnographical tables. I do not have the exact title. Is there any bookseller in London who would lend a copy? I do not know whether it may answer my purpose or be of any real value, but should like, if possible to have an opportunity of seeing it before purchasing it. Possibly you may be able to assist me in this & if the book can be so procured, be pleased to send it by coach without delay. If it cannot be had without purchasing, be please to order a copy for me at once from Bailliere or any other agent in French books.
>
> I should also be obliged by your making some enquiries about an atlas of plates to Mollien's travels in Africa. We have the book in the Bristol library without any plates, but I believe that there is an atlas, & I want to know if it contains portraits of any of the natives of countries visited by Mollien, as the Foulalis, or Poules, or Joloff.
>
> Perhaps Balbi's work may be in some library in London, from which it might be borrowed. I believe it to be a work in 3 octavo volumes. I remain, dear sir, Yours faithfully, JCPrichard.

Prichard here refers to the Italian geographer Adrian Balbi (1782-1848), author of *Atlas ethnographique du globe, ou classification des peuples anciens et modernes d'après leurs langues* (1826). Balbi's emphasis on "l'importance de l'étude des langues appliquée à plusieurs branches des connaissances humaines" (the importance of language study applied to several branches of human knowledge) would have been of particular interest to Prichard. Prichard also mentions the French explorer Gaspard-Théodore Mollien (1796-1872), whose *Voyage dans l'intérieur de l'Afrique aux sources du Sénégal et de la Gambie fait en 1818* was published in both English and French editions in 1820. Stocking, "From chronology to ethnology: James Cowles Prichard and British Anthropology 1800-1850," in Prichard, *Researches into the Physical History of Man* (1973), pp. i-cxviii. 40191




## *American Psychiatry Classic, with ALS*

111. Ray, Isaac (1807-81).
A treatise on the medical jurisprudence of insanity. 8vo. xv, [1], 480pp. Boston: Charles C. Little & James Brown, 1838. 230 x 144 mm. Original patterned cloth, uncut, skillfully rebacked preserving original spine, corners restored. Some foxing as might be expected. Very good copy. $4500

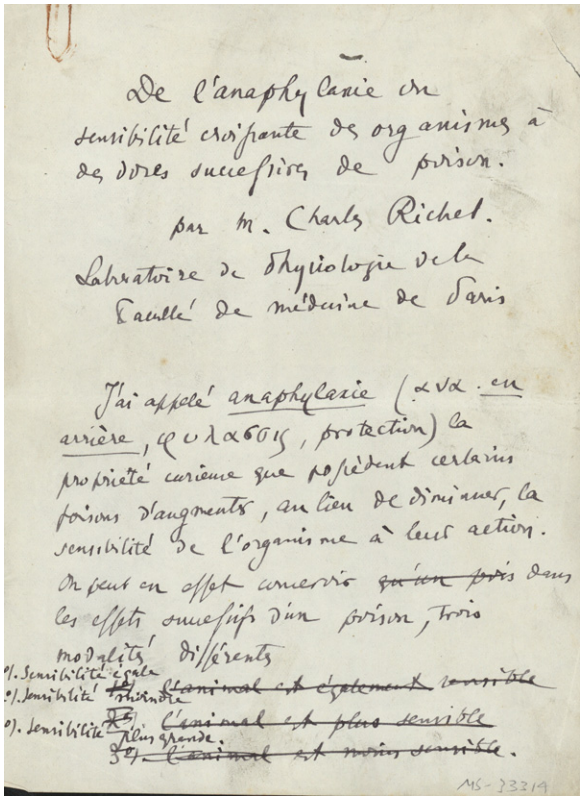
First Edition, with ALS from Ray to Isaac G. Reed, Esq., of Augusta, Maine, laid in, 1 1/2pp., 8vo., Eastport, [Maine], Dec. 26, 1838. G-M 1739.

The first modern treatise on the medico-legal aspects of psychiatry. One of the greatest classics of nineteenth century American thought, "it is still quoted and accepted as an authority on many phases of medico-legal practice in the United States and abroad" (Deutsch 204).

The first edition is extremely rare and not in any of the medical library catalogues we routinely consult. Laid in this copy is a rare Ray ALS, which shows the pains Ray took to see that a copy of his book which he had meant to give to his addressee would be sent to him. The addressee, Isacc Reed of Augusta, Maine, was possibly connected with the Maine Insane Hospital there, of which Reed became superintendant in 1841. Reed does not appear in any of our references, however. DAB. 16720

## *Anaphylaxis*

112. Richet, Charles (1850-1935).
De l'anaphylaxie ou sensibilité croissante des organismes à des doses successives de poison. Autograph manuscript signed, 33 numbered loose leaves, prepared for the printer with numerous erasures and corrections. [Paris, probably before 1911.]. 210 x 157 mm. Light horizontal crease where previously folded, minor soiling, rust-marks from paper clip on first and last leaves. Very good. Preserved in a cloth folder. $7500




Richet, together with his colleague Paul Portier, discovered the phenomenon of anaphylaxis in 1902, while researching the toxins produced by the Portuguese man-of-war and sea anemone. In an attempt to convey immunity and determine experimentally the parameters of toxicity of these poisons, Richer and Portier injected dogs with doses too small to be dangerous. However, they discovered that second doses of the poison caused immediate death in some of their experimental animals, leading them to conclude that the poison had an effect exactly opposite to the immunizing properties of serums, vaccines, etc.—instead of reinforcing the body's resistance to a foreign substance, a sublethal dose of the poison diminished it. Richet continued his investigations on anaphylaxis, constructing a general theory of the phenomenon in 1907 (see G-M 2599), and attempting to explain the function of anaphylaxis in evolutionary terms. In 1913 he received the Nobel Prize in physiology or medicine for his discovery. DSB. 33314

113. Roux, Philibert (1780-1854).
Autograph letter signed to Louis Napoleon (1808-73).Paris, February 20, 1852. 1-1/2 pp.

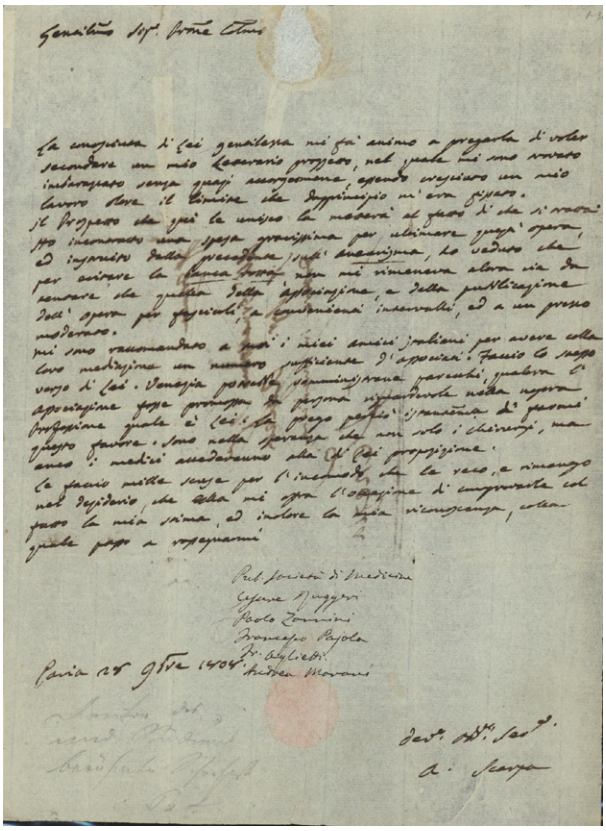
plus integral blank. 285 x 204 mm. Minor spotting, pin-holes in blank leaf. $750

Among 19th century French surgeons, Roux is second in importance only to Dupuytren. A pioneer in plastic surgery, Roux is known for his operation to repair defects in the soft palate, described in his "Mémoire sur la staphyloraphie, ou suture du voile du palais" (1825; G-M 5741.2). It was in this work that he coined the term "staphylorraphy," and first called attention to submucous cleft palate. He also developed a method for resecting bone, and was the first to suture the ruptured female peritoneum. His letter to Louis Napoleon was written in the same year that Louis Napoleon, the first president of the French Republic, became emperor of France under the name Napoleon III.

Roux's letter to Louis Napoleon, President of the second French Republic and later Emperor of France, reads as follows:

> Veuillez bien agréer l'hommage que j'ai l'honneur de vous faire du discours que j'ai prononcé à la séance solennelle dernière de notre faculté de Médecine du mois de novembre dernier. Sa mission m'avait été confiée par mes collègues de célébrer la mémoire de deux des grandes illustrations du siècle : j'avais à faire l'éloge de deux hommes sur lesquels votre oncle, l'empereur Napoléon, a jeté un grand reflet. L'un des deux, Boyer, dont j'ai été le gendre, était la premier chirurgien de l'empereur ; et Bichat était cet homme de génie mort si prématurément auquel a été élevé par les ordres du premier consul le monument qui vous a été présenté dans le vestibule de l'Hôtel-Dieu lorsqu'à deux reprises vous nous avez fait l'honneur de visiter ce grand établissement consacré au soulagement des infirmités humaines.
>
> [Please accept the homage which I had the honor to pay you in my speech at the ceremony held by our Faculty of Medicine last November. Its purpose, as entrusted to me by my colleagues, was to celebrate the memory of two major illustrations of the century: I had to deliver elegies to two men glorified by their association with your uncle, the Emperor Napoleon. One of the two, Boyer, whose son-in-law I was, was the emperor's chief surgeon, and Bichat was the man of genius, dead so prematurely, to whom was raised, by order of the First Consul, the monument which you presented in the lobby of the Hôtel-Dieu twice when you did us the honor of visiting this great institution devoted to the relief of human infirmities.]

The letter mentions two great French medical men: Alexis Boyer (1757-1833), surgeon to Napoleon I, Louis XVIII, Charles X and Louis Philippe; and Marie François Xavier Bichat (1771-1802), the father of modern histology and pathology. 35373



114. Scarpa, Antonio (1747-1832).
A.L.s. to [Francesco] Aglietti (1757-1836), in Italian. Pavia, 28 November 1808. 1 page, 258 x 191 mm., address on verso. Lightly creased where previously folded, small lacuna in upper margin repaired where seal was broken, but otherwise clean and fine. English translation accompanies. $1750

Letter concerning the publication of Scarpa's great folio masterpiece on hernia, *Sull'ernie* (1809; G-M 3583), from which come the eponyms "Scarpa's fascia" (creasteric fascia) and "Scarpa's triangle" (of the thigh). Although the letter does not mention *Sull'ernie* by name, the date and content of the letter leave little doubt as to the identity of the work it discusses. Scarpa spent much of the money he earned as professor of anatomy at Pavia to produce and print his magnificent anatomical works, which were illustrated with beautifully engraved plates prepared after Scarpa's drawings by his house artist, Faustino Anderloni. However, in 1808, the year before the publication of *Sull'ernie*, Scarpa found himself strapped for cash—probably due to the enormous amount of money he had

spent on his *Sull'aneurisma* (1804), another lavishly illustrated folio—and was forced to solicit funds from friends and fellow medical men, including Aglietti, professor of practical medicine at the Venice Hospital. In the present letter, which accompanied a copy of *Sull'ernie* for Aglietti's review, Scarpa alluded to the difficulty he had had in completing this work, and the financial predicament in which he found himself: "I have incurred a major expense in completing this project. I must confess to you that I am still frightened by the expenses I had incurred for my last work on aneurysm. In order for me to avoid bankruptcy, I will need help from other professionals as associates to assist in publishing this project. I am also hoping to publish this work in separate fascicules at an affordable price." Scarpa went on to state that he had already asked "all my Italian friends" to be subscribers to *Sull'ernie*, and that "now I am asking you for the same favor. Since you are well respected as a professional and very well known in Venice, I believe that you would be the right person to encourage other surgeons, as well as other physicians, to join in the effort to publish my work."

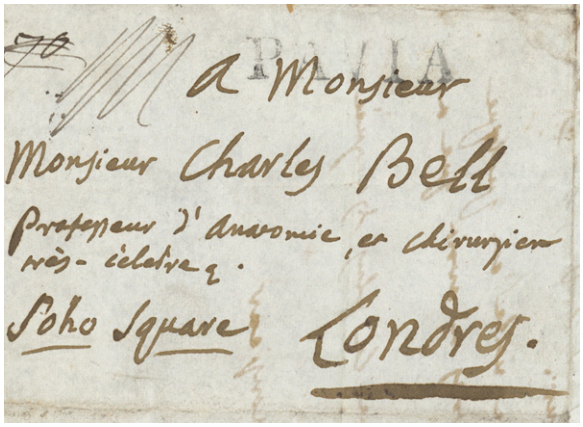
At the foot of the letter is a list of persons and institutions, all of whom presumably received similar letters from Scarpa. Besides Aglietti, the list includes the names of Cesare Ruggieri (1768-1828), professor of practical surgery at the University of Padua; Francesco Pajola (1741-1816), the Venetian lithotomist; and the Pub. Società di Medicina. DSB. Hirsch (Aglietti et al.). Monti / Lauria, *Antonio Scarpa,* pp. 67-68. 6765

## 115. Scarpa, Antonio (1752-1832).

A.L.s. to Sir Charles Bell (1774-1842), in French. Pavia, May 13, 1822. 2-1/2 pages, plus address and postmark, on 2 sheets. Docketed in Bell's hand on the recto of the first sheet. 247 x 190 mm. Creased where previously folded, lacuna in second sheet where seal was broken (not affecting text), light spotting, traces of former mounting. Very good. $5000

Excellent letter in which Scarpa discusses both his own and Bell's researches on the nerves, describes his current researches on other medical and surgical subjects, and touches on the state of his health. Scarpa begins by thanking Bell for sending him a copy of "On the nerves" (*Phil. Trans.* 111 [1821]: 398-424), the paper describing "Bell's nerve" (see G-M 1255). In translation, the letter reads:

> I just received your obliging letter with your memoir "On the nerves," which I read with much pleasure and interest. You have only better confirmed the




> Hippocratic doctrine: *consensus unus, consentientia omnia*. I endeavored to prove the same thing with my Neurological Plates [*Tabulae nevrologicae,* 1794; see G-M 1253], with Vol. I of my anatomical annotations on the ganglions and on the plexus, and with my memoir "De nervo acceperio ad par vagum" included in vol. I of the Acad. Josephine de Vienne. You will go farther, especially in publishing your remarks on the nerves of the trunk. Your plate on the nerves of the face is beautiful, and truly based on nature. I have a hard time believing, however, that the branches of the seventh are without feeling, while those of the fifth are very sensitive. Despite this, it will be necessary to test this by observation and experiment.

The seventy-year-old Scarpa then replied to Bell's inquiries on the state of his health, and described some of the work he had recently been doing:

> And since, Sir, you have had the goodness to ask me news of me health and of my current occupations, I will tell you that despite my extremely advanced age, I am doing rather well, with the exception of my vision, which lessens every day. I can, however, read and write with the help of spectacles. As for my occupations, after the second edition of my work on hernias, I published three memoirs. 1st on hernias of the perineum [1821; see G-M 3584]. 2nd on suprapubic cystotomy. 3rd on scirrus and on cancer. Next, several final observations on my method of performing paracentesis on pregnant and dropsical women. I am working now on a memoir on several infirmities of the scrotum. Mr. Briggs, the translator of my work on diseases of the eye [1801, Eng. ed. 1806; see G-M 5835], should have received the above-cited memoirs.

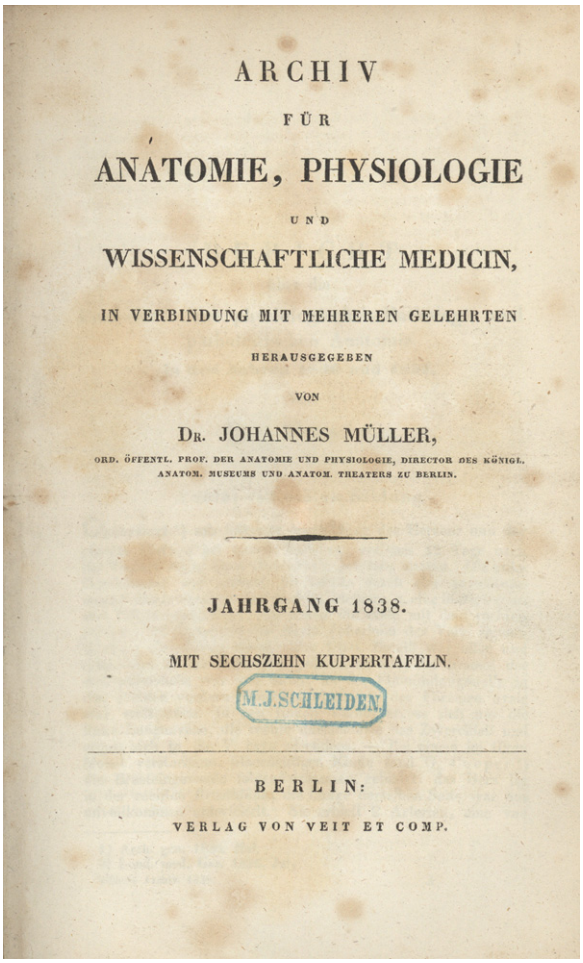
Scarpa then discusses his pioneering method of ligation of the artery in aneurisms:

> I mustn't forget to tell you that my method of temporary ligature of the arteries, i.e., conserving all the tunics in their integrity, for curing aneurism, is gaining favor. It is practiced in almost all of Italy, and in many parts of Germany with the greatest success. It was lately done in Geneva on the carotid artery. The ligature was removed at the end of the third day with the most fortunate success. The statement that one of your compatriots has made, that even when the ligature is removed at the end of the third day the wound does not heal any faster than if it had been left for 19 or 20 days, conforms with neither reason nor experience. I am willing to state that even when the ligature is removed at the end of the third day, the wound only rarely heals by first insertion, but it is equally proven by a multitude of facts, that in using my method one never has to battle with copious suppurations, secondary abscess, false granulations, necessarily produced by the irritation of foreign bodies […] needlessly in the wound. The many facts of this type published in the newspapers should really be collected in a single work.

Scarpa ends his letter with reminiscences of his trip to London in the early 1780s, when he met John and William Hunter and Percival Pott:

> In talking to me of the school at Windmill Street, you recall to me the best days of my life; that is, my conversations with the two Hunters and Pott. The same school under your administration will doubtless regain its former luster.
>
> It seems to me that since I left London, a remarkable change has taken place in the schools of anatomy with regard to the nervous system, which shows itself at present with remarkable precision, which was never done before. And as for surgery, that there are more excellent oculists than there ever were at the time of my visit.
>
> If I can be of any use to you in this country, you have only to command me.

Scarpa made his name as an anatomist with his monumental study of the nerves, and as a surgeon with his classic accounts of hernia and eye diseases. He was the first to give an accurate account of the nerve supply to the heart, and to describe accurately the anatomy of clubfoot. His correspondent, Charles Bell, was co-discoverer of the Bell-Magendie law, which states that anterior spinal nerve roots contain only motor fibers and posterior roots only sensory fibers. DSB. 39531


ARCHIV

FÜR

ANATOMIE, PHYSIOLOGIE

UND

WISSENSCHAFTLICHE MEDICIN,

IN VERBINDUNG MIT MEHREREN GELEHRTEN

HERAUSGEGEBEN

VON

DR. JOHANNES MÜLLER,

ORD. ÖFFENTL. PROF. DER ANATOMIE UND PHYSIOLOGIE, DIRECTOR DES KÖNIGL. ANATOM. MUSEUMS UND ANATOM. THEATERS ZU BERLIN.

JAHRGANG 1838.

MIT SECHSZEHN KUPFERTAFELN.

M.J.SCHLEIDEN.

BERLIN:

VERLAG VON VEIT ET COMP.

## *Schleiden's Personal Copy*

116.Schleiden, Matthias Jakob (1804-81). Beiträge zur Phytogenesis. In *Archiv für Anatomie, Physiologie und wissenschaftliche Medicin* (1838): 137-76. 2 plates (nos. III and IV) on one folding sheet. Whole volume, 8vo. [2], cxcviii, 608pp. 16 plates on 15 sheets. Berlin: Veit, 1838. Paste paper boards c. 1838, rubbed, spine a bit worn. Light browning, occasional faint spotting, but very good. *Schleiden's copy, with his ownership stamp on the title.* Bookplate of the Cleveland Medical Library Association. $7500

First Edition. G-M 112. PMM 307a. Acting upon his belief that plants represented aggregates of individual cells, Schleiden published a study of the vegetable cell, beginning with the nucleus (discovered by Robert Brown in 1832), and proceeding to a discussion of its role in the formation of cells. Schleiden's "watch-glass" theory of cell

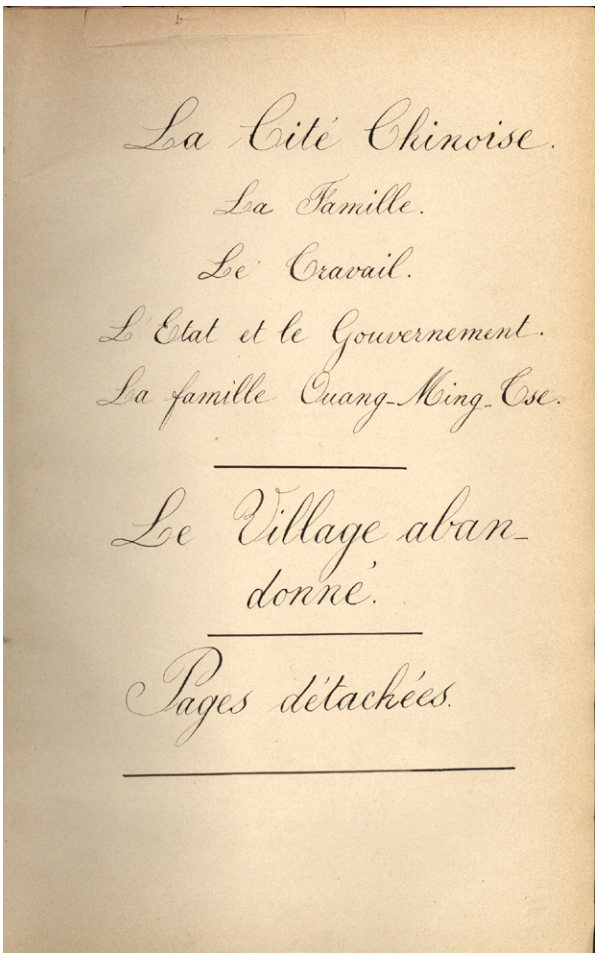
formation was wrong—he believed that they crystallized in a formative liquid containing sugar, gum and mucous—but it focused attention on the problem of cell reproduction and provided a testable hypothesis. More significant was Schleiden's insistence that plants consisted entirely of cells and cell products. In 1839 Theodor Schwann published *Mikroskopische Untersuchungen*, in which he demonstrated that Schleiden's conclusion also applies to animals, thus establishing the cell as the elementary unit common to both plant and animal kingdoms.

Tradition has it that the cell-theory was conceived in a conversation between Schleiden and Schwann on phytogenesis. A few years after the appearance of the above paper, Schleiden published his *Grundzüge der wissenschaftlichen Botanik* (1842-43), which gave the best and most detailed statement on the cell as the basis of the vegetable world. DSB. Norman 1907 (offprint version). Hughes, *Hist. Cytology*, pp. 37ff. 38232

## *Manuscript of a Pioneering Sociological Treatise on China, Together with a Presentation Copy of the Published Work*

117. Simon, G. Eugène (1829-96).
(1) Manuscrits. [On following leaf:] La cité chinoise . . . Le village abandonné. Pages détachées. Autograph manuscript. 253ff., variously numbered, plus unnumbered cover sheets. 317 x 202 mm. Bound in quarter morocco, mottled boards, gilt-lettered spine, light rubbing. Some edges frayed, minor soiling. Inscribed by Simon on the first leaf: "A ma bien aimée soeur Adeline G. Eug. Simon" and signed by him in a few other places in the manuscript. Printer's marks and annotations. (2) La cité chinoise. 12mo. [8], 389, [3]pp. Paris: Nouvelle Revue, 1885. 183 x 116 mm. Marbled boards, cloth spine c. 1885, light rubbing. Light browning and foxing. Sheet bound in front with Simon's autograph presentation inscription: "Monsieur Maret hommage de l'auteur G. Eug. Simon." Pencil notes of former owner on this sheet and several leaves of text. $15,000

(1) The manuscript of Eugène Simon's *La cité chinoise* (1885), a pioneering sociological analysis of Chinese culture and traditions that was later praised by one Chinese scholar as "the best book written in any




European language on the spirit of the Chinese civilization" (Gu Hongming, *Spirit of the Chinese People* [1915]; quoted by David Gosset). Simon, an agricultural engineer, traveled to China in the early 1860s and spent four years touring the country and studying its inhabitants and customs. During the latter part of the 1860s he served as France's consul in China. After his return to France, Simon published *La cité chinoise*, a work that helped to counter the prevailing mid-nineteenth century European view of China as a stagnant, despotic and morally inferior society. Simon's book

> idealizes China as a peasant society where liberty in all its forms—political, economic, religious, and intellectual—is realized. Simon's book, which was very popular, prophesied that all European attempts to subject China to industrialization, colonization, or modernization would fail because of the astounding vitality of the rural nation and its naturalistic civilization. On contemporaries, Simon's book . . . had an impact out of all proportion to its intrinsic importance. Paul Ernst, the German poet, was inspired by Simon to adulate the collectivist peasant culture of China for giving a higher place to

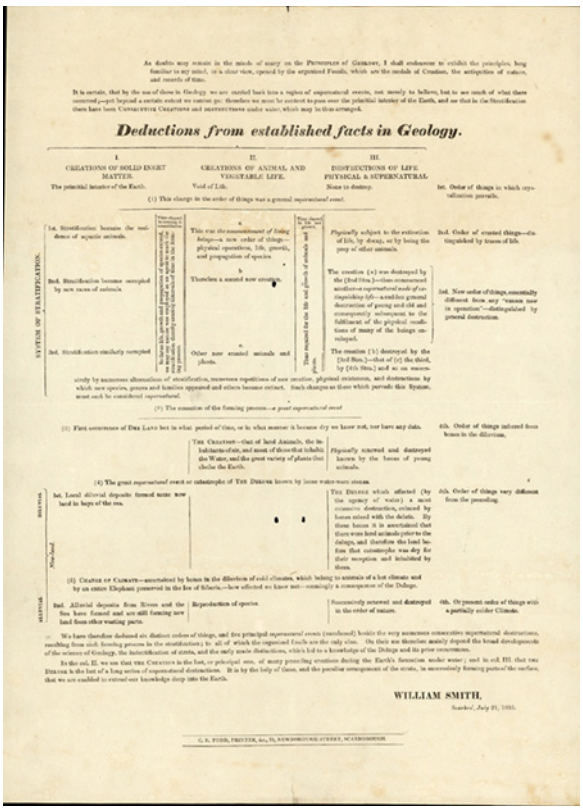
spiritual than to material values ("China in Western Thought and Culture," *Dictionary of the History of Ideas*, I, p. 371).

The manuscript volume we are offering contains not only the manuscript of *La cité chinoise* that Simon sent to the printer, but also an additional, apparently unpublished shorter work entitled "Le village abandonnée," as well as a section titled "Pages détachées," which appears to contain drafts, revisions or deleted pages from *La cité chinoise.* Some of these pages have portions cut from them; these probably correspond to some of the pasted-in corrections in Simon's manuscript. Simon presented this manuscript book to his sister, as indicated in his presentation inscription on the first leaf.

(2) First Edition. Simon's book went through seven editions between 1885 and 1891. This copy of the first edition bears Simon's presentation inscription to a M. Maret. Gosset, "The Dragon's Metamorphosis," *Asia Times*, Dec 9, 2006 (internet reference). 34390

## *Perhaps the Rarest of All William Smith's Publications*

118. Smith, William (1769-1839).
Deductions from established facts in geology. Folio broadside. Scarborough: C. R. Todd, 1835. 416 x 328 mm. Creased where previously folded, 3 or 4 tiny wormholes (not affecting text), a few small stains, but very good.
$5750


Deductions from established facts in Geology.

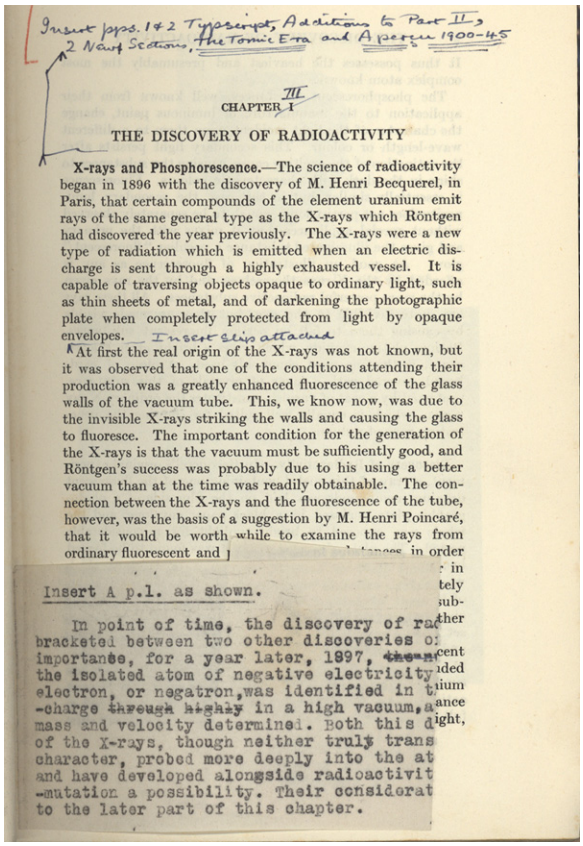
WILLIAM SMITH.

First Edition, and *extraordinarily rare*, with no copies listed in NUC, OCLC or RLIN, and only one copy (Geological Society of London) cited in Eyles's bibliography of Smith. A practicing surveyor and amateur geologist, Smith observed and documented English strata for many years, and in doing so came to recognize two essential facts: first, that the strata of England appear in a regular succession, and second, that many individual strata have a characteristic fossil content that can be used to distinguish them from other lithologically similar strata. On the basis of these discoveries Smith is recognized as the founder of stratigraphical geology; his work and methods had a significant influence in the development of a geologic chronology, and his linking of geology with paleontology provided evidence for later evolutionary theories.

The present broadside, published near the end of Smith's life, sets forth Smith's geological principles in a concise tabular form. Based on the evidence of organized fossils (which he called "the medals of Creation, the antiquities of Nature, and records of time"), he distinguished six stratigraphically identifiable "orders of things" and five principal "supernatural events" such as the emergence of dry land, the Deluge, etc. Smith believed the biblical Creation to be the last of a succession of previous creations, and the Deluge to be the last of a long series of supernatural destructions. DSB. Eyles, "William Smith (1769-1839): A Bibliography of his Published Writings," *J. Soc. Bibl. Nat. Hist.* 5 (1969), no. 42. 40039

## *Heavily Annotated & Revised Author's Copy*

119. Soddy, Frederick (1877-1956).
The interpretation of the atom. 8vo. xviii [2], 355pp. 20 plates, fold. table, text illustrations. Original folding tables at the back replaced with a revised "Periodic Table of the Chemical Elements." London: John Murray, 1932. 225 x 152 mm. Original cloth, shaken, spine faded. Heavily annotated by the author, with numerous manuscript and tipped-in typescript additions / revisions dating from 1940-45, as described below. In a cloth box. $9500



Insert pps. 1 & 2 Typescript, Additions to Part II, 2 New Sections, The Atomic Era and A Peep in 1900-45

III

CHAPTER I

THE DISCOVERY OF RADIOACTIVITY

**X-rays and Phosphorescence.**—The science of radioactivity began in 1896 with the discovery of M. Henri Becquerel, in Paris, that certain compounds of the element uranium emit rays of the same general type as the X-rays which Röntgen had discovered the year previously. The X-rays were a new type of radiation which is emitted when an electric discharge is sent through a highly exhausted vessel. It is capable of traversing objects opaque to ordinary light, such as thin sheets of metal, and of darkening the photographic plate when completely protected from light by opaque envelopes. Insert slip attached

At first the real origin of the X-rays was not known, but it was observed that one of the conditions attending their production was a greatly enhanced fluorescence of the glass walls of the vacuum tube. This, we know now, was due to the invisible X-rays striking the walls and causing the glass to fluoresce. The important condition for the generation of the X-rays is that the vacuum must be sufficiently good, and Röntgen's success was probably due to his using a better vacuum than at the time was readily obtainable. The connection between the X-rays and the fluorescence of the tube, however, was the basis of a suggestion by M. Henri Poincaré, that it would be worth while to examine the rays from ordinary fluorescent and

Insert A p.1. as shown.

In point of time, the discovery of ra bracketed between two other discoveries o importance, for a year later, 1897, the the isolated atom of negative electricity electron, or negatron, was identified in t -charge through highly in a high vacuum, a mass and velocity determined. Both this d of the X-rays, though neither truly trans character, probed more deeply into the at and have developed alongside radioactivit -mutation a possibility. Their considerat to the later part of this chapter.

First Edition, British issue. Soddy collaborated with Rutherford in the crucial alpha-ray experiments that led to their revolutionary disintegration theory of radioactivity (1901-3). He was the first to recognize that the chemically identical atoms of different atomic weights discovered by radioactivity researchers were all varieties of the same chemical element, and introduced the term "isotope" to describe this phenomenon. He was awarded the 1921 Nobel Prize for chemistry for his investigations into the origin and nature of isotopes, which paralleled Bohr's physical investigations in providing crucial evidence for the nuclear origins of alpha- and beta-decay.

Soddy's *Interpretation of the Atom*, which superseded his classic *Interpretation of Radium* (1909; 4th ed. 1922), deals with developments in radioactivity and atomic chemistry from the turn of the century to the time of writing. Only one edition of *The Interpretation of the Atom* ever appeared in print. However, the two heavily revised author's copies we are offering here show that Soddy at one time intended to publish an updated edition covering advances in the field up to 1940, with an appendix touching on the events leading up to the detonation of the atomic bomb in 1945. Evidently, Soddy abandoned his plan to publish a revised *Interpretation of the Atom*, thus leaving unpublished the thousands of words of revisions and additions recorded in this volume. Later he incorporated the gist of his revisions into his *Story of Atomic Energy* (1949), which, according to its preface, replaces both the 1909 and 1932 works.

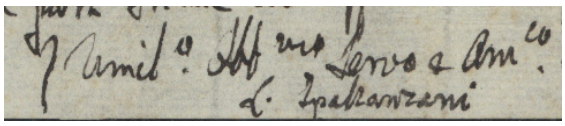
Although we have from time to time seen single copies of books marked up by their authors in preparation for a new edition, we have rarely seen a copy as extensively annotated as this one. 136 of its 188 text leaves bear Soddy's annotations or copy-editing symbols, made either in manuscript or on added typewritten slips. All of its plate leaves have been edited by Soddy; some have figures cut out of them. There is an added frontispiece illustration (of John Dalton), as well as an added table in the back and typewritten "Instructions to the Printer" tipped in at the front. According to notes in this copy, Soddy also prepared a typescript containing rewritten versions of several sections in *The Interpretation of the Atom*, including chapters XII through XV. These typescripts are not present here.

It is likely that this revised copy of *The Interpretation of the Atom* was once owned by Soddy's friend Muriel Howorth, to whom he gave all of his papers and bequeathed the copyrights of his published works. Howorth edited the first (and only published) volume of Soddy's memoirs, and also wrote *Pioneer Research on the Atom: Rutherford and Soddy in a Glorious Chapter of Science* (1958), which includes a biography of Soddy. DSB. James, *Nobel Laureates in Chemistry*, pp. 134-40. 38537

## 120. Spallanzani, Lazzaro (1729-99).

Autograph letter signed, in Italian, to an unnamed correspondent. Scandiano, October 21, 1795. 1 page. 211 x 168 mm. Right margin slightly frayed, traces of former mounting. Transcription provided. $1250

"Among the many dedicated natural philosophers of the eighteenth century, Spallanzani stands preeminent for applying bold and imaginative experimental methods to an extraordinary range of hypotheses and phenomena. His main scientific interests were biological and he acquired a mastery of microscopy; but he probed also into problems of physics, chemistry, geology, and meteorology, and pioneered in vulcanology. Acute powers of observation and a broadly trained and logical mind helped him to clarify mysteries as diverse as stones skipping on water; the resuscitation of Rotifera and the regeneration of decapitated snail heads; the migrations of swallows and eels and the flight of bats; the electric discharge of the torpedo fish; and the genesis of thunderclouds or a waterspout. His ingenious and painstaking researches illuminated the physiology of blood circulation and of digestion in man and animals, and also of reproduction and respiration in animals and plants. The relentless



thoroughness of his work on the animalcules of infusions discredited the doctrine of spontaneous generation and pointed the way to preservation of foodstuffs by heat" (*Dictionary of Scientific Biography* 12, p. 553). Spallanzani's scientific activities concluded only with his death: his investigations into bat flight, eel reproduction and animal and plant respiration were done in the final decade of his life, and his last scientific publication (1798) contains his discovery that plants respire oxygen and give off carbon dioxide (the reversal of the photosynthesis process) when kept in deep shade.

In the present letter, written to a doctor, Spallanzani alludes to medical treatments he had been receiving, most likely for the prostate and bladder problems that eventually caused his death. The letter translates as follows:

> Your most kind letter reached me in Venice when I was on the point of leaving there in order to return to Scandiano, and that is why, dear Doctor, I must beg you to excuse me for not replying until now, inasmuch as I had not the time to do so earlier.
>
> Thus, I am writing now to express my deepest thanks for your most obliging thoughtfulness in introducing me to your physician, which he described to me personally at the time, and in conveying to me the letter from the doctor at the hospital, which I value very highly.
>
> I also greatly appreciate the gracious words that you were pleased to offer with respect to me in introducing me again to the Messrs. Fananesi, now my colleagues and friends, to whom I ask you kindly to convey my warmest and most cordial regards.
>
> And I hope that the coming year will offer another opportunity to enjoy your hospitality at home, so that together we might share the pleasant company of those gentlemen, inasmuch as I have been altogether pleased, this year as well, with the excellent treatment that I have received from you, and with the subtleties that you have shared with me, no less than those gentlemen have done.
>
> In a few days I shall leave for Pavia. Do not hesitate to call upon me at any time if I can be of service to you in any way; please present my compliments to all your family; and believe that I, until the grave, hold you in the same esteem. I remain, my very dear Sir and friend, Your most humble and affectionate servant and friend, L. Spallanzani

40140


## 121. Stephenson, John (1797-1842) & James Morss Churchill.

Medical botany: Or, illustrations and descriptions of the medicinal plants of the London, Edinburgh, and Dublin pharmacopoeias. . . . 8vo. 4 vols. in 2. Unpaginated. 186 attractive hand-colored botanical plates (numbered 1-185, plus an unnumbered plate of "Atropa belladonna" in Vol. I). London: John Churchill, 1831. 240 x 146 mm. 19th cent. half calf, marbled boards, a little rubbed. Minor foxing and offsetting from plates, but a very good set. Ownership signature, dated 1871, on endpaper.

$4500

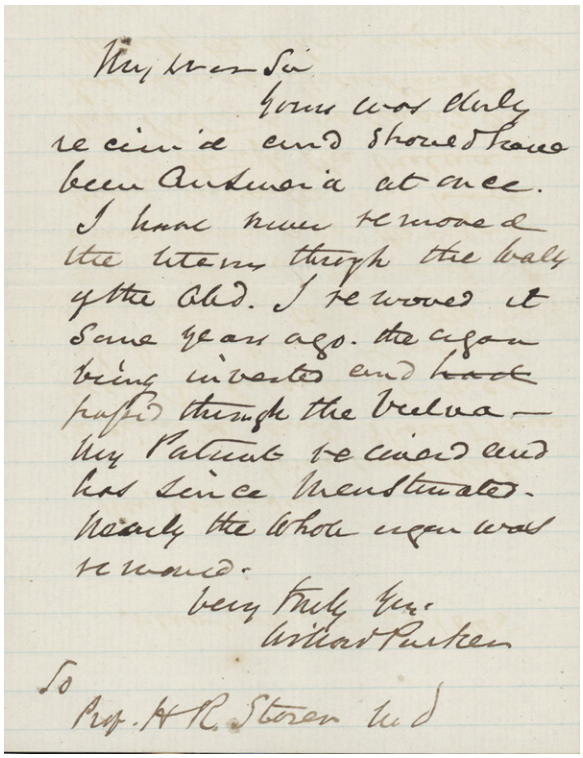
First Edition. A very attractive series, including the Dublin pharmacopeia, which Woodville did not use in his own Medical Botany (1790-95). The handsome hand-colored plates make a very good impression next to more

celebrated works by Sowerby, Edwards, etc. See G-M 5740 for Stephenson, who was the first to be operated on by Roux for cleft palate, and who first described the operation in his thesis of 1820. Churchill was the great pioneer of acupuncture in England; see Lu and Needham, Celestial Lancets, pp. 297-99. Nissen 1891. Pritzel 8946. 39705

## *Important 19th-Century A.Ls.s. on Abdominal Hysterectomy and Ovariotomy*

122. Storer, Horatio R. (1830-1922).
Collection of 8 A.Ls.s. to Storer from 8 different physicians, October 8, 1865-November 19, 1878. Various sizes. 16pp. in all, plus postmarked cover to one letter, and a small sepia-toned photograph of a portrait of Benjamin Waterhouse (very faded, chipped and creased). Creased where folded, otherwise fine.

$3750


Dear Sir
Yours was duly received and should have been answered at once. I have been to remove the uterus through the walls of the abd. I removed it some years ago. the organ being inverted and back passed through the vulva — My Patient recovered and has since menstruated. Nearly the whole organ was removed.
Very Truly Yrs.
Willard Parker
To
Prof. H. R. Storer M.D

A fascinating collection of letters written to one of the foremost American gynecologists of the nineteenth century, mostly pertaining to his successful operation for abdominal hysterectomy—the fourth such operation performed in the United States. The D.A.B. cites Storer as the establisher of the specialty of gynecology, "not hitherto recognized as a distinct branch of medicine," and he was a founder of the *Journal of the Gynaecological Society of Boston*, the first journal devoted exclusively to the diseases of women. He published many books on gynecological and related topics, including several on abortion, to which he was opposed. His major surgical achievements were the operation for abdominal hysterectomy and the performance, in 1868, of the world's first cesarean-hysterectomy.

Storer's correspondents included some of the most distinguished names in American and English surgery: T. Spencer Wells (1818-97), whom Ricci (p. 477) called "the greatest ovariotomist of the preantiseptic age" (see G-M 6056); Edmund Randolph Peaslee (1817-78), author of *Ovarian Tumors*; *Their Pathology, Diagnosis and Treatment, Especially by Ovariotomy,* 1872) and performer of the second double ovariotomy in America (1850); Washington Atlee (1808-78), who operated successfully on vesico-vaginal fistula (1860; see G-M 6047), and who together with his brother John performed the first abdominal myomectomy (1844); Willard Parker (1800-1884), the first American to operate for appendicitis (1867; see G-M 3564); Isaac Hays (1796-1879), longtime editor of the *American Journal of the Medical Sciences*; and Henry Austin Martin (1824-84), who was the first to write on the use of adhesive plaster in surgery. The collection also includes letters from James[?] Dana and J. A. Menzies, who are not noticed in our references.

In 1866 Storer published his account of the "Successful Removal of the Uterus and Both Ovaries by Abdominal Section" in the January number of the *American Journal of the Medical Sciences*. No fewer than five of the eight letters in this collection refer to Storer's operation, the report of which he must have circulated prior to its publication in the journal, as three of these five letters were written in late 1865. Isaac Hays, the editor of the journal that published Storer's paper, wrote to him on October 8 to refer him to Koeberlé's performance of the first successful extirpation of the uterus and ovaries (1863; see G-M 6052). Washington Atlee, in his letter of November 19, discussed an unconfirmed report of a hysterectomy performed by Dr. Land, noted that his own brother John had never removed a uterus, and referred Storer to the account of Baker Brown's fatal case in the October 1865 number of the *American Journal of the Medical Sciences*. Willard Parker, in his letter of November 29, stated that he had never performed abdominal hysterectomy but had once removed a prolapsed uterus through the vulva. The more important of the remaining two letters referring to Storer's operation was that of E. R. Peaslee, written on March 8, 1866; it praised Storer's report as "a most interesting and a

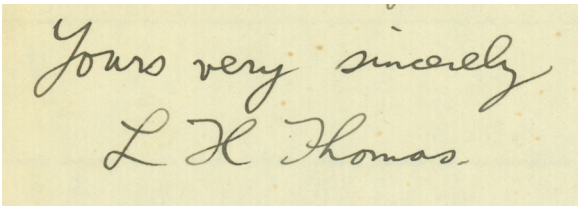
very able paper" and one that "must convince all candid minds that extirpation of the uterus is sometimes a justifiable operation." The remaining letter in this series was written on March 5, 1866 by James[?] Dana, who described himself as having "been now almost forty years out of medical practice."

Of the three letters that do not mention Storer's operation, the most valuable by far is that of Spencer Wells, who wrote to Storer on April 17, 1867 to discuss his own unsatisfactory experience with use of cautery in ovariotomy, and to report his current success rate after the completion of over 200 ovariotomies. Wells wrote his letter on the blank verso of a printed "Table of Cases to Accompany Mr. Spencer Wells's Fourth Series of Fifty Cases of Ovariotomy," which provides the pertinent data for fifty cases of completed ovariotomy performed between December 1865 and March 1867. Wells reported on 500 such cases between 1856 and 1872, with an overall mortality rate of 25%. In his letter, written when he had completed 207 operations, he gave the mortality rates for the first and second hundred (34% and 28% respectively), as well as the overall rate (31%) and his success rate with the seven operations completed since. Wells also mentioned Storer's "clamp shield," an instrument designed to shield the clamps used in the pre-antiseptic era for the extra-abdominal treatment of the ovarian stump after ovariotomy. Wells had not yet been able to obtain one of these shields, and asked Storer to write to the manufacturer to "stir him up."

H. A. Martin's letter, written on November 19, 1878, was a request for a photographic negative of the portrait of Benjamin Waterhouse, which Martin planned to reproduce in an article on Waterhouse and the introduction of vaccination in America; a copy of the photograph is included in this collection. The final letter in this collection was from J. A. Menzies, a British physician in Naples, who discussed the illness of Storer's daughter and the problem of halting the spread of syphilis. D.A.B. (Storer). Ricci, *Development of Gynaecological Surgery and Instruments*, pp. 447 (Peaslee); 469; 563 (Storer); 477-82 (Wells). Rutkow, *History of Surgery in the U.S.,* GY20 (Atlee); GSp142 (Martin); GYp42-45 (Peaslee). Speert, *Obstetrics & Gynecology in America*, pp. 180-81 (Storer); 129 (Peaslee). 29315

## 123. Thomas, Llewellyn Hilleth (1903-92).

A.L.s. to Samuel A. Goudsmit (1902-78), dated from the Universitets Institut for Teoretisk Fysik, Copenhagen, 25 March 1926. 5 pp. on 5 sheets, 207 x 128 mm. Creased where previously folded, sheets punched for 2-hole binder in left margin, affecting a few words, staple-holes in




upper left corner, small fold in upper left corner of first sheet reinforced with tape. Very good.
$6500

Thomas's earliest recorded letter to Goudsmit, discussing electron spin, written one month after Thomas had supplied the missing factor 2 ("Thomas factor") essential to Goudsmit and Uhlenbeck's calculation of electron spin. In fall 1925, Goudsmit and Uhlenbeck proposed "the association of an intrinsic magnetic moment with each electron in order to describe the observed complex structure of atomic spectra consistently" (Mehra & Rechenberg, III, p. 266). However, when Goudsmit and Uhlenbeck published their initial paper on electron spin in November 1925, several physicists raised serious objections to the theory, particularly Pauli and Heisenberg, who took exception to the fact that the doublet separation predicted by Goudsmit and Uhlenbeck's formulation was too large by a factor of two. Thomas, a researcher from Cambridge, who happened to be visiting Bohr's laboratory at the time, sent a note in to Nature on February 20 providing a solution to the problem. "Thomas noted that earlier calculations of the precession of the electron spin had been performed in the rest frame of the electron, without taking into account the precession of the electron orbit around its normal. Inclusion of this relativistic effect reduces the angular velocity of the electron (as seen by the nucleus) by the needed factor 1/2." (Pais, Inward Bound, p. 279).

Bohr, a supporter of the electron spin theory, immediately sent a copy of Thomas's Feb. 20 note to Pauli in a letter written the same day. Yet Pauli remained unsatisfied, stating that Thomas had insufficiently justified his derivation of the Thomas factor, and holding to his belief that the difficulties of atomic structure could not be resolved by any kinematical investigation. Bohr's initial efforts to win Pauli over were fruitless, as were those of Goudsmit, who visited Pauli in Hamburg on March 8 in order to bring him details of Thomas's calculations. Pauli did not give in until he received Bohr's letter of March 9, in which Bohr pointed out "that the goal of [Thomas's] calculation had been to obtain the average value of the internal magnetic field Hi or the associated perturbation energy; hence it should not matter what specific frame of reference one used, 'for the only thing, about which one can talk by the very nature of the problem, is the change of

the orientation of the electron's [angular momentum] vector after one revolution in the electron orbit, where the velocity relative to the nucleus is the same as before'" (Mehra & Rechenberg III, p. 272). On March 12, Pauli wrote letters to Bohr and Kramers announcing his capitulation, and on March 13 sent a postcard to Goudsmit stating the same thing.

The first part of Thomas's letter to Goudsmit discusses electron spin and Pauli's reaction to it—even though Pauli had by this time accepted the validity of Thomas's calculations, his earlier resistance apparently still rankled:

> I think you and Uhlenbeck were very lucky to get your spinning electron published and talked about before Pauli heard of it. It appears that more than a year ago Kronig [i.e., American physicist Ralph Krönig, an earlier collaborator of Goudsmit] believed in the spinning electron and worked out something; the first person he showed it to was Pauli. Pauli ridiculed the whole thing so much that the first person also became the last and no one else heard anything of it. Which all goes to show that the infallibility of the Deity does not extend to his self-styled vicar on earth.

Thomas also mentions offprints of both his and Goudsmit's notes on electron spin published in Nature ("Professor Bohr thinks it will be better to wait another ten days to get reprints of my Nature letter to send with yours") and Thomas's further work on electron spin ("At present I am still working on a longer article on the kinematics of the rotating electron . . ."). Kuhn et al., *Sources for the History of Quantum Physics,* p. 91, citing this letter. DSB. Pais, *Inward Bound*, pp. 276-80. Mehra and Rechenberg, *The Historical Development of Quantum Theory,* III, pp. 270-73. 38620

## 124. Travers, Benjamin (1783-1858).

A.L.s. to Dr. [Gabriel Jean Marie] De Lys (1783?-1831), dated from New Court, 23 [October?] [1809]. 4pp. 200 x 125 mm. Creased where previously folded with slight wear along creases, traces of mounting on verso of last leaf, but very good. $1500

Travers, surgeon to St. Thomas's Hospital, is best known for his contributions to ophthalmology—he was the first hospital surgeon in England to specialize in eye surgery, and wrote the first systematic English-language treatise on the eye (see G-M 5843)—and for his researches on intestinal sutures (see G-M 3433). He was a student and later partner of Sir Astley Cooper, with whom he collaborated on *Surgical Essays* (1818-19; G-M 2941). In his long, detailed letter to the Birmingham physician De Lys, Travers first discourages his correspondent from contributing an article to an unnamed journal (possibly the *Medical and Chirurgical Review*), then proposes another editorial project:

> I send you Richerand, which I wish you to digest concisely & send back in a month. The analysis alone will take some space. I will send to [illegible] for [this vol.?] which is scarce, but if I cannot get it then leave the list unfinished till next No. when you may add a comparative view of surg. in other countries—& indeed I think this will be the best way.

"Richerand" refers to the French physician Anthelme Balthasar Richerand (1779-1840), author of *Nouveaux élémens de physiologie* (1801), which went through numerous editions. In 1812 De Lys published an English translation of Richerand's work based on the 1811 fifth edition, which also enjoyed great popularity in both England and the United States. Although Travers is not specific, it is likely that he is referring here to the *Nouveaux élémens*. In the remainder of his letter, Travers gives De Lys encouragement and advice:

> Have courage, patience and perseverance in the same degree as you have evince yourself to possess in your education, & you will succeed at Birmingham. . . . I know the correctness of your mind & conduct & there is no man living in whose conduct I should place greater confidence. . . . I shall send you in a few days a letter to Mr. Lloyd from Dr. Birkbeck. He thinks you may supercede his present attendant.

"Birkbeck" refers to the physician George Birkbeck (1776-1841), best known for his role in founding the London Mechanics' Institution and for his efforts in promoting higher education for the working classes. DNB. 37270

## 125. United States Sanitary Commission.

Collection of 315 printed documents, some with manuscript annotations, and four printed books. Complete listing available. 1861-67. 10 volumes, uniformly bound in 19th century half black morocco, marbled boards, light rubbing and wear. From the library of William Q. Maxwell (1920-2001), author of *Lincoln's Fifth Wheel* (1956) a history of the U. S. Sanitary Commission. This collection is cited in the bibliography to Maxwell's work as "Miscellaneous documents. 4 [sic] vols. Formerly belonging to H. W. Bellows. Specially bound." Henry Whitney Bel-


lows (1814-82) organized the U. S. Sanitary Commission and served as its president from its inception in 1861 to its dissolution in 1879.

$15,000

A unique collection of source materials on the United States Sanitary Commission, comprising 315 printed documents and four books, all uniformly bound and formerly in the possession of the commission's founder and president, Henry W. Bellows. Many of these pamphlets and broadsides are extremely rare, and a collection of this sort, created by the founder of the commission, is irreplaceable on the market. A complete listing is available.

The U. S. Sanitary Commission was a civilian organization authorized by the U. S. government to provide medical and sanitary services to the soldiers of the Union Army during the Civil War. The Sanitary Commission grew out of Bellows' association with the Women's Central Association of Relief in New York, one of the numerous soldiers' aid societies established by Northern women in April 1861 after the start of hostilities between the Northern and Southern states. Bellows, a Unitarian minister, had helped to organize the WCAR and had written its constitution; he had also observed with dismay how unprepared the U.S. army was to meet even the most basic health care needs of its troops. Recognizing the enormous potential that volunteer aid organizations had for assisting the federal government and military in this area, Bellows led a delegation to Washington, D.C. in May 1861 to petition the government for permission to form a nationwide organization that would assume administrative control of all local and regional soldiers' aid societies in order to coordinate their efforts in the most efficient and useful way possible. Although he at first found few supporters within the government for his proposed organization—Lincoln famously likened it to "a fifth wheel to the coach"—Bellows at last succeeded in obtaining government approval to establish the United States Sanitary Commission, which came into being on June 13, 1861. The Sanitary Commission remained active until February 7, 1879, when Bellows, who had served as its president from its inception, brought the Commission's affairs to a close.

The U. S. Sanitary Commission consisted of a central office in Washington, D.C. and several semi-independent regional offices; there were even branch offices in London and Paris. While authorized by the government, the U. S. Sanitary Commission received no government funding; instead, it was entirely supported by private donations of cash and supplies. The Sanitary Commission's duties were manifold: inspecting and reporting on army camp and hospital conditions; collecting and distributing hospital supplies, clothing and food contributed by aid societies; providing field relief to troops on the march and in the battlefield; collecting statistical data on the health and social background of Union army soldiers; improving transportation for the sick and wounded; maintaining a network of soldiers' homes and convalescent camps; publishing medical and surgical essays on relevant topics for distribution to military medical personnel; and maintaining up-to-date records of all of its activities. After the war the U. S. Sanitary Commission assisted soldiers and their families in obtaining back pay, pensions and other monetary compensation; set up a Historical Bureau to arrange and catalogue its own voluminous records; and made preparations to publish several histories of its war work, including the six-volume *Medical and Surgical History of the War of the Rebellion* (1870-83). Throughout its existence the Sanitary Commission issued an enormous number of circulars, broadsides, questionnaires, pamphlets and periodical publications, which were of vital importance in maintaining public awareness and support of its work. Over three hundred of these documents are represented here.

The activities of the U. S. Sanitary Commission had a lasting impact on American medicine, both in war and peace. As stated in a recent history of medicine and surgery in the Civil War,

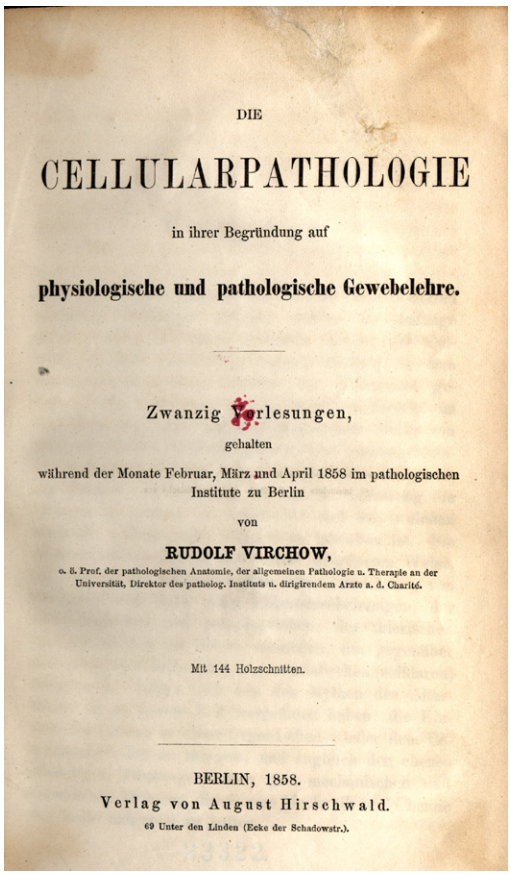
> . . . the Sanitary Commission played a leading role in attending to the overall health needs of Union troops. While also regarding themselves as defenders of the public's health and welfare, commission members promulgated exacting principles for both camp sanitation and public hygiene. Through its involvement in the political maneuverings to restructure the U.S. Army's Medical Department, this civilian relief agency would have a decided influence on the daily work experience and professional thinking of tens of thousands of physicians. As a result, it would shape American medicine for decades to come (Rutkow, *Bleeding Blue and Gray: Civil War Surgery and the Evolution of American Medicine*, p. 17).

Rutkow, *Bleeding Blue and Gray: Civil War Surgery and the Evolution of American Medicine* (2005). Maxwell, *Lincoln's Fifth Wheel* (1956). Waide & Wingfield, "United States Sanitary Commission Records 1861-1878" (New York Public Library, Humanities and Social Sciences Library, Manuscripts and Archives Division). 40106

## *"Il a du Nerf, de l'Expression de la Vie"*

126. Velpeau, Alfred A. L. M. (1795-1867).
A.L.s. ("Velpeau") to an unnamed photographer [M. Corjate?], dated 16 Feb. [18]62. 204 x 132 mm. 1 page plus conjugate blank, with original photograph of Velpeau (50 x 44 mm.) tipped to it. Creased where previously folded, minor soiling, a few spots. [With] A.N.s. (signed with Velpeau's initial "V"), presumably to the same photographer, dated 27 mars [18]62. 127 x 105 mm. Creased where previously folded, minor soiling. [With] Biographical notice of Velpeau by Ch. Fauvel, published as part of the "Galerie des hommes du jour." 4to. 8pp. [Paris: Lahure, n.d. (*ante* 1867)] 313 x 232 mm. Unbound. Creased horizontally, some soiling. Together 3 items. Very good. $750

The first letter in this group was written to a photographer [M. Corjate?] whom Velpeau had hired to take his portrait: "Le portrait me parait très bien, mon cher Monsieur; il a du nerf, de l'expression de la vie" (The portrait pleases me very much, sir, it has the nerve, the expression of life). Velpeau was pleased with the photograph, calling it "un fameux coup de lumière," and ordering "4 ou 5" portraits along with 50 cartes-de-visite. A print of the photograph, showing Velpeau with his arms crossed (head and upper chest only), is attached to the letter. In the second note, Velpeau states that "je n'ai encore reçu ni les 6 gd. portraits, ni les 50 cartes qui M. Corjate m'avait promis" (I have not yet received either the 6 large portraits or the 50 cartes that M. Corjate promised me). 22442


DIE

CELLULARPATHOLOGIE

in ihrer Begründung auf

physiologische und pathologische Gewebelehre.

Zwanzig Vorlesungen,

gehalten

während der Monate Februar, März und April 1858 im pathologischen Institute zu Berlin

von

RUDOLF VIRCHOW,

o. ö. Prof. der pathologischen Anatomie, der allgemeinen Pathologie u. Therapie an der Universität, Direktor des patholog. Instituts u. dirigirendem Arzte a. d. Charité.

Mit 144 Holzschnitten.

BERLIN, 1858.

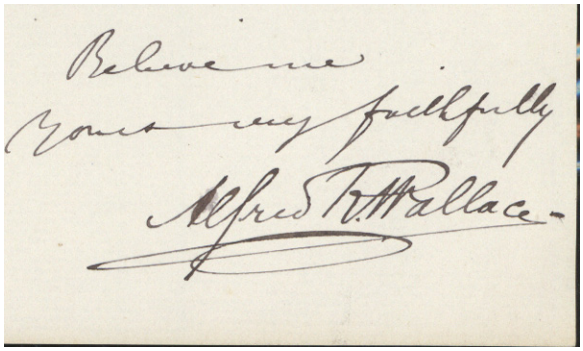
Verlag von August Hirschwald.

69 Unter den Linden (Ecke der Schadowstr.).

127. Virchow, Rudolf (1821-1902).
Die Cellularpathologie in ihrer Begrundung auf physiologische und pathologische Gewebelehre. 8vo. xvi, 440pp., 27pp. adverts. Text illustrations. Berlin: August Hirschwald, 1858. Modern half morocco, marbled boards. Light toning, otherwise a very good copy. *W. G. MacCallum's* copy, with his signature on what appears to be the book's original front endpaper, bound in before the half-title. $5000

First Edition. G-M 2299. PMM 307c. Dibner 132. Horblit 99. Virchow argued that all developed tissue can be traced back only to a cell, and thus set forth the phrase "Omnis cellula e cellula" to be added to Harvey's "Omne vivum ex ovo" and Pasteur's "Omne vivum e vivo." Virchow "analysed diseases and diseased tissues from the point of view of cell-formation and cell-structure, much as Kolliker had analysed normal tissues. There are

departments of pathology that Virchow explored so well that they have hardly been extended since his day. He set in motion the now familiar idea that the body may be regarded 'as a state in which every cell is a citizen.' Disease is a civil war, 'a conflict of citizens brought about by the action of external forces'" (Singer, *History of Biology* [1959] 344). This copy of Virchow's classic work once belonged to Canadian pathologist W. G. MacCallum (1874-1944), professor of pathology at Johns Hopkins, best known for his important discoveries concerning the life cycle of the malarial parasite; see G-M 3859, 3962, 5246, 5250. 39766



## 128. Wallace, Alfred Russel (1823-1913).

Autograph letter signed to Dr. [Maxwell Tylden] Masters (1833-1907). Waldrow Edge, Duppas Hill, Croydon, January 17, 1879. 2pp. 178 x 114 mm. Tiny rust-stain on verso of second leaf. $1250

To the British botanist M. T. Masters, longtime editor of the *Gardener's Chronicle* and author of *Vegetable Teratology* (1869):

> I beg to thank you for sending me copies of "Gardeners Chronicle" containing Mr. Paul's notices of my Epping Forest article. This should have some effect as proving, on the very best authority, that the scheme is practicable. I think however he has treated it rather too much from the nurseryman's point of view as shown by his advocating the planting of "our sixty to one hundred varieties of hollies &c."—which he thinks will "compare favourably with some of the so-called species of other countries."—This is of course decidedly opposed to my proposal, which is to produce here, as closely as we can, examples of the most marked types of temperate forest scenery. Mr. Paul does not seem to appreciate either the botanical interest or educational (and perhaps commercial) value of such an experiment. Believe me yours very faithfully Alfred R. Wallace.

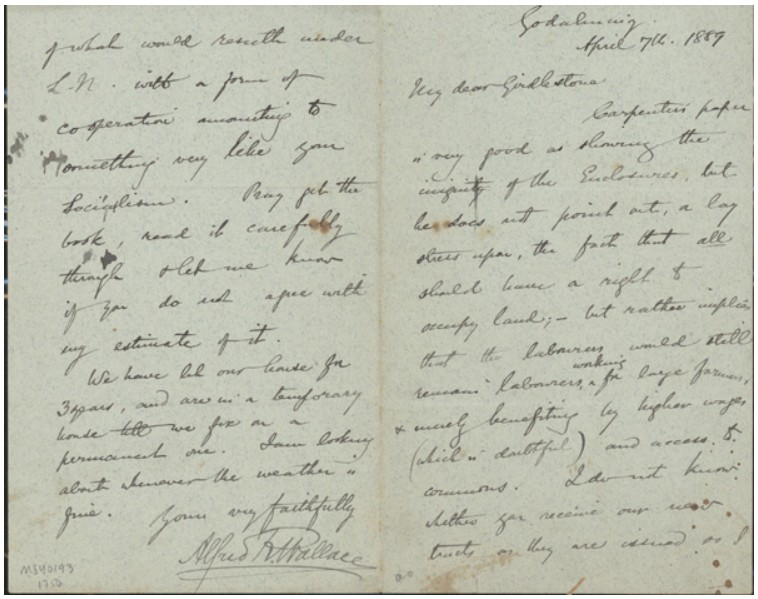
Wallace here refers to his article "Epping Forest," published in the November 1, 1878 number of the *Fortnightly Review*. Epping Forest, one of the surviving remnants of England's ancient Forest of Essex, had been declared a protected natural preserve in 1874, much to the delight of Wallace, who approved the move both as a conservationist and as an opponent of land enclosure. In 1878 the Epping Forest Committee was seeking to appoint a Superintendent of the forest, a post for which Wallace actively campaigned; his "Epping Forest" article was written in part to impress the committee with his scientific credentials and *bona fides.* Wallace made the committee's short list, but failed to get the Superintendent's position, which was given to Alexander McKenzie. "Mr. Paul" refers to horticulturalist William Paul (1822-1905), author of *The Rose Garden* (1848 and later eds.) and numerous other works on gardening, plant breeding, etc.; see the *Dictionary of National Biography*. Raby, *Alfred Russel Wallace*, pp. 218-20. 40192

## 129. Wallace, Alfred Russel (1823-1913).

Autograph letter signed to [Edward Deacon] Girdlestone (1829-92). Godalming, April 7, 1889. 4pp. 179 x 112 mm. A few minor spots. $1750

Excellent letter to socialist author Edward Deacon Girdlestone, discussing Wallace's progressive views on land reform, a cause that had taken up most of his energies over the preceding decade. The letter reads in part as follows:

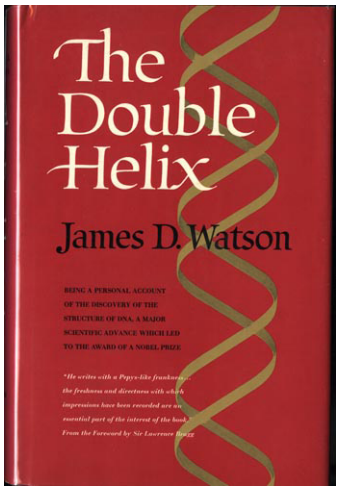
> Carpenter's paper is very good at showing the iniquity of the Enclosures, but he does not point out, or lay stress upon, the fact that all should have a right to occupy land;--but rather implies that the labourers would still remain labourers, working for large farmers, & merely benefiting by higher wages (which is doubtful) and access to commons. I do not know whether you receive our new tracts as they are issued so I enclose the two latest by our new and most valuable member Mr. Ogilvie. He ~~so~~ clearly brings out the facts that, if landlordism were abolished tomorrow, & all rents paid to the community,—yet if the present occupation of land continued the labourers and the bulk of the people would be no better off. The only beneficial occupation of land, both for the occupiers & for the whole nation, is occupation by the very men who till & cultivate the land.
>
> I also wish to recommend you strongly to get a little shilling book by Mr. Mills—"Poverty & the State" (Kegan Paul). It is a masterly criticism of our poor law system with a proposal of a method of dealing



with our paupers which would render them self-supporting. & in such comfort & even luxury, as to afford a practical demonstration of the necessity of a similar system for all workers. [in left margin] Mr. Mills has been a farmer & a Poor Law Guardian & his proposals are thoroughly practical & founded on knowledge. His plan if adopted would be a practical demonstration of what would result under L.N. [Land Nationalization] with a form of cooperation amounting to something very like your Socialism. Pray get the book, read it carefully through & let me know if you do not agree with my estimate of it. . . .

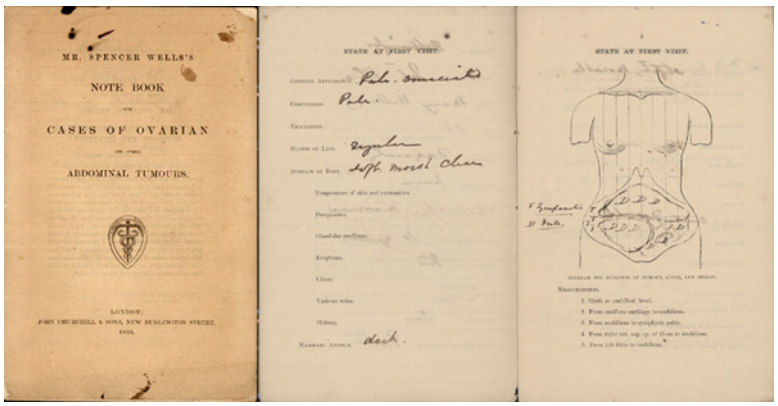
Wallace had long been a critic of England's system of land ownership, and in 1879 he began to devote himself in earnest to the cause of land reform. "He believed that rural land should be owned by the state and leased to people who would make whatever use of it that would benefit the largest number of people, thus breaking the often-abused power of wealthy landowners in English society. In 1881 Wallace was elected as the first president of the newly formed Land Nationalisation Society. The next year he published a book, *Land Nationalisation; Its Necessity and Its Aims*, on the subject. He criticized England's free trade policies for the negative impact they had on working class people" (Wikipedia, "Alfred Russel Wallace"). "Mr. Mills" refers to Herbert V. Mills, whose *Poverty and the State, or, Work for the Unemployed* was first published in 1886. "Mr. Ogilvie" may possibly refer to William Ogilvie (1736-1819), an early writer on land reform whose works were reprinted in the last part of the nineteenth century. We have not been able to positively identify "Carpenter," referred to in the first paragraph of Wallace's letter. It is interesting to note, in the second paragraph, Wallace's phrase "your Socialism." Wallace declared himself a socialist in the year this letter was written, after reading Edward Bellamy's *Looking Backward*; however, the phrase "your Socialism" suggests that this conversion had not yet taken place. Raby, *Alfred Russel Wallace: A Life.* 40193

## 130. Watson, James D. (1928- ).




The double helix. Being a personal account of the discovery of the structure of DNA, a major scientific advance which led to the award of a Nobel Prize. xvi, 226, [12]pp. Numerous illustrations. New York: Athenaeum, 1968. 213 x 137 mm. Original cloth, dust-jacket. Signed by the author on the title. Former owner's bookplate on inside front cover. Fine. $3750

First Edition. Watson's famous and controversial best-selling account of the events surrounding the discovery in 1953 of the structure of DNA. Watson is not usually cooperative about signing his books, so books with his signature are uncommon. 39535




## *Only Extant Example of a Spencer Wells Ovariotomy Casebook*

131. Wells, Thomas Spencer (1818-97).
Mr. Spencer Wells's note book for cases of ovarian and other abdominal tumours. Printed casebook completed in ink ms. *in Spencer Wells's hand*. 8vo. 25 [7]pp., 17 of which contain annotations by Wells. Full-page diagrams in text. London: John Churchill, 1865. 203 x 130 mm. Self-wrappers (partially split at spine), stitched as issued. Lightly browned throughout, a few small ink spots. Very good. Sold with: Diseases of the ovaries: Their diagnosis and treatment. 8vo. xvi, 376pp., errata slip at p. xvi. London: Churchill, 1865. 215 x 139 mm. Original cloth, a little worn & soiled, hinges cracking. Lightly browned, but very good. *Presentation Copy*, inscribed by Wells on the title: "Thompson Forbes Esq. with the author's kind regards"; see below. Sold with: Diseases of the ovaries: Their diagnosis and treatment. 8vo. xxiv, 478pp., erratum slip at p. 429. *Lacking title-page.* Text wood engravings. London: Churchill, 1872. 215 x 137 mm. Original cloth, worn, hinges weak. Lightly browned, occasional foxing. Sold with: Royal Medical and Chirurgical Society. . . . Three hundred additional cases of ovariotomy, with remarks on drainage of the peritoneal cavity, by T. Spencer Wells. 8vo. 4pp. [London: Spottiswoode & Co., 1877] 216 x 140 mm. Unbound as issued. Creased where folded, edges a little soiled and frayed, but very good. Sold with: T.L.s. dated 15th February 1965 from Wells's biographer, John Shepherd, discussing this casebook. 1 sheet, 176 x 203 mm., creased where folded. $7500

Apparently the Only Surviving Example of the detailed casebooks maintained by the great British ovariotomist Spencer Wells on each of his ovariotomy patients. Wells began performing ovariotomies in the late 1850s, a time when ovariotomy (and indeed any abdominal operation) was looked upon with great disfavor due to high mortality rates. "Wells was well aware of the opposition to such surgery and of the obloquy which would be heaped upon him is he was unsuccessful. He pledged himself publicly to record every detail of his cases, whether successes or failures. By doing so he aimed to establish the operation as a reputable and safe procedure and to answer the controversies about such matters as the incision and the management of the pedicle. He hoped also to prove that abdominal exploration was a justifiable means of establishing a diagnosis" (Shepherd, *Spencer Wells*, p. 56; also see pp. 55-68 and plates 7 & 8). To help him carry out his pledge, Wells had special notebooks printed in 1864, with printed headings under which he would fill in the details of each case, and diagrams in which he could sketch the locations of tumors, the patient's post-operative condition, etc. Wells certainly made use of these casebooks when compiling his monumental series of statistical reviews of ovariotomy cases (1863, 1865, 1867, 1869, 1871, 1872, 1877 & 1880), as well as his two volumes on *Diseases of the Ovaries* (1865 and 1872; G-M 6056), which contain narrative reports and statistical tables of 500 cases of ovariotomy performed between 1856 and 1872.

Wells's great success as an ovariotomist was due in part to his conduct of the operation. He made many changes in the operating room and equipment, scheduling of the operation, and training of nurses to assist; he particularly stressed cleanliness, anticipating Lister. Wells has also been called the originator of modern abdominal surgery (by D'Arcy Power), because the technique governing the

operation of ovariotomy, combined with Listerian principles, has been applied to operative procedures on all the other abdominal viscera. It was largely through Wells's efforts that ovariotomy became accepted by other surgeons as a safe and respectable operation.

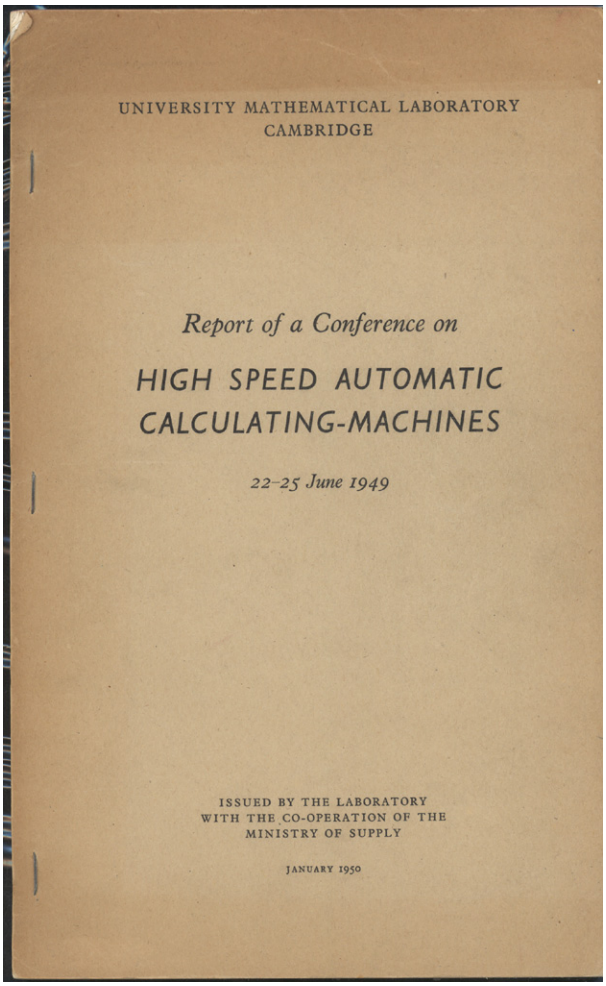
Although Wells maintained casebooks throughout the majority of his career as an ovariotomist, the one that we are offering here appears to be the *only one extant*. It is printed on writing paper, and has sections headed "State at First Visit," "History" (early and progressive symptoms), "Diagnosis" (left blank here), "Operation," "After-Treatment and Progress," and "Subsequent History" (also left blank). This casebook records Wells's 124th ovariotomy, performed in February 1864 on a Mrs. Mary Willoughby, who had been recommended to Wells by the surgeon Thompson Forster. Forster was one of three people attending the operation, and Wells later presented him with the copy of his *Diseases of the Ovaries* (1865) that we are offering with the casebook; it is probable that the 1872 *Diseases of the Ovaries* that we are also offering was likewise a gift from Wells to Forster.

In a letter written in 1965 to a former owner of the casebook, Wells's biographer John Shepherd stated that "You will be interested to hear that I have failed to find any other examples of the note-book completed by Spencer Wells. . . . Your document is, as far as I am aware, unique." Shepherd included reproductions of two of the casebook's pages in his biography of Wells (1965). Shepherd's letter is also offered with the casebook, as is a brief report issued by the Royal Medical and Chirurgical Society on the publication of Wells's *Three Hundred Additional Cases of Ovariotomy: With Remarks on Drainage of the Peritoneal Cavity* (1877), the seventh in his series of statistical reports. 30494

## 132. [Wilkes, Maurice V. (1913- ).]

Conference on high speed automatic calculating-machines. Report of a conference on high speed calculating-machines, 22-25 June 1949. Cambridge: University Mathematical Laboratory, January 1950. Original tan printed wrappers, stapled. Signed by Maurice V. Wilkes on the title-leaf. [6], 141pp., irregularly numbered. 33 inserted illustrations / diagrams. 327 x 200 mm. Provenance: computer pioneer Andrew D. Booth (1918- ), one of the main inventors of the magnetic drum memory. $6500

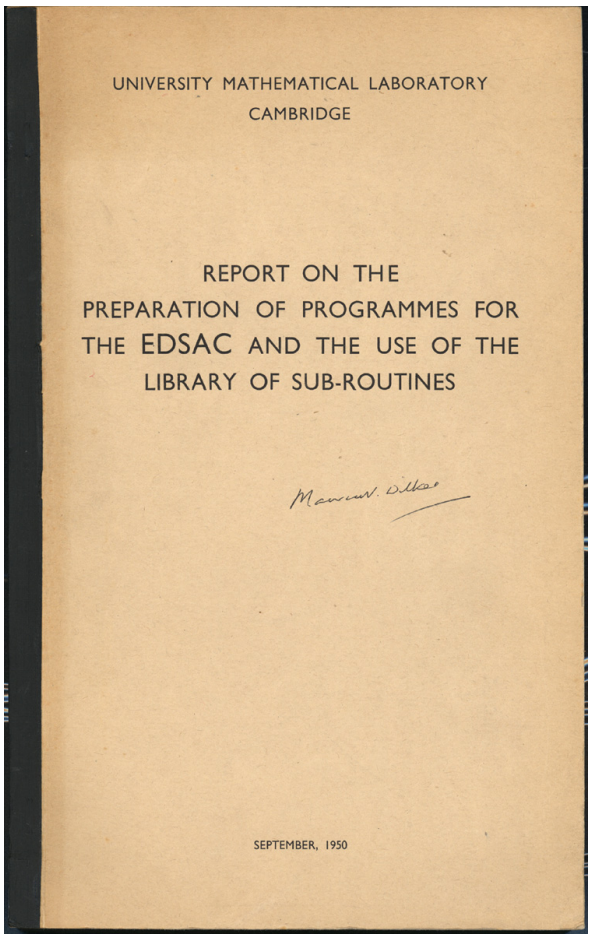
First Edition. A report of the first computer conference held in England. Its main significance was that it was the first computer conference in which a stored-program computer actually operated. The conference was




organized by Wilkes. Twenty-eight papers were presented at the conference, including Couffignal's "La machine de l'Institut Blaise Pascal," M. H. A. Newman's "Some routines involving large integers," and Turing's "Checking a large routine". The texts of most of the papers, as well as of the discussions that followed, are reproduced in the report. The conference was attended by about one hundred people, whose names are listed on pages 1-4. A bibliography of over one hundred works on computers appears on pages 134-41 (see Randell 1982a, 541). This bibliography was relatively complete for the sparse literature available at the time.

EDSAC, which had become fully operational just a few weeks previously, was the star of the Cambridge conference. Immediately after the opening address (delivered by Douglas R. Hartree), Wilkes presented a paper on EDSAC written by himself and his colleague William Renwick (pp. 9-11), which was followed by a demonstration of the machine (pp. 12-16). "For the demonstration two short programs were run: the first, written by Wilkes, printed a table of squares; the second,

written by David Wheeler, printed out prime numbers. David Wheeler . . . also gave a paper later in the conference on organising the program library for EDSAC [pp. 36-40]; this paper is interesting because it shows an early stage in the evolution of the EDSAC programming system that was later to be described in the classic textbook *The Preparation of Programs for an Electronic Digital Computer*" (Williams and Campbell-Kelly 1989, xiii). Rare: When *Origins of Cyberspace* was written, OCLC cited three copies of this report; no copies were cited in RLIN. *Origins of Cyberspace* 1019. 39379




133. Wilkes, Maurice (1913- ) *et al.*
Report on the preparation of programmes for the EDSAC and the use of the library of subroutines. Dittoed document in two colors. [3], 40 [2], 26, 39, xi ff. 323 x 201 mm. N.p., 1950. Original tan printed wrappers, cloth spine. Signed by Wilkes on the front wrapper. Boxed. Laid in are a single dittoed errata sheet and a two-sheet dittoed and stapled document titled "University Mathematical Laboratory, Cambridge. Applications of the EDSAC, to 1st September 1950," describing supplementary material. Provenance: Andrew D. Booth. Occasional insignificant spotting. $20,000

First Edition. The first report on how to program an operational stored-program computer. It was prepared by Wilkes and a fifteen-man team of researchers at Cambridge's University Mathematical Laboratory, and distributed to no more than one hundred people—"everyone we thought would be interested, both in the United Kingdom and abroad" (Wilkes 1985, 149). The material in this dittoed report was published with very few changes in Wilkes, Wheeler, and Gill's *Preparation of Programs for an Electronic Digital Computer* (1951). When OOC was written this report was not cited in OCLC or NUC, and RLIN noted only the Harvard Library copy. *Origins of Cyberspace* 1027. 39248

# Prints

134. Gautier d'Agoty, Arnauld-Eloi.
Plate 13 (hands) from *Corps complet d'anatomie* (Nancy: J. B. H. LeClerc, 1773). Mezzotint printed in colors by Gautier d'Agoty's 4-color method. Plate size approx. 535 x 390 mm. Archivally matted and framed. $3000

Arnaud-Eloi Gautier d'Agoty was the second son of the celebrated Jacques-Fabien Gautier d'Agoty (1717-86), who for thirty years held the royal privilege for color printing in France. J. F. Gautier d'Agoty was (or claimed to be) the inventor of the four-color method (red, blue, yellow and black) of printing mezzotints in color, an improvement on the three-color method devised in the early part of the 18th century by Jacques Christophe Le Blon. (d. 1741). Gautier d'Agoty obtained the color printing privilege in 1742, and over the next three decades he and his associates (including some of his sons) issued a series of illustrated works, primarily on human anatomy, that were as radically original and dramatic in their size and artistic composition as they were in their manner of production.

The series of large anatomical works issued by the Gautier d'Agotys concluded with Arnaud-Eloi's *Corps complet d'anatomie* (1773), "a major work of great merit and satisfaction . . . [The work's] fifteen plates follow a scheme of progress, from the classical figures at the start, to skeletal hands and feet; or we can see it as a strip performance, from fully clad nudes by stages to muscle and bone" (Franklin, *A Catalogue of Early Colour Printing*

[

1977], pp. 49-50). Among the most brilliant of these plates is the present one showing five skeletal and muscular hands; "the space and execution of this raise it to a place among the finest plates of any sort achieved by the Gautier family" (Franklin, p. 50). 40098

135. Gautier d'Agoty, Arnauld-Eloi.
Plate 3 (dissected figure, front view) from *Corps complet d'anatomie* (Nancy: J. B. H. LeClerc, 1773). Mezzotint printed in colors by Gautier d'Agoty's 4-color method. Plate size approx. 535 x 390 mm. Archivally matted and framed.
40102 $3000

136. Gautier d'Agoty, Arnauld-Eloi.
Plate 4 (dissected figure, front view) from *Corps complet d'anatomie* (Nancy: J. B. H. LeClerc, 1773). Mezzotint printed in colors by Gautier d'Agoty's 4-color method. Plate size approx. 535 x 390 mm. Archivally matted and framed.
40101 $3000

137. Gautier d'Agoty, Arnauld-Eloi.
Plate 11 (heads) from *Corps complet d'anatomie* (Nancy: J. B. H. LeClerc, 1773). Mezzotint printed in colors by Gautier d'Agoty's 4-color method. Plate size approx. 535 x 390 mm. Archivally matted and framed. 40100
$3000

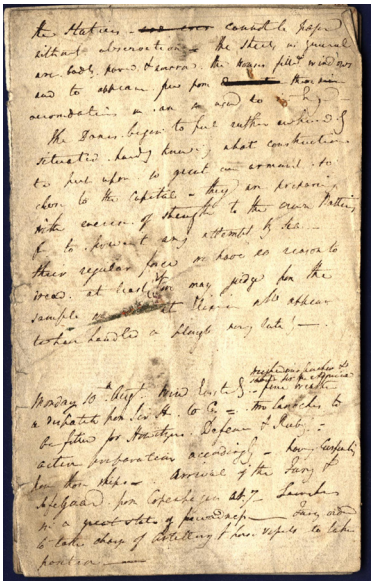
138. Gautier d'Agoty, Arnauld-Eloi.
Plate 14 (feet) from *Corps complet d'anatomie* (Nancy: J. B. H. LeClerc, 1773). Mezzotint printed in colors by Gautier d'Agoty's 4-color method. Plate size approx. 535 x 390 mm. Archivally matted and framed. 40099
$3000

ARCHIVES OF

# SIR WILLIAM CONGREVE (1772-1828),

## MILITARY INVENTOR AND ENGINEER

## SIR WILLIAM CONGREVE (1772-1828).



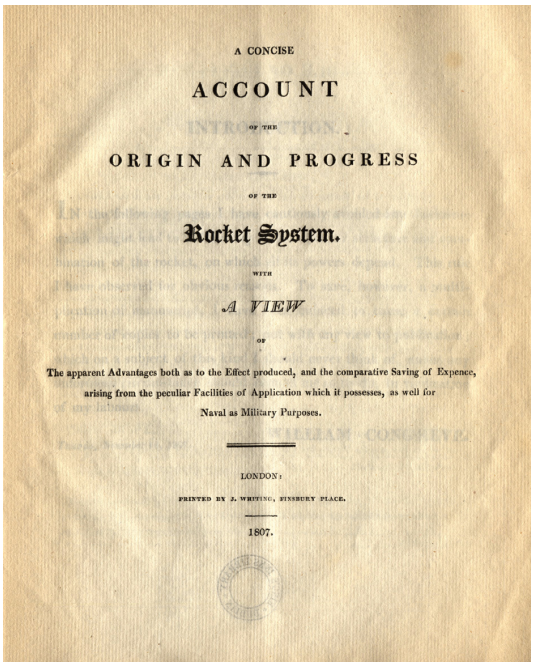
*Left: William Congreve at the 1807 bombardment of Copenhagen, where he directed the launch of about 300 of his own war rockets (S.I. A1126A; reproduced from Winter 1990, p. 21)*

*Right: A page from Congreve's 1807 diary of the Copenhagen bombardment, contained in the Congreve archive offered below.*

*Price for the collection: $125,000*

*(1)* Archive of 116 manuscripts, including Congreve's diary of the 1807 Copenhagen bombardment, 30 other manuscripts relating to Congreve war rockets and other military matters, 22 love letters from Congreve to his wife, and 27 manuscripts relating to Congreve's financial affairs. 1803-1869. Preserved in a cloth drop-back box.

*(2)* Bound volume of 2 printed pamphlets by Congreve on his rocket system, as follows: *[1]* A concise account of the origin and progress of the rocket system. . . . [6], 29pp. London: J. Whiting, 1807. *[2]* Speculation as to the principles of the flight of rockets, with a view to determine the precise effects of the stick . . . 8pp. Text diagrams. N.p., 1807. Together 2 items, 4to. 229 x 188 mm. 19th cent. boards, rebacked, endpapers renewed. Minor stains on blank flyleaf. Small library stamp of King's Inns Library, London on verso title and last leaf.



A CONCISE

ACCOUNT

OF THE

ORIGIN AND PROGRESS

OF THE

Rocket System.

WITH

A VIEW

OF

The apparent Advantages both as to the Effect produced, and the comparative Saving of Expence, arising from the peculiar Facilities of Application which it possesses, as well for Naval as Military Purposes.

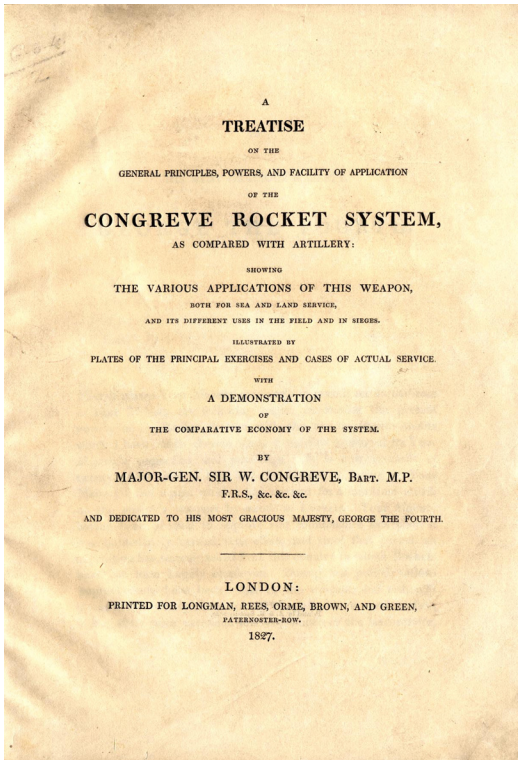
LONDON;

PRINTED BY J. WHITING, BISHOPSBURY PLACE.

1807.


*Bookplate of Ernst Augustus, Duke of Cumberland, in this bound volume of pamphlets on rocketry. The Duke was head of the Hanoverian Army, in which Congreve held the commission of lieutenant colonel.*

*(3)* Bound volume of 7 printed pamphlets by Congreve on his rocket system, as follows: *[1]* A concise account of the origin and progress of the rocket system . . . [6], 32, [2]pp. London: J. Whiting, 1810. Second edition. *[2]* Postscript to the concise account of the origin and properties of the rocket system. 15pp. London: J. Whiting, 1808. *[3]* The different modes of use and exercises of rockets, both for bombardment and for the field. 20pp. 4 engraved plates. London: James Whiting, 1810. *[4]* Detail of a plan for attaching to cavalry regiments a proportion of rocket artillery, with case shot . . . 10pp. 2 folding engraved plates. London: James Whiting, 1809. *[5]* General view &c. General view of a complete course of experiments proposed to be tried . . . for the investigation and organization of the rocket system . . . [caption title]. 24pp. N.p., n.d. [1807 or after]. *[6]* Memoir on the possibility, the means, and the importance, of the destruction of the Boulogne flotilla . . . [2], 34, [2, blank]pp. London: J. Whiting, 1806. *[7]* Explanation of the plan and intention of the project mortar boat [caption title]. [9]-11pp. Folding engraved plate. [London]: Whiting, November 1807. Together 7 items in 1, 4to. 222 x 177 mm. Tree calf ca. 1810, rebacked preserving original gilt spine and leather label, small scratch on back cover; preserved in a cloth drop-back box. Engraved bookplate of Ernst Augustus, Duke of Cumberland and later King of Hanover (1771-1851), brother of George IV and head of the Hanoverian army, in which Congreve held the commission of lieutenant colonel.


A

TREATISE

ON THE

GENERAL PRINCIPLES, POWERS, AND FACILITY OF APPLICATION

OF THE

CONGREVE ROCKET SYSTEM,

AS COMPARED WITH ARTILLERY:

SHOWING

THE VARIOUS APPLICATIONS OF THIS WEAPON,

BOTH FOR SEA AND LAND SERVICE,

AND ITS DIFFERENT USES IN THE FIELD AND IN SIEGES.

ILLUSTRATED BY

PLATES OF THE PRINCIPAL EXERCISES AND CASES OF ACTUAL SERVICE.

WITH

A DEMONSTRATION

OF

THE COMPARATIVE ECONOMY OF THE SYSTEM.

BY

MAJOR-GEN. SIR W. CONGREVE, Bart. M.P.

F.R.S., &c. &c. &c.

AND DEDICATED TO HIS MOST GRACIOUS MAJESTY, GEORGE THE FOURTH.

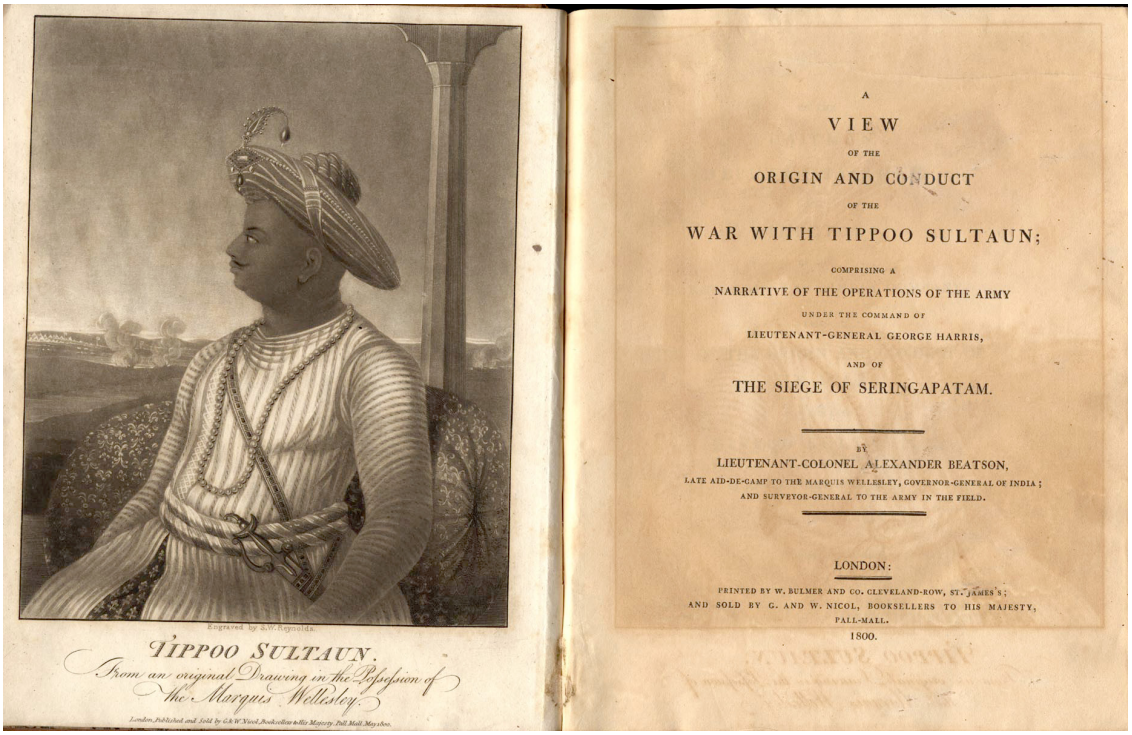
LONDON:

PRINTED FOR LONGMAN, REES, ORME, BROWN, AND GREEN,

PATERNOSTER-ROW.

1827.

*(4)* Congreve. A treatise on the general principles, powers, and facility of application of the Congreve rocket system as compared with artillery. . . . 4to. 84 [i.e., 80]pp. 12 engraved folding plates. London: Longman, Rees, Orme, Brown and Green, 1827. 277 x 211 mm. Quarter morocco, marbled boards in period style; preserved in a cloth drop-back box. Minor foxing to some plates, occasional faint offsetting from plates. From the library of historian of rocketry and space travel, Frederick I. Ordway III, with his bookplate.



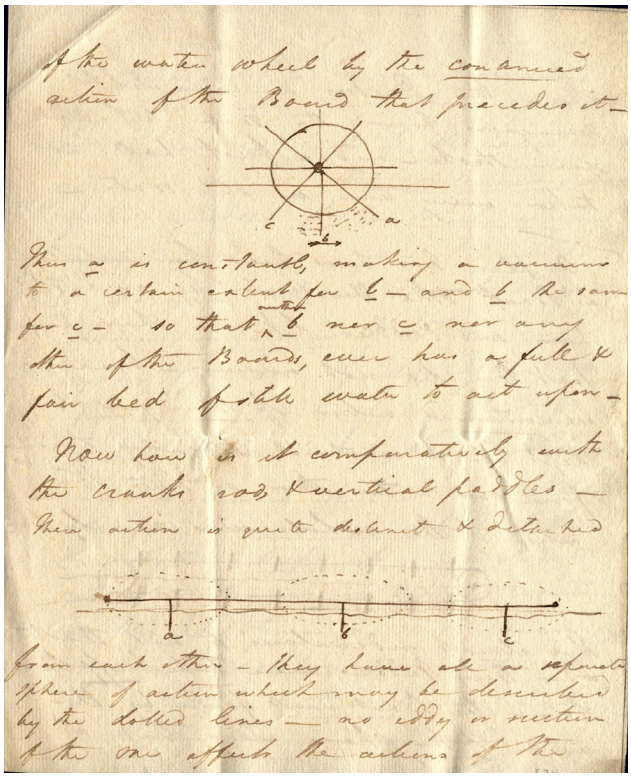

*(5)* Beatson, Alexander (1759-1833). A view of the origin and conduct of the war with Tippoo Sultaun; comprising a narrative of the operations of the army under the command of Lieut.-General George Harris, and of the siege of Seringapatam. 4to. xxiii, 265, clxxii pp. Engraved frontispiece portrait and 5 folding plates (1 hand-colored), 2 folding printed tables. London: G. & W. Nicol, 1800. 268 x 218 mm. Mottled calf gilt ca. 1800, spine and corners worn, chip in lower spine, hinges cracked. Moderate foxing and toning, some offsetting from plates. From the library of Frederick I. Ordway, with his bookplate.


*(6)* Grant. Rocket practice in the marshes. Hand-colored aquatint engraving. Woolwich: J. Grant, 1845. 343 x 460 mm. Matted. From the collection of Frederick I. Ordway III, so labeled on the back of the mat. Fine.

Price for the collection: $125,000


No. (1) is *the most significant archive extant of manuscript materials* by and about the prolific English inventor and technologist William Congreve and his family. Congreve is best known for creating the first rocket weapons system and initiating the modern processes of research and development in rocketry. Our archive extends over six decades, from 1803 to 1869. No other archive or collection held by individuals or institutions compares to it. Frank Winter, rocketry historian and author of the leading book on the history of the Congreve rocket, *The First Golden Age of Rocketry* (cited here as Winter 1990), cites in that work one manuscript at the British Library (titled "A second century of inventions," BM MS. 38844) and three letters dated 1785, 1810 and 1813. OCLC records a manuscript at Princeton dated 1794-1800 and titled "Exercises and manoeuvres for two light six pounders, or two heavy 3 pounders of General Desagulier's construction"; it is not stated whether the manuscript is in Congreve's hand. RLIN records a "Signed list of ammunition needed for a particular service," dated July 6, 1793, in the collection of the Pierpont Morgan Library (it is possible that this last was actually written by Congreve's father, who was head of the Royal Arsenal). These are, as far as we know, the only recorded manuscripts relating to William Congreve apart from our archive.

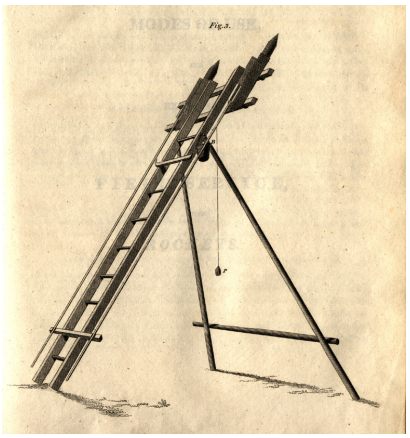
Included in our archive are letters and manuscripts covering William Congreve's career in rocketry. The most notable of these is his diary of the 1807 Copenhagen bombardment, which represents the first truly successful large-scale use of the Congreve war rocket in combat. Other noteworthy manuscripts include a signed draft and a fair copy of a "Report to the Commissioners of the Navy" dated October 1813, in which Congreve summarized his war rocketry activities from 1805 to 1813; a letter dated November 1813 relating to "the expense, or rather the economy of the Rocket System"; bills for materials used in rocket construction; an undated letter to a Captain Elliot discussing the subject of a "rocket cavalry"; letters discussing a plan of "applying Rockets for throwing ropes ashore from shipwrecked vessels"; and letters in which Congreve writes of his achievements and his attitude towards his work. The archive also contains manuscripts and letters relating to some of Congreve's other inventions: naval guns, bombships, and Congreve's design for a paddlewheel boat, which is detailed in a long letter illustrated with Congreve's sketches. Also included are a long series of love letters that Congreve wrote to his wife, Isabella, and another series of long, detailed letters written to Congreve during the last few months of his life by his secretary, R. Drake, discussing, among other things, Congreve's political career as a Member of Parliament, his precarious financial position, the publication of his *Treatise on the General Principles, Powers, and Facility of Application of the Congreve Rocket System* (1827), and negotiations with the British East India Company for exclusive rights to the Congreve war rocket for use in India.



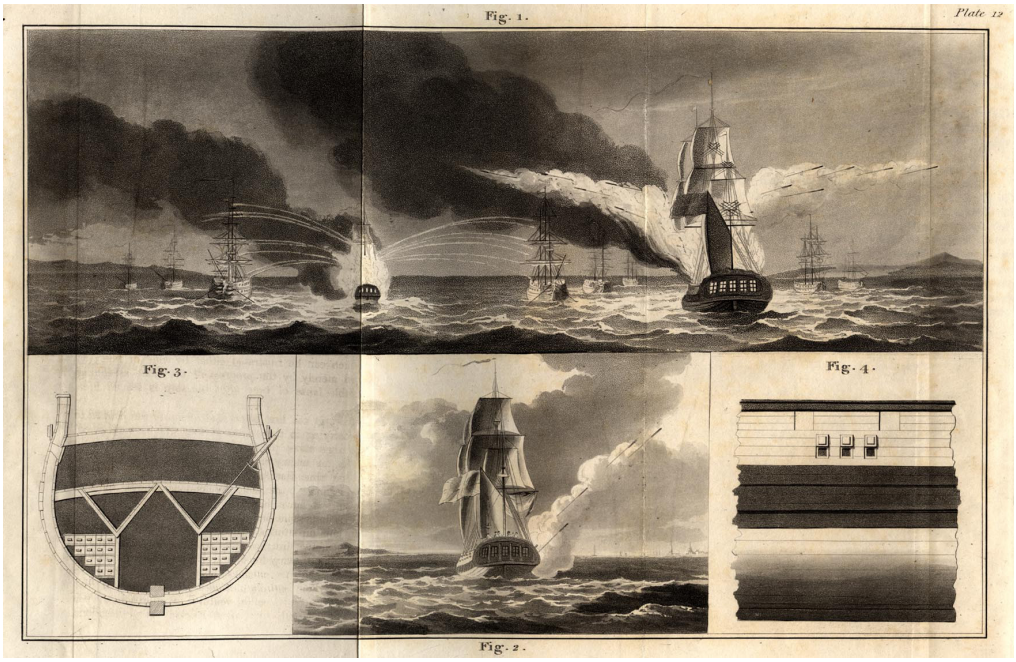
*This letter contains Congreve's rough sketches of a paddlewheel boat of his design—one of the many inventions that earned him the sobriquet "the ingenious Mr. Congreve."*

Included in the remainder of the archive is a letter from Congreve's father, William Congreve Sr., to Sir Joseph Banks (1743-1820), president of the Royal Society, discussing the elder Congreve's responsibilities at the Royal Arsenal in Woolwich. Another series of letters, some written by Congreve, concern a will of which Congreve's aunt, Miss Mary Congreve, was the executrix. There are numerous letters written by Isabella Congreve after Congreve's death in 1828, mostly on financial matters—Congreve's affairs were left somewhat embarrassed upon his death, and the archive includes several records of bills and promissory notes, both paid and owing. Lastly, there are several letters presumably written by Congreve's descendants, the last dated Feb. 1, 1869. A calendar of the documents in the archive is given at the end of this description.

Nos. (2) and (3) contain a total of nine papers constituting the nucleus of Congreve's publications on rockets, beginning with his proposal for the attack on Boulogne and finishing with somewhat revised versions of his first expositions of the rocket system. A bound collection identical to our no. (3) is held at the Naval History Center of the U.S. Navy Department Library; this suggests that Congreve had a few collections like these made, most likely for presentation. Our collection bears the bookplate of Prince Ernst Augustus (1771-1851), fifth son of George III; he was made Duke of Cumberland in 1799, and in 1837, with the death of his brother William IV, he became King of Hanover. Ernst Augustus no doubt figured largely in Congreve's sphere, both as the brother of the



*Tripod rocket launcher, illustrated in Congreve's* The Different Modes of Use and Exercises of Rockets *(2nd ed. 1810)*




*Naval rocket bombardment, as illustrated in Congreve's* Treatise on the General Principles, Powers, and Facility of Application of the Congreve Rocket System *(1827)*

Prince of Wales, whose patronage Congreve enjoyed, and as the head of the Hanoverian army, in which Congreve was awarded a commission in 1811.

No. (4), *A Treatise on the General Principles, Powers, and Facility of Application of the Congreve Rocket System*, contains the fullest account of Congreve's rocket system. It is the only one of his works to contain illustrations of the Congreve rocket system in use. The plates depict the use of the rockets in various military situations: by rocket cavalry and infantry, in bombardment from earthworks, in the attack and defense of fortresses, from boats and ships, etc. Letters referring to the book's publication can be found in the Congreve archive.

No. (5), Beatson's *View of the Origin and Conduct of the War with Tippoo Sultaun,* is an account of the fourth Anglo-Mysore war (1798-99), in which Indian troops under Tipu Sultan of Mysore (1750-1799) were defeated by the British East India Company under Sir Arthur Wellesley (later Duke of Wellington). Tipu, together with his father, Hyder Ali, developed the tactic of using rocket brigades to launch mass attacks on infantry formations. These rocket attacks, used during both the third and fourth Anglo-Mysore wars, so impressed the British forces that they brought several examples of Indian gunpowder rockets back to England; these provided Congreve with the inspiration to develop his own system of war rockets.

No. (6), a hand-colored aquatint engraving published by R. Grant, shows British Army war rocket practice using a rocket launcher mounted on a tripod. The image was used as an illustration in the Army and Navy Register and Woolwich Gazette for 1845.

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## HISTORICAL CONTEXT

The gunpowder rocket, ancestor of all rockets, was invented in China, probably shortly after the discovery of gunpowder in the thirteenth century. Although known in Europe and the Middle East prior to 1300, it was in India that the gunpowder rocket was first developed into a sophisticated weapon, and used extensively as both an anti-personnel and an incendiary device. Europeans first became seriously interested in the military uses of rockets at the end of the eighteenth century, when British troops in India were attacked with gunpowder rockets in the battles of Seringapatam (1792, 1799) during the third and fourth Anglo-Mysore wars. The British army, impressed with the Indian rockets, sent a few samples back to the Royal Artillery's Repository Museum near the Royal Arsenal at Woolwich, which had been founded in 1778 by Captain (later General) Sir William Congreve. It was there that Congreve's son, William Congreve Jr., first encountered the devices that would make him famous.

In 1804, William Congreve began experimenting with gunpowder rockets. As he later wrote, it was then that

> it first occurred to me that as the . . . rocket is exerted without any reaction from the point from which it is discharged, it might be necessarily applied, both afloat and ashore, as a military engine. . . . I knew that rockets were used for military purposes in India, but that their magnitude was inconsiderable, and their range not exceeding 1,000 yards. I knew, also, that some years since, several experiments had been made in the Royal Laboratory by General [Thomas] Desaguliers, then Fire-Master, for the construction of large rockets; but that they had not succeeded, and that very few of them would even rise off the stand (quoted in Winter 1990, p. 15).

Taking advantage of his father's influence and connections, Congreve soon gained approval for large-scale rocket production from the Master General of Ordnance, John Pitt, brother of Prime Minister William Pitt. He also won the favor of the Prince of Wales (later George IV) and of Minister of War Robert Stewart, Viscount Castlereagh; the British government, embroiled in ongoing hostilities against the French, was eager for anything that would give its military an advantage over Napoleon's forces. Within the next few years Congreve developed his "Congreve Rocket System," the first organized weapons system created in the West. His system

> consisted of a series of calibers with warheads designed for different types of missions and support equipment for carrying and launching the weapons, including firing stands for use on land and sea; carriages; tools for servicing the rockets; the organization of rocket-armed troops; published tactical instructions and range tables for different calibers; and the standardization of rocket manufacture for mass production (Winter 1990, p. 44).

The first test of Congreve's rockets in combat, in a naval attack on Boulogne in November 1805, ended in failure due to poor weather and flaws in the rockets themselves. The following year brought success—Congreve rockets were used effectively in attacks on Gaeta (near Naples) and, under Congreve's direction, in a second attack on Boulogne. The latter venture was probably at least partly influenced by Congreve's *Memoir on the Possibility, the Means, and the Importance, of the Destruction of the Boulogne Flotilla* (see no. [3:6] above), which he issued in February 1806; the pamphlet was addressed to his friend and ally the Prince of Wales. Afterwards Congreve published a vivid account of the attack in his *A Concise Account of the Origin and Progress of the Rocket System* (1807); see no. (3:1) above for the second edition of this pamphlet (1810), which includes a postscript containing further accounts of Congreve rockets in combat.

In the summer of 1807, Congreve's rockets played an important role in the British navy's campaign against the city of Copenhagen, undertaken to keep the Danish fleet from falling into Napoleon's hands. By order of the Admiralty, Congreve was placed in charge of an independent fighting unit armed with his rockets, which were carried on three British sloops outfitted with rocket launchers. According to contemporary accounts, the first rockets of the campaign were fired on August 16; this was followed by another rocket attack on August 23. However, these were merely preliminaries to the bombardment of Copenhagen (Sept. 2-Sept. 5), where Congreve rockets filled the skies to stunning and terrifying effect. Copenhagen was soon in flames, and on September 7 the city surrendered to the British.

The rocket bombardment of Copenhagen, as Congreve wrote in the second edition of his *Concise Account of the Origin and Progress of the Rocket System* (no. [3:1]),

> did very essentially contribute to the conflagration of that city; and if the weapon was able to accomplish anything where only 300 were fired, and that only by the labour of sixteen men, partly uninstructed, what more might have not been done by it, had it been previously adopted into our military system, and put into execution by the regiment of artillery, and navy (*Concise Account of the Origin and Progress of the Rocket System*, p. 15; quoted in Winter 1990, p. 21).

After the city's surrender, Congreve went ashore in disguise to survey the destruction wrought by his rockets. He recorded his observations of the Copenhagen campaign and its aftermath in a private journal, a portion of which—probably the only extant portion—survives in no. (1).

The Copenhagen bombardment "dramatically established the efficacy of the naval rocket bombardment in major engagements . . . [and] led to the spread of Congreve rocket technology and to the formation of the first non-British war rocket establishment on the Continent" (Winter 1990, p. 22). By 1830, most European armies had their own versions of the Congreve rocket system. After the success of the Copenhagen bombardment, the British army used Congreve's rockets successfully against the French in the battles of Leipzig (1813) and Waterloo (1815), and employed them to even greater effect against the Americans during the War of 1812—so much so that the weapons have been immortalized in our national anthem ("And the rockets' red glare, the bombs bursting in air. . .").

After 1809 Congreve ceased participating directly in any rocket battles; however, he continued to promote his rockets enthusiastically, and to involve himself in the planning stages of rocket campaigns. He also continued to exercise his inventive talents, earning himself the nickname "the ingenious Mr. Congreve." Congreve took out eighteen patents during his lifetime, two of them pertaining to rocketry—no. 4563 (1821), on a rocket harpoon to be used in whaling, and no. 9853 (1823), on a rocket flare for signaling and illuminating battlefields. Congreve's sixteen remaining patents included ones for "new methods of mounting naval ordnance, gunpowder manufacture, printing unforgeable currency, gas lighting, 'hydropneumatic' canal locks, several kinds of clocks, a perpetual motion machine, and built-in sprinkler system, and a steam engine" (DSB).

Congreve's later career is summed up by Winter as follows:

> In 1811, he was made an equerry, or honorary officer of the royal household. That same year he was elected a Fellow of the Royal Society and given the commission of lieutenant colonel of the Hanoverian Artillery, an honorary title that evolved from the personal bodyguard of the Hanoverian kings of England. Eventually, Congreve was elevated to the position of major general. . . .

> Congreve also maintained an interest in politics, and in 1812 was elected Member of Parliament for Gatton, Surrey. In 1820, he became an M.P. for Plymouth and was reelected in 1826, serving until his death.
>
> In 1814, Congreve's father died. His son consequently became known as Sir William Congreve, 2nd Baronet. The younger Congreve also assumed his father's post of Comptroller of the Royal Laboratory and Superintendent of Military Machines; these were life positions. As Comptroller, one of his most enjoyable duties was the direction of a grand fireworks display in 1814 celebrating the victory over Napoleon. The following year he introduced his patented improvements in gunpowder manufacture at the Arsenal. . . .
>
> With artillerist Lieutenant James Nisbett Colquhoun, Congreve adapted his rockets to whaling in 1820-21, patenting and manufacturing a rocket-propelled whaling harpoon. This particular venture, tested by whalers in the Arctic Ocean, proved to be a commercial failure.
>
> In 1824, at age 52, Congreve married the young widow Isabella Carvalho M'Envoy in Wessel, Prussia. This union produced two sons and a daughter: William Augustus, William Frederick, and Isabella Christine. . . . [A]fter Congreve's death Lady Congreve tried to obtain compensation for models of her husband's rockets.
>
> Congreve's final days were sad. In 1826, he was among those accused of fraudulence in the conduct of the Arigna Mining Company, of which he was one of the directors. The court proceedings dragged on and a decision was not announced until 1828. By then Congreve was living in the warm climate of southern France, at Toulouse, in order to regain his health; he had developed paralysis in the lower part of his body. On 15 May 1828, at 56 years of age, he died and was buried in the Protestant Cemetery with full military honors by the French garrison of the city (Winter 1990, pp. 28-29).

Congreve-type gunpowder war rockets had their heyday in the first half of the nineteenth century. The rockets offered several advantages over conventional weapons of the period—they were far lighter, and no more inaccurate, than early nineteenth-century smooth-bore artillery; and their lack of recoil meant that they could be fired from aboard ship without posing any risk to the ship's equilibrium. They were also relatively cheap to produce. By mid-century, however, Congreve rockets had lost their edge—technological improvements in conventional artillery, such as rifling and breech-loading, made guns and cannon far more accurate than old-style war rockets, and the rockets' incendiary power, so terrifying to wooden sailing ships, proved completely useless against the new iron-clad steamships. War rockets continued to be employed till the end of the century by Britain and a few other countries, thanks to William Hale's invention of the more accurate spin-stabilized rocket, introduced in the mid-1840s.

By the end of the nineteenth century the gunpowder war rocket had almost completely disappeared from military arsenals,

> but some earlier technology did survive into the next century. American rocket pioneer Robert H. Goddard conducted his first solid-fuel experiments with U.S. Navy Coston signal rockets, which were hydraulically driven and mass-produced much like Hale war rockets. . . .
>
> By 1920, Goddard had switched to experimenting with liquid propellants, which have vastly more energy potential than solid propellants, and on 16 March 1926 he launched the world's first liquid-propelled rocket, which used liquid oxygen and gasoline for fuel. The solid-fuel rocket was

not forgotten, however; it underwent another phase of development from the mid-1930s and today both large and small solid-fuel rockets flourish in a variety of capacities, from weapons propulsion and boosters to launch vehicles and sounding-rocket power plants (Winter 1990, pp. xvii-xviii).

No full-scale biography of Congreve has been written, probably because of the scarcity of primary source material documenting his life. All of the manuscripts in our archive remain unpublished.

Von Braun & Ordway, *History of Rocketry and Space Travel* (1969), pp. 30-34. Winter, *The First Golden Age of Rocketry* (1990), pp. 13-29, 44-47; "The Copenhagen rocket bombardment of 1807: Some new views of early rocket history," *J. British Interplanetary Soc.* 47 (1994): 171-179.

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## CALENDAR OF MANUSCRIPTS IN THE CONGREVE ARCHIVE

| NO. | DATE | AUTHOR | RECIPIENT | NO. PAGES | SUBJECT |
|---|---|---|---|---|---|
| 1 | n.d. (not after 1814) | Congreve Sr. | --- | 1 plus 2 frags. | plans for coffin and memorial for himself and his wife—includes sketches |
| 2 | n.d. (not after 1814) | Congreve Sr. | --- | 2 | "The family of Congreve is of Saxon origin…" |
| 3 | n.d. | Congreve | Isabella Carvalho M'Evoy [Congreve] (ICMC) | 2 | love letter |
| 4 | n.d. | Congreve | ICMC | 3 | love letter |
| 5 | n.d. | [Congreve] | ICMC | 4 | love letter |
| 6 | n.d. | [Congreve] | [ICMC] | 6 plus integral blank (frag.?) | incomplete love letter (no salutation; seems to begin in the middle) |
| 7 | n.d. | [Congreve] | ICMC | 4 (frag.?) | love letter |
| 8 | n.d. | Congreve | ICMC | 4 | love letter |
| 9 | n.d. | Congreve | ICMC | 2 plus integral blank | love letter |
| 10 | n.d. | [Congreve] | ICMC | 8 | unsigned love letter |
| 11 | n.d. | Congreve | ICMC | 4 | love letter |
| 12 | "Twelve tonight" | [Congreve] | ICMC | 4 | love letter (bottom line of last page torn off) |
| 13 | "Thursday morn." | Congreve | ICMC | 3.5 | love lette r |

| NO. | DATE | AUTHOR | RECIPIENT | NO. PAGES | SUBJECT |
|---|---|---|---|---|---|
| 14 | "April 13" | Congreve | ICMC | 4 | business/investments |
| 15 | "24 Dec." (not before 1824) | Congreve | ICMC | 1.5 plus integral address leaf | love/family (addressed to "Lady Congreve"; therefore after their marriage) |
| 16 | "31 Oct." (not before 1824) | Congreve | ICMC | 1 plus integral address leaf | love letter |
| 17 | n.d. | Congreve | ICMC | 4 (frag.?) | family matters |
| 18 | n.d. | Congreve | ICMC | 2 (frag.) | love letter |
| 19 | n.d. | [Congreve] | ICMC | 3 | unsigned love letter |
| 20 | "5 o'clock" | Congreve | ICMC | 4 | love/family |
| 21 | "half past one" | [Congreve] | ICMC | 3.5 | love letter |
| 22 | n.d. | Congreve | --- | 3 | debts/assets balance sheet |
| 23 | n.d. | ? | ? | 2.25 | unsigned draft—"having also received the account of the late practice on Sutton Heath from the Board of Ordnance I beg to enclose an analysis…" |
| 24 | n.d. | ? | --- | 1 | "Memorandum of the prime cost of three thousand Rockets old pattern…" |
| 25 | n.d. | ? | ? (salutation cut out) | 2.5 | Labeled in pencil in 19th cent. hand: "Mysterious letter from God knows who relating to the trial of Queen Charlotte." |
| 26 | n.d. | Congreve | ? | 1 | "I have the pleasure to transmit to you the small volume …containing all the papers which I have from time to time printed on the Rocketry system." |

| NO. | DATE | AUTHOR | RECIPIENT | NO. PAGES | SUBJECT |
|---|---|---|---|---|---|
| 27 | n.d. | Congreve | Croker | 2 | "I have transmitted the letter you desired me to write—and beg of you that the request contained in it may be complied with…" |
| 28 | n.d. ("Dec. 20th") | ? | Congreve | 1 | printed bill for Maidstone Grammar School with amounts filled in in ink |
| 29 | n.d. | ICMC? | ? | 3 | unsigned incomplete draft |
| 30 | n.d. | ICMC? | ? ("My Lord") | 1 | unsigned incomplete draft |
| 31 | n.d. | ? | ___ | 1 | handwritten menu |
| 32 | n.d. | Congreve | Vivian | 2 plus int. blank | "You are aware that His Majesty has given me a job in preparation of the Fireworks for his fete at Windsor…" |
| 33 | n.d. | [Congreve]—copy of a letter, in secretarial hand | Elliott | 7 | military matters |
| 34 | n.d. ("Wednesday night") | W. Knighton | Congreve | 2 plus int. blank | business |
| 35 | "30 April" | Congreve | ? | 3 | "I have the pleasure to send you the model of the 42 pd. cannonade & carriage…" |
| 36 | "mercredi 1 juillet" | ? | Mme. West | 4 | letter in French |
| 37 | "le 2 août" | du Demain | ? ("chère Madame") | 4 | social letter in French and English |
| 38 | Feb. 8, 1803 | Wm. Congreve Sr. (Congreve's father)—LS in secretarial hand | Sir Joseph Banks | 2.5 | re his activities at the Royal Powder Mill & with artillery soldiers |
| 39 | n.d. (not before Dec. 8, 1806) | ? | --- | 2 + | "Private Memo" re the royal family |

| NO. | DATE | AUTHOR | RECIPIENT | NO. PAGES | SUBJECT |
|---|---|---|---|---|---|
| 40 | May 14, 1807 | ? [illeg] | Congreve | 1 plus int. blank | business |
| 41 | early Aug. – Oct. 1, 1807 | Congreve | --- | 18 | Congreve's diary of the Copenhagen bombardment and aftermath (incomplete) |
| 42 | Aug. 18. 1808 | John Vivian | Congreve | 2 plus integral address leaf | "As you requested me to inform you what took place about the R Stanney [?] artillery, I cannot conceal from you that all the Field Officers have resigned…" |
| 43 | n.d. (cover dated Xmas 1808) | ? | Miss [Mary] Congreve (WC's aunt) | 1.5, plus separate cover sheet | legal document containing instructions for probating a will |
| 44 | Feb. 17, 1809 | Congreve Sr. | The Respective Officers of the Royal Powder Magazines near Hungerford | 1 plus integral address leaf | re his plan to try a course of experiments |
| 45 | May 14, 1810 | Charles H. Ware | Congreve | 2 plus integral address leaf | re proving of a will |
| 46 | May 14, 1810 | John Dowdeswell | --- | 3 | legal opinion re proving of a will of which Mary Congreve was executrix |
| 47 | May 16, 1810 | J. Sarum | Miss [Mary] Congreve | 4 plus cover | re proving of a will |
| 48 | May 18, 1810 | Congreve | Miss [Mary] Congreve | 4 plus cover | C's advice to his aunt re proving a will |
| 49 | 1810 (?) | Congreve | Miss [Mary] Congreve | 4 | "Your executorship will work out much better than we expected. The shares are two original or four modern ones worth £1055 each…" |
| 50 | Oct. 17, 1810 | Congreve | J. W. Croker | 3 | "The gun carriages for sea service on the full scale … are now complete…" |
| 51 | n.d. [not before 1811] | ? | --- | 1 | pencil sketch of a suit of armor and shield |

| NO. | DATE | AUTHOR | RECIPIENT | NO. PAGES | SUBJECT |
|---|---|---|---|---|---|
| 52 | n.d. [1811] | [Congreve] | ? ("My Lord") & Lord Liverpool | 4 + 3-page signed copy of C's letter to Lord Liverpool | unsigned draft re C's being commissioned lieut. col. of the Hanoverian Artillery—discusses his rocketry work |
| 53 | May 6, 1813 | Congreve | ? | 3 | Requesting an official title, "which might place me decidedly within the pale of official communication & support." |
| 54 | Oct. 7, 1813 | Congreve | Commissioners of the Navy | 7 | "Report of Col. Congreve … relative to his proceedings on the Rocket service from 1805 to 1813" |
| 55 | Oct. 21, 1813 | Congreve | ? | 4 | re his plan for arming a frigate "capable of firing two shot with the full charge of powder." |
| 56 | 1813 | Congreve (in secretarial hand) | --- | 7.5 | "Colonel Congreve's statement relative to the Rocket service, from its commencement in 1805 to 1813" |
| 57 | Nov. 26, 1813 | Congreve | ? | 4 | rocketry—"Inclosed I send you this calculation as to the expense or, or rather the economy of the Rocket System…" |
| 58 | Jul. 8, 1814 | Capt. John Hayes | Congreve | 3 | critique of Congreve's "Canonade Carriage" (weapon) |
| 59 | August 1814 | Sunday Monitor | --- | 1 | "The Pagoda, or Chinese Bridge…the whole completed under the superintendance of Sir William Congreve"—woodcut illustration |
| 60 | Jul. 29, 1814 | Auguste, Prince de Prusse | Congreve | 3 | Letter in French re English artillery |
| 61 | Jan. 24, 1816 | Congreve | ? | 8.5 | re C's design for a wheel to move steam vessels—includes sketches |

| NO. | DATE | AUTHOR | RECIPIENT | NO. PAGES | SUBJECT |
|---|---|---|---|---|---|
| 62 | May 30, 1816 | Congreve | Miss [Mary] Congreve | `1 | business / financial matters—mentions a "Bill of £200 drawn by Dr. Darwin." |
| 63 | Feb. 18, 1817 | Congreve | Croker | 2 | Asking for a pension for his friend Capt. Holland—postscript mentions C's work "in the mode of fitting the Bombships" |
| 64 | Oct. 5, 1817 | Robert [illeg. last name] | Congreve | 4 | "I have the honour to acknowledge the receipt of your letter…wherein you mention the agreement of Lord Pembroke to an arrangement offered by you… for the removal of Cadet Schneider from the Regmt. under my command…" |
| 65 | Mar. 17, 1818 | Congreve (in secretarial hand) | J. W. Croker | 1.5 | re Mr. Trengrouse's plan of "throwing lines by means of rockets in case of shipwreck." |
| 66 | n.d. (1818) | Congreve | J. Barrow | 2.5 | re Trengrouse's plan of "applying Rockets for throwing ropes ashore from shipwrecked vessels." |
| 67 | Dec. 28, 1818 | Capt. John Wentworth Holland | Congreve | 2 plus int. blank | re repayment of a loan he made to C |
| 68 | July 1821 | Alexander Robertson | Congreve | 1 | bill for services—"Extra Hyde Part coronation account at the Serpentine river—Robertson Carpenter" |
| 69 | Mar. 21, 1822 | Chevalier de Bury; Chevalier Abert | ? | 1 plus integral blank | legal document in French |
| 70 | Mar. 21, 1822 | Chevalier de Bury; Chevalier Abert | ? | 1.5 plus integral blank | legal document in French |

| NO. | DATE | AUTHOR | RECIPIENT | NO. PAGES | SUBJECT |
|---|---|---|---|---|---|
| 71 | Mar. 21, 1822 | Chevalier de Bury; Chevalier Abert | ? | 1 plus integral blank | legal document in French |
| 72 | Mar. 22, 1822 | Chevalier de Bury; Chevalier Abert, etc. | ? | 2.5 | legal document in French |
| 73 | Oct. 27, 1822 | [Congreve] | ? (ICMC?) | 2 | written oath |
| 74 | Apr. 10. n.d. (not before 1823) | Congreve | ICMC | 7.5 | love letter |
| 75 | Jan. 27, 1824 | Hinrich & Stafford | Congreve | 6.5 | itemized bill for services |
| 76 | 1824 | Spooner & Co. / Congreve | Congreve | 1 | "Dr. Major General Sir William Congreve in acct. with Spooner & Co."—itemized bill. Memo initialed by Congreve in lower right corner. |
| 77 | May 19, 1824 | Longman & Co. | --- | 1.5 | "Memo respecting the publication of the Rocket Volume" |
| 78 | Aug. 26, 1824 | Congreve | Croker | 1 | accepting a summons to "meet Sir Robert Leppings re the subject of the new fitting of the Bombs." |
| 79 | 1826 | Thwartes & Read | Congreve | 1 | itemized bill for supplies |
| 80 | 1826 | Congreve (in secretarial hand) | John Hall | 1.25 | "Rocket accts."—itemized bill for supplies |
| 81 | Oct. 23, 1825 | ? | Congreve | 4 (frag.; lower quarter of 2d leaf missing) | politics |
| 82 | Feb. 3, 1826 | Congreve | ICMC | 1 (frag.) | family matters |
| 83 | Apr. 10, 1826 | Congreve | Attwood | 2 | unsigned draft—begging letter? |

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|---|---|---|---|---|---|
| 84 | Apr. 24, 1826 | R. F. Squires | Congreve | 3 plus 2-page enclosure | urging C. to combat rumors re his ill health and his intention to resign his seat in Parliament |
| 85 | Aug. 6, [1827?] (date from postmark) | R. Drake | Congreve | 1 (frag., last page of letter) | financial and business matters; mentions "Mrs. Carvalho" (C's mother-in-law?) |
| 86 | Jan. 27, 1827 | R. Drake | Congreve | 6 plus int. address leaf | financial and business matters—mentions the Arigna Mining Co., Congreve's "Work on Gunsights," C's rockets, dismissal of "Cann" by Mr. [Robert H.] Wade (purchaser of Congreve's rocket manufacturing firm) |
| 87 | Jan. 4, 1828 | R. Drake | Congreve | 4 plus cover postmarked Jan. 7, 1828 | financial and business matters—mentions reprinting Congreve's work on gunsights at the request of the Duke of Clarence; selling furniture; leasing C's house in London |
| 88 | Mar. 31, 1828 | John Wenn, Notary Public | --- | 2 | Engraved statement completed in ms. re non-payment of a promissory note |
| 89 | May 6, 1828 | R. Drake | Congreve | 6 | financial and business matters—selling C's wine, reports of a committee authorized to report on C's gunsights and cannonade carriage |

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| 90 | May 9, 1828 | R. Drake | Congreve | 11 | financial and business matters—reprinting of C's "Rocket Work," extracts from the Articles of Agreement between C. and Wade, copy of a letter from Wade dated 3rd April 1828, copy of a letter from J. Dart of East India House dated 7 May 1828 |
| 91 | n.d. [post May 15, 1828] | ICMC | ? | 1.5 | pencil rough draft—re her "petition for remuneration for general services" |
| 92 | n.d. [post May 15, 1828] | ICMC | ? ("My Lord") | 2 | pencil/ink rough draft—re "redemption of a promise made to my husband the late Sir W. Congreve" |
| 93 | n.d. [post May 15, 1828] | Fred. B. Watson | ICMC | 2 | insurance |
| 94 | n.d. [post May 15, 1828] | ICMC | either George IV or William IV | 3.5 | ICMC's petition to the King, asking that WC's pension be continued posthumously |
| 95 | n.d. [post May 15, 1828?] | ICMC | ? | 2 (frag.—2nd page crossed) | draft—business / financial |
| 96 | July 23, 1828 | R. Drake | ICMC | 7 | the "Rocket business"; settling Congreve's post-mortem debts |
| 97 | Dec. 4, 1829 (postmark) | E. Huré (?) | ICMC | 1 plus int. address leaf | In French—response to an invitation |
| 98 | May 10, 1831 | Eliza Sharpin | ICMC | 4 | death of a relative |
| 99 | Mar. 7, 1832 | Dyneley, Coverdale & Lee | ICMC | 2 | "The parties are proceeding with their suit to impeach the settlement…" |
| 100 | August 1832 | Dyneley, Coverdale & Lee | --- | 2 | "Ex parte Sir William Congreve deceased. Statement of debts and probable assets." |

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|---|---|---|---|---|---|
| 101 | Feb. 5, 1834 | James Russell | ? | 2.5 (legal) | copy of "Query and Opinion" re creditors' lawsuits against Congreve's estate |
| 102 | May 1, 1835 | ? | G. C. Hawkins | 1 (frag.) | financial matters |
| 103 | Apr. 14, 1836 | Hammersley | ICMC | 1 plus integral address leaf | dunning letter |
| 104 | June 2, 1836 | ICMC | ? | 3 | financial affairs |
| 105 | July 6, 1836 | ? | Miss Congreve | 1 | prescription (?) in Latin |
| 106 | May 17, 1837 | A. De Binna | Chevalier de Ribeiro | 1 | bill for services rendered "in the matter of C. H. McEvoy, deceased" |
| 107 | Oct. 20, 1854 | ? | ? | 3 | "The Daily News … Court Circular" |
| 108 | Sept. 12, 1855 | "Demoiselle Marie" | C. G. Ferry | 1.5 | purchase of a garment |
| 109 | Oct. 14, 1856 | "Mimi" (C's granddaughter?) | "John" (her cousin) | 4 (crossed) | family matters |
| 110 | May 14, 1857 | "Mimi" | "John" | 3.5 | family matters—ends with "Give my love to Isabella your mama…" (C had a daughter Isabella) |
| 111 | Feb. 22, 1858 | George Carew | --- | 3 plus title page | legal document: "Mr. George Carew and Charles Fenton Whiting Esqr. Agreement for the sale and purchase of 9 Maida Hill West." |
| 112 | May 19, 1863 | Sydney Cullendin | Miss Branbin (?) | 1 | making an appointment to "bring the ring." |
| 113 | July 8, 1868 | Annie A. F. Heighams (?) | --- | 4 | Last will and testament |
| 114 | Dec. 30, 1868 | Col. Bergenhous | Madame Augusta | 4 | letter in French discussing food |
| 115 | Jan. 8-9, 1869 | ? | Mme. West | cover | stamped and postmarked in both Marche and Ostende |
| 116 | Feb. 1, 1869 | Lonnoy (?) | Mme. West | 1.5 | bill in French for "marchandises" |