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In presentation binding of Louis XIV and exceptionally rare with all the six papers as here

1 **ACADEMIE ROYALE DES SCIENCES (BLONDEL, Nicolas-Francois; PICARD, Jean; MARIOTTE, Edme; FRENICLE DE BESSY, Bernard)**. *Recueil de plusieurs traitez de mathematique de l'Academie Royale des Sciences*. Paris: Sébastien Mabre-Cramoisy pour l'Imprimerie Royale, 1676 [i.e., 1677]. 6 parts in one volume. Large folio (557 x 402 mm). Engraved frontispiece by Goyton after Sebastien le Clerc, general title with engraved vignette incorporating the royal arms of Louis XIV, half-title to each tract, numerous engraved head- and tail-pieces by le Clerc, 8 engraved plates in first part (Blondel's *Resolution*), 5 engraved plates in second part (Picard's *Mesure*), several engraved and woodcut illustrations and diagrams in text, publication dates of individual tracts from colophons. Contemporary French presentation binding in crimson morocco with gilt arms of Louis XIV (Olivier 2494 fer 10) in the center of boards, two gilt triple-fillet borders and royal cipher on corners (Du Seuil style); spine with 6 raised bands gilt-lettered in second compartment and the remaining with the royal cipher and fleur-de-lys, board edges and turn-ins gilt, all edges gilt, marbled endpapers (wear to extremities, foot of spine chipped, joints toward head and foot split, corners scuffed and bumped). Text and plates crisp and bright throughout with only little occasional spotting, the frontispiece, general title and first tract with wormtrack to upper blank margin, a few wormholes to upper and lower blank margin elsewhere, all away from printed area, 6th tract with hole to upper blank margin of half-title and 1st text leaf, ink stain the fore margin of first two text leaves and pale dampstain to fore-margin of final 5 leaves. Provenances: Louis XVI (bound for presentation by the king as patron of the French Royal Academy of Sciences); Hubert de Givenchy collection. A fine copy in unrestored binding. (#003721) € 16,500

Content:

I: **BLONDEL, Nicolas-Francois.** *Résolution des quatre principaux problèmes d'architecture*, 1673. [10], 86 pp., 5 engraved allegorical headpieces, 5 engraved initials, 3 allegorical cul-de-lamps, 8 engraved plates of diagrams by De la Boissière bound at the end.

II: **PICARD, Jean.** *Mesure de la Terre*, 1671. [2], 30 pp., engraved allegorical headpiece, engraved initial, 5 engraved plates (one repeated), text illustration.

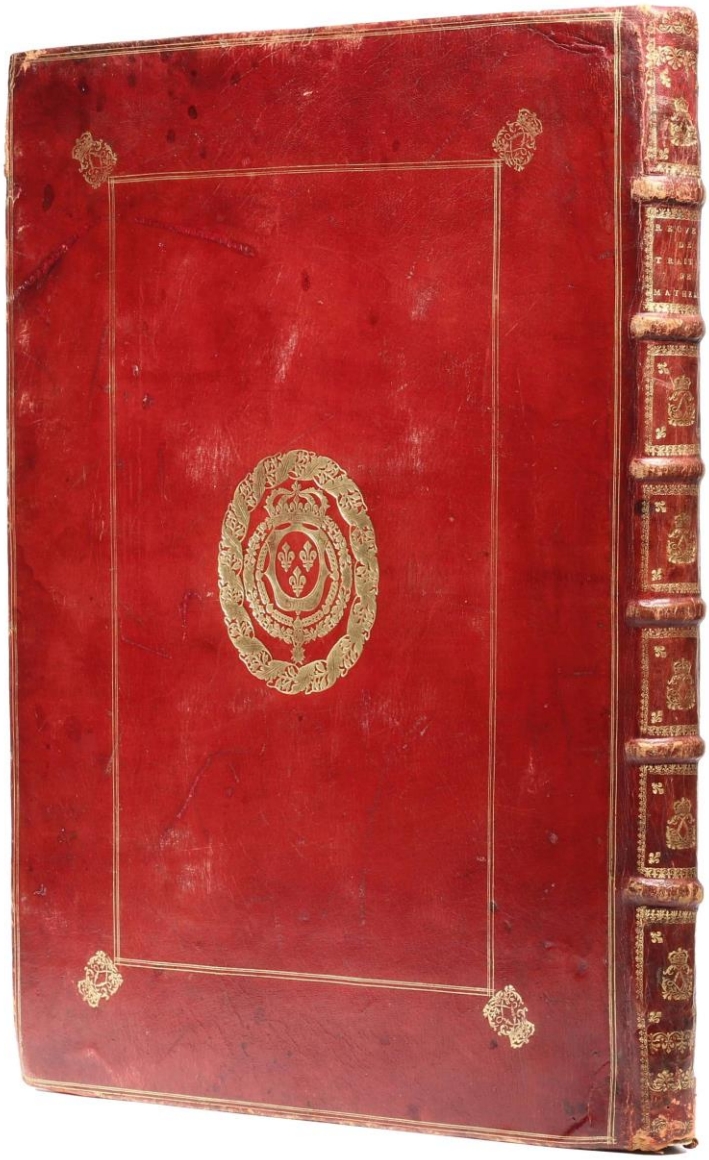
III: **MARIOTTE, Edme.** *Traité de la percussion ou choq des Corps*, 1676. [2], 67 [1] pp., engraved allegorical headpiece, engraved initial, 2 allegorical tailpieces, 48 text illustrations.

IV: **MARIOTTE, Edme.** *Lettres écrites par Mm. Mariotte, Pecquet et Perrault, sur le sujet d'une nouvelle découverte touchant la veuë faite*, 1676. [2], 26 pp., engraved text illustrations.

V: **MARIOTTE, Edme.** *Traité du nivellement avec la description de quelques niveaux nouvellement inventez*, 1677. [2], 16 pp., 4 text illustrations.

VI: **FRENICLE DE BESSY, Bernard.** *Traité des triangles rectangles en nombres*, 1677. [2], 42 pp.

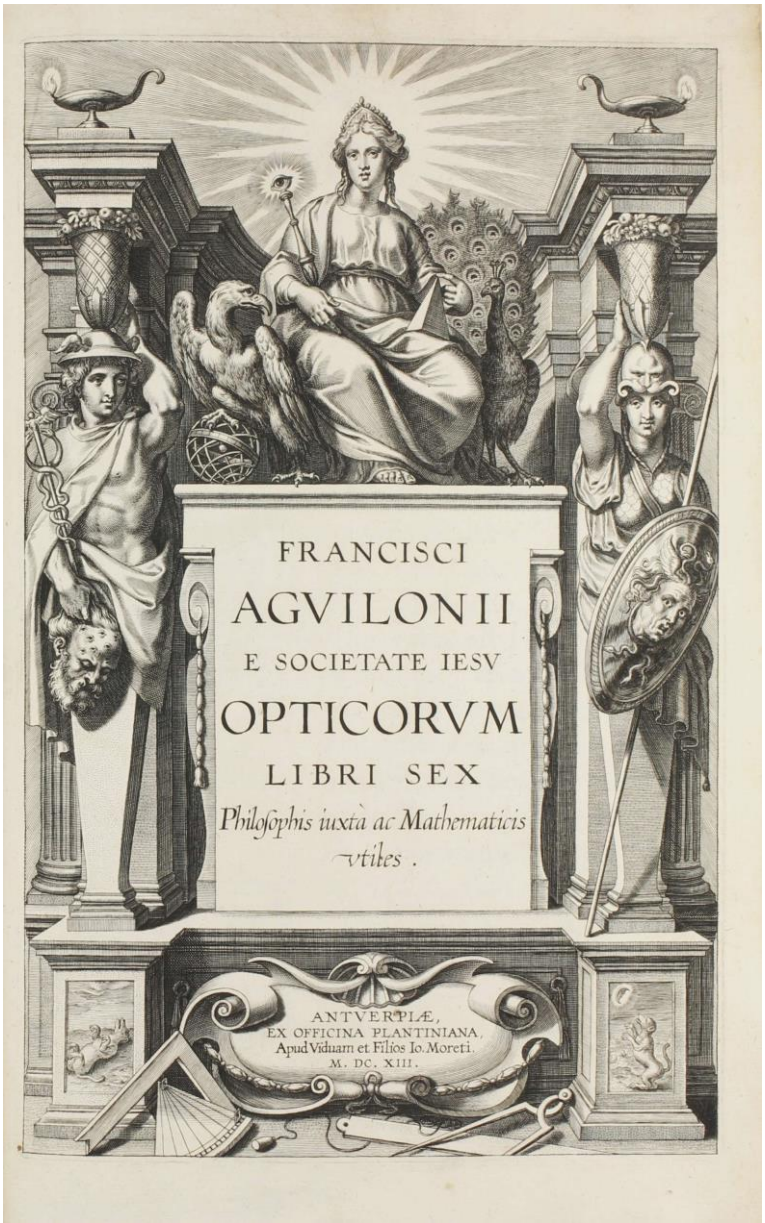
FIRST COLLECTED EDITION, often found with just the 5 works by Blondel, Mariotte and Frenicle, but in fact complete only with Picard's contribution (such as the copies of the Royal Society Library in London, the Bibliotheque National de France, the Linda Hall Library and others, see OCLC/Worldcat no. 915455346). RBH records no complete copy at auction at all. The Picard paper (first edition and not present in the Norman no. 1809 copy) is more commonly found in the very similar collected edition of Perrault's *Memoires pour servir a l'Histoire Naturelle des Animaux*, 1671-76 (see Norman no. 1687, with illustration of binding on plate 18, but also without the Picard paper). Jean-Felix Picard was the first person to measure the size of the Earth to a reasonable degree of accuracy in a survey conducted in 1669-70. "Among the [other] notable works in this collection is Mariotte's *Traite de la percussion* (first published 1673), which presented the first comprehensive treatment of the laws of elastic and inelastic impact and contained one of die earliest published examples of die application of algebraic analysis to physical problems. The collection also contains the second edition of Mariotte's treatise on levels and die published correspondence of Mariotte, Pecquet and Perrault disputing the location of the seat of vision, which Mariotte had claimed, based on his discovery of the 'blind spot,' to be in the choroid coat and not the retina. Blondel's architectural treatise dealt with problems pertaining to columns, rampant arches and beams of equal resistance, while Frenicle's treatise on right triangles established some important properties relating to these figures. The first part of Frenicle's treatise was published in 1676, and republished, with the second part, in 1677" (Norman 1809).



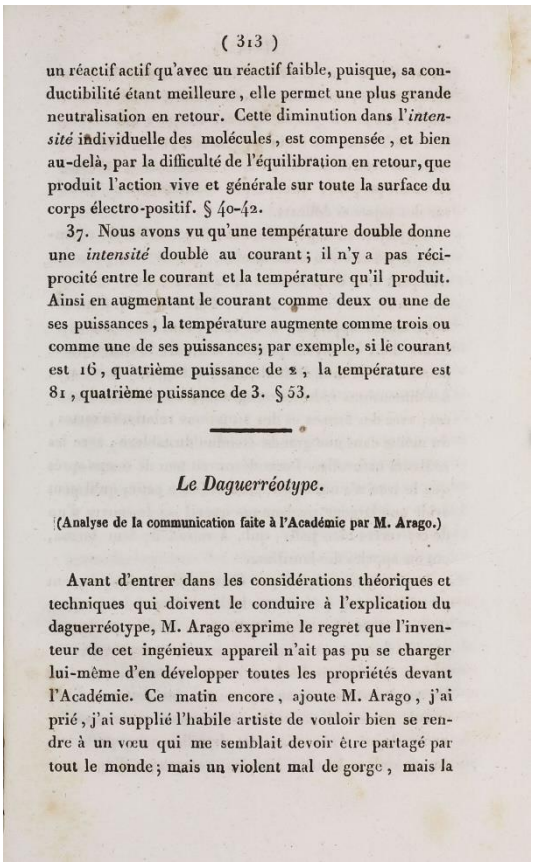
Literature. Norman 1809; *Graver pour le roi. Collections historiques de la Chalcographie du Louvre*. Cat 21. *Images du Grand Siècle. L'estampe française au temps de Louis XIV (1660-1715)*. Cat 15; DSB X, pp. 595-597 (for Picard's paper).

2 **AGUILON, François d'**. *Opticorum libri sex Philosophis iuxta ac Mathematicis utiles*. *Optica Agvilonii.* Antwerp: Plantin Press, Widow and sons of J. Moretus, 1613. Folio (346 x 226 mm). [48], 684, [44] pp. Half-title, fine engraved title and 6 chapter-opening engraved head-pieces by Theodor Galle after Peter Paul Rubens, engraved text diagram on A2r and over 500 woodcut diagrams and illustrations in text (several with typographic ornaments), woodcut initials and tail-pieces, final leaf with large woodcut printer's device recto otherwise blank. Signatures: *-4*^{6}, A-3O^{6}, 3P^{4}. Contemporary calf, expertly rebacked in brown morocco, spine with 5 raised bands, gilt decoration and lettering and additional gilt-lettered black morocco label, red-sprinkled edges, new endpapers (corners repaired, boards rubbed and scuffed). Text with light even browning throughout, occasional very minor spotting and light staining. Provenance: Gaddesden Library (armorial bookplate to front pastedown). Exceptional copy, crisp and clean throughout. (#003656) € 12,500

FIRST EDITION of an important treatise on optics and one of only seven books known to have been illustrated by Peter Paul Rubens, a friend of the publisher Balthasar Moretus. Written for the students of Jesuit colleges and for practical application by astronomers, navigators, architects and painters, Aguilon intended the work as the first of a three-part comprehensive survey of the science of optics, but he died before completing the remaining two parts (on catoptrics, dioptrics and telescopes). Although mainly a skillful compilation of earlier works on optics, Aguilon's treatise contains several original contributions, including "the first discussion of the stereographic process (which Aguilon named), one of the earliest presentations of the red-yellow-blue color system, an original theory of binocular vision [later disproved], and the first published description of Aguilon's horopter" (Norman). The title-page is replete with references to the "alliance of vision and reason [. . .] The title-page alone would suggest no more than an illustrator's job well and professionally done. However, the vignettes which Rubens provided for the individual title pages of each of the six books show such a complex and knowing relationship to the text as to leave no doubt that Rubens's intellectual involvement considerable. . ." (Martin Kemp, *The Science of Art*, 1990, pp. 101-104). Aguilon's color theory and his prescriptions for the mixing of colors were used by Rubens in his paintings.



References and Literature: Norman 25; NLM/Krivatsy 92; Becker 6; De Backer-Sommervogel 1:90 no. 1; Hofer, *Baroque Book Illustration* 116; M. Kemp, *The Science of Art*, 1990, pp. 101-104.



(313)

un réactif actif qu'avec un réactif faible, puisque, sa conductibilité étant meilleure, elle permet une plus grande neutralisation en retour. Cette diminution dans l'*intensité* individuelle des molécules, est compensée, et bien au-delà, par la difficulté de l'équilibration en retour, que produit l'action vive et générale sur toute la surface du corps électro-positif. § 40-42.

37. Nous avons vu qu'une température double donne une *intensité* double au courant; il n'y a pas réciprocité entre le courant et la température qu'il produit. Ainsi en augmentant le courant comme deux ou une de ses puissances, la température augmente comme trois ou comme une de ses puissances; par exemple, si le courant est 16, quatrième puissance de 2, la température est 81, quatrième puissance de 3. § 53.

Le Daguerréotype.

(Analyse de la communication faite à l'Académie par M. Arago.)

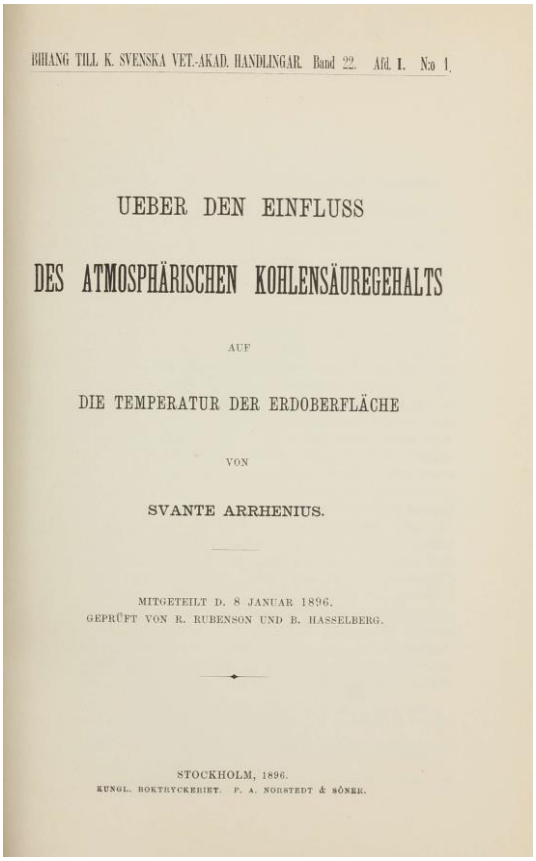
Avant d'entrer dans les considérations théoriques et techniques qui doivent le conduire à l'explication du daguerréotype, M. Arago exprime le regret que l'inventeur de cet ingénieux appareil n'ait pas pu se charger lui-même d'en développer toutes les propriétés devant l'Académie. Ce matin encore, ajoute M. Arago, j'ai prié, j'ai supplié l'habile artiste de vouloir bien se rendre à un vœu qui me semblait devoir être partagé par tout le monde; mais un violent mal de gorge, mais la

3 **ARAGO, Jean François Dominique**. Le daguerréotype. In: *Annales de Chimie et de Physique*, vol. 71, 1839, pp. 313-340. Paris: Crochard, 1839. 8vo (200 x 122 mm). Entire volume: 445, [3] pp., including half title and general title. Contemporary half calf over marbled boards, spine with gilt decoration, gilt-lettered labels and additional printed and hand-lettered paper label, brown sprinkled edges, original light-blue endpapers (leather and extremities rubbed, minor wear to corners). Little age-toning and minor occasional. Provenance: Lycee Faidherbe de Lille (title and some text pages with old library stamp, shelf mark in manuscript to title). Good copy. (#003642) € 1200

FIRST EDITION. Arago's official report of the invention of the the photographic process, called daguerréotype, was published in the journal *Comptes Rendues* at the end of 1839 (July-December issue), but it was preceeded by this announcement published in the July issue of the *Annales de Chimie et de Physique*. Arago's report was presented to the Academie des Sciences on January 7, 1839.

Formulating the Greenhouse Effect - the rare offprint issues for private distribution only

4 **ARRHENIUS, Svante**. *Ueber den Einfluss des atmosphärischen Kohlensäuregehalts auf die Temperatur der Erdoberfläche*. Offprint: Bihang Till K. Svenska Vet.-Akad. Handlingar, Bd. XXII/I, 1. Stockholm: Kungl. Boktryckeriet P. A. Norstedt & Söner, 1896. 8vo (215 x 140 mm). 102 pp. Original wrappers with publisher's ink stamp at top margin. Text generally clean and crisp. [WITH:] *Ueber die Wärmeabsorption durch Kohlensäure und ihren Einfluss auf die Temperatur der Erdoberfläche.* Offprint: Ofversigt af Kongl. Vetenskaps-Akademiens Förhandlingar 1901, no. 1. Stockholm, 1901. 8vo (215 x 140 mm). pp. 25-58. Original wrappers with publisher's ink stamp at top margin. A near pristine set. (#003703) € 5500



BIHANG TILL K. SVENSKA VET.-AKAD. HANDLINGAR. Band 22. Afd. I. N:o 1.

UEBER DEN EINFLUSS

DES ATMOSPHÄRISCHEN KOHLENSÄUREGEHALTS

AUF

DIE TEMPERATUR DER ERDOBERFLÄCHE

VON

SVANTE ARRHENIUS.

MITGETEILT D. 8 JANUAR 1896.
GEPRÜFT VON R. RUBENSON UND B. HASSELBERG.

STOCKHOLM, 1896.
KUNGL. BOKTRYCKERIET. P. A. NORSTEDT & SÖNER.

DSB I, p. 302; Poggendorff IV, 40. FIRST EDITION of Arrhenius' landmark works on global warmimg, exceptionally rare with the final part published in 1901 and in the offprint wrappers intended for private discribution (not to compare with the regular journal issues which have printed wrappers with price stated). That the true offprints are frequently mixed up in literature and sales catalogues is owned to the fact that the regular issues of this supplement series to the 'Proceedings of the Royal Swedish Academy of Sciences' were distributed in single numbers with printed wrappers. None of latter are offprints in the classical sense (i.e. copies given by the publisher to the author for distribution to colleagues and friends).

In developing a theory to explain the ice ages Arrhenius was the first to use basic principles of physical chemistry to calculate the extent to which increases in atmospheric

carbon dioxide (CO2) will increase Earth's surface temperature through the greenhouse effect. These calculations led him to conclude that human-caused CO2 emissions, from fossil-fuel burning and other combustion processes, are large enough to cause global warming. This conclusion has been extensively tested, winning a place at the core of modern climate science. Arrhenius, in this work, built upon the prior work of other famous scientists, including Joseph Fourier, John Tyndall and Claude Pouillet. Arrhenius wanted to determine whether greenhouse gases could contribute to the explanation of the temperature variation between glacial and inter-glacial periods. (cf. H. Rodhe et al. *Svante Arrhenius and the Greenhouse Effect*. In: Ambio, vol. 26, no. 1, 1997, pp. 2-5). In the second and final part, Arrhenius also replies to the criticism of his global warming theory by Knut Ångström.

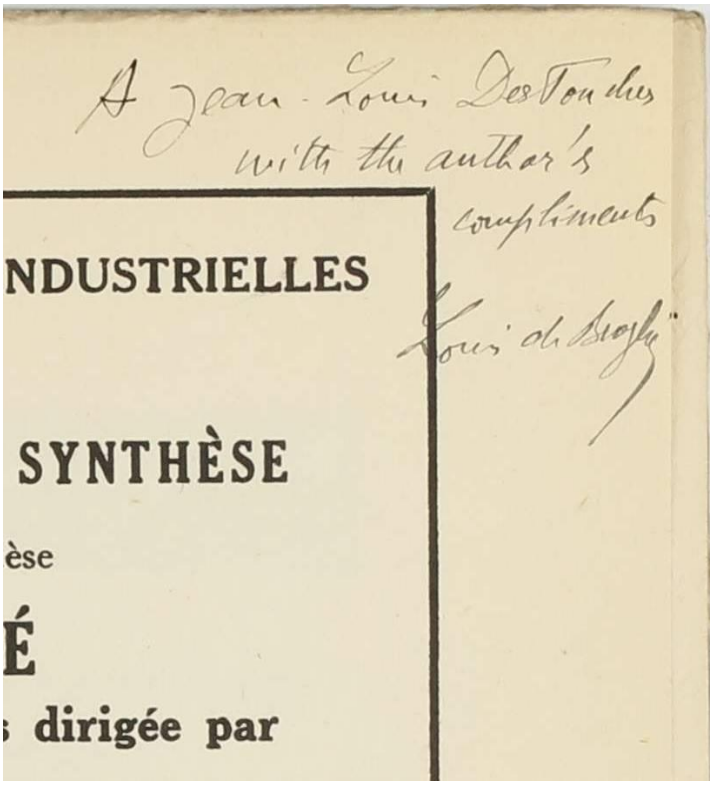
Dedication copy to Jean-Louis Destouches, signed by the author

5 **BROGLIE, Louis Victor, Prince de**. *Conséquences de la relativité dans le développement de la mécanique ondulatoire*. Actualités scientifiques et industrielles XLII. Paris: Hermann et Cie, 1932. 8vo (254 x 163 mm). 14 pp. Original stiff wrappers printed in red and black (light fraying at head of spine). Uncut and partially unopened. Provenance: Bookseller's ticket (Albert Blanchard) inside frontwrapper. Text crisp and clean, correction of equation on p.6 and a few text markings in blue crayon. Provenance: Jean-Louis Destouches*, with the AUTHOR'S AUTOGRAPH SIGNED DEDICATION (in English!) at head of title. A near fine copy. (#003696) € 1500

[Joined:] **BROGLIE, Louis Victor, Prince de**. *L'Électron magnétique (théorie de Dirac)*. Paris: Hermann et Cie, 1934. 8vo (250 x 160 mm). viii, [2], 315 [1] pp., 2 plates on one sheet, text illustrations and diagrams. Original stiff wrappers printed in red and black (tanning of spine and upper front wrapper, short split at top of spine). All pages uncut. Text little browned. Provenance: illegible signature on title.

[Joined:] **BROGLIE, Louis Victor, Prince de**. *La mécanique ondulatoire du photon. Une nouvelle théorie de la lumière. I. La lumière dans le vide. II. Les interactions entre les photons et la matière*. Paris: Hermann et Cie, 1940-1942. Two volumes. 8vo (254 x 166 mm). 281, [3]; 148 pp. Text diagrams. Original stiff wrappers printed in red and black (wrappers somewhat dust-soiled, spines tanned). All pages uncut. Text clean and bright throughout.

I. Extremely rare dedication copy (de Broglie usually refused to sign his work). *Jean-Louis Destouches (1909-1980) was a French physicist and philosopher. From 1929, he studied with Émile Borel, Jean Perrin, Marie Curie, Irène Joliot-Curie, and above all Louis de Broglie. His doctoral thesis, defended in 1933, dealt with the theories

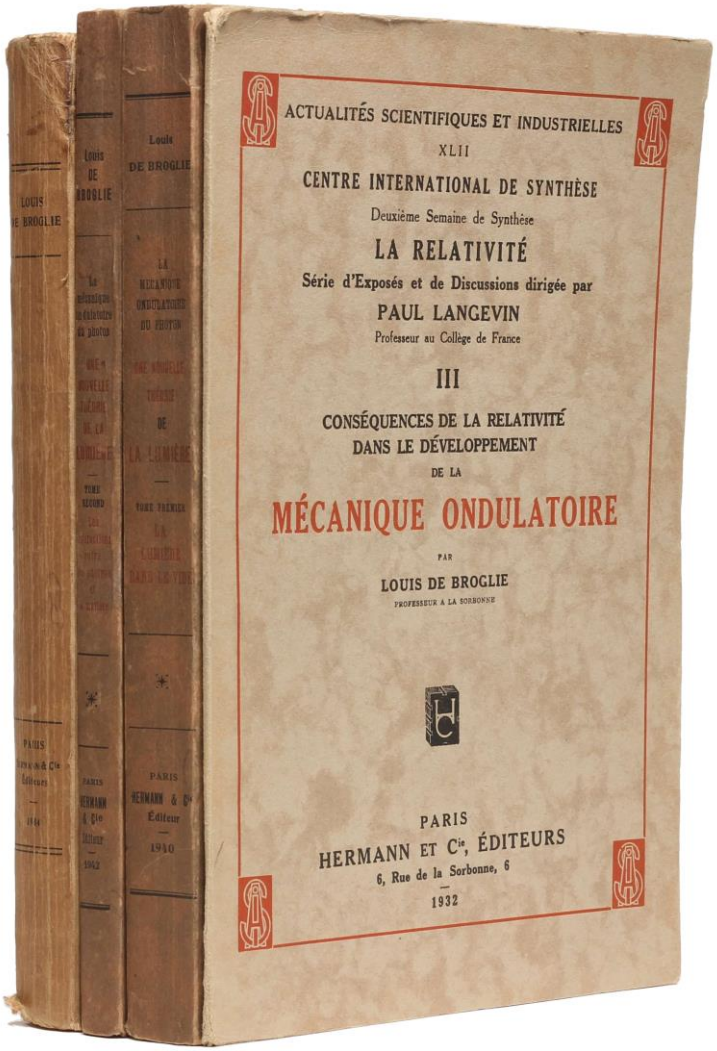


of "superquantization" (known today as the theories of "second quantization"). It was created as part of a seminar by de Broglie for advanced students that Destouches had suggested. De Broglie had then, albeit reluctantly, subscribed to the Copenhagen interpretation of quantum theory (abandoning his pilot-wave and double-solution theories), which also impressed Destouches. In 1952, Destouches carefully followed the turning point in the thought of Louis de Broglie, who now rejected the standard interpretation of quantum mechanics. At the time, Louis de Broglie wanted to (re-)formulate his "double solution theory" (particle and wave) which, he hoped, would make it possible to replace quantum mechanics with a theory that lends itself to a realistic interpretation. Destouches however remained attached to the standard interpretation of quantum theory, close to instrumentalism, but he strives to understand de Broglie's ideas in his own way. For this, he formulates his own reading of the theory of the double solution, distinguishing between the "physical" wave u associated with a corpuscle, and the "predictive" wave Ψ, used by

quantum mechanics. At the same time, Destouches sought to apply his general theory of forecasting to fields outside of physics, including economics. Literature: DSB II, p.487.

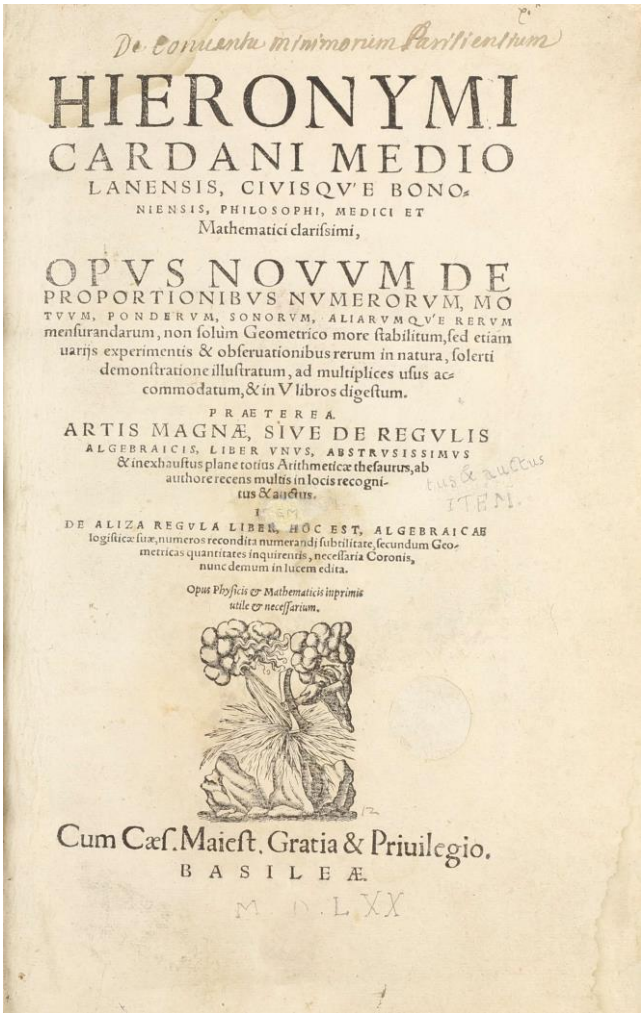
II. First edition in which Louis de Broglie exposes his theory of so-called "neutrinal" light, based on the idea that the photon results from the fusion of two neutral particles, the hypothetical Dirac neutrinos.

III. First Edition.



6 **CARDANO, Girolamo.** *Opus novum de proportionibus numerorum, motuum, ponderum, sonorum, aliarumque rerum mensurandarum ... Praeterea artis magnae, sive de regulis algebraicis liber unus ... Item, de aliza regula liber*. Three parts in one volume. Basel: Henricus Petri, 1570. Folio (311 x 191 mm). [16], 271 [1], 163 [1], [8], 111 [1] pp. Signatures: *^{6}, A-R6 Q8 R2 S-Y^{6}, Z^{4}, Aa-Tt^{4}, Vv^{6}, *^{4}, AA-OO^{4}. Separate title-page and pagination for *Artis magnae* and *Operis perfecti sui sive algebraicae*, printer's device on general title and verso of final leaf, numerous woodcut diagrams in text, pp 177 to 184 of gathering P mispaginated 171-178. Bifolium Gg2-3 in second part differs in condition, printed on different paper stock, and is possibly supplied. Bound in contemporary blind-stamped vellum (stained and spotted). Text somewhat browned throughout, occasional minor spotting, waterstain in center creating hole in first five leaves of gathering *, these restored and missing letters of printed text redrawn by black ink, some light dampstaing to upper gutter throughout and to lower corner of third part, wormtracks at lower blank margin in first part, small holes at lower margin of leaf Ll1; title page with date in Roman numbers added by hand. Provenance: erased stamp on title. (#003612) € 6500

Adams C689; Smith p.338-9; Riccardi I 256; DSB III, p.65-66. - FIRST EDITION. Comprising Cardano's three most important scientific works: *Opus novum*, containing Cardano's work on the relation between the densities of air and water, the second edition of the *Ars magna*, his great work on algebra first published in 1545, in which he had published Tartaglia's method for solving third-degree equations and the *De aliza regula*, about the third-degree equation, here published for the first time.


HIERONYMI
CARDANI MEDIO
LANENSIS, CIVISQV'E BONO-
NIENSIS, PHILOSOPHI, MEDICI ET
Mathematici clariſsimi,
OPVS NOVVM DE
PROPORTIONIBVS NVMERORVM, MO
TVVM, PONDERVM, SONORVM, ALIARVMQV'E RERVM
menſurandarum, non ſolùm Geometrico more ſtabilitum, ſed etiam
uarijs experimentis & obſeruationibus rerum in natura, ſolerti
demonſtratione illuſtratum, ad multiplices uſus ac-
commodatum, & in V libros digeſtum.
PRAETEREA
ARTIS MAGNÆ, SIVE DE REGVLIS
ALGEBRAICIS, LIBER VNVS, ABSTRVSISSIMVS
& inexhauſtus plane totius Arithmeticæ theſaurus, ab
authore recens multis in locis recogni-
tus & auctus.
ITEM
DE ALIZA REGVLA LIBER, HOC EST, ALGEBRAICAE
logiſticæ ſuæ, numeros recondita numerandi ſubtilitate, ſecundum Geo-
metricas quantitates inquirentis, neceſſaria Coronis,
nunc demum in lucem edita.
Opus Phyſicis & Mathematicis inprimis
utile & neceſſarium.
Cum Cæſ. Maieſt. Gratia & Priuilegio.
BASILEÆ.
M. D. LXX

"In his *Opus novum de proportionibus*, Cardano turned to problems of mechanics, with the principal aim of applying quantitative methods to the study of physics. His use of the concept of moment of a force in his study of the conditions of equilibrium in balance and his attempt to determine experimentally the relation between the densities of air and water are noteworthy" (DSB III, p.66).

"It was only in 1570, in a new edition of the *Ars magna*, that he added a section entitled 'De aliza regula' . . . devoted to the 'irreducible case' of the cubic equation, in which Cardano's rule is extended to imaginary numbers. This was . . . important for the algebraic transformations which it employed and for the presentation of the solutions of at least three important problems" (DSB III, p.65).

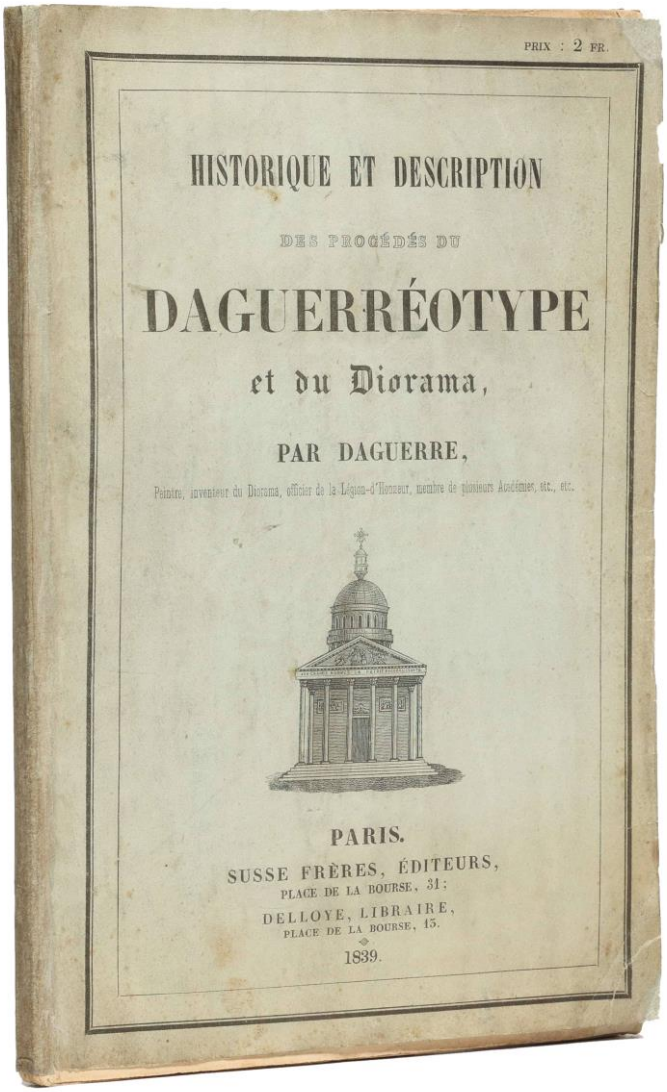
The true first edition, first printing in the original wrappers

7 **DAGUERRE, Louis-Jacques Mandé**. *Historique et description des procédés du daguerréotype et du diorama*. Paris: Béthune and Plon for Susse frères and Delloye. 1839. 8vo (210 x 135 mm). [4], 79 [1], [4] pp., including half-title, 6 lithographed plates and 2 advertisement leaves at end. Original printed green wrappers (dust-soiled and spotted, slight creasing, spine repaired), protected in custom clamshell box. All pages uncut. Text little age-toned with some minor occasional foxing. A very good, highly unsophisticated copy. (#003772) € 45,000

"THE BEGINNINGS OF PHOTOGRAPHY" (Horblit). "PERHAPS NO OTHER INVENTION EVER CAPTURED THE IMAGINATION OF THE PUBLIC TO SUCH A DEGREE AND CONQUERED THE WORLD WITH SUCH LIGHTENING RAPIDITY AS THE DAGUERREOTYPE" (Gernsheim).

FIRST EDITION, FIRST ISSUE of Daguerre's exposition of his photographic process. AN ATTRACTIVE COPY IN ITS ORIGINAL PRINTED WRAPPERS OF THIS GREAT RARITY.

"At a joint meeting of the French Academies of Arts and Sciences, Count François Arago announced the miraculous invention of Daguerre, a method for making faithful impressions of objects on sheets of copper, coated with light-sensitive silver salts. Arago's announcement trumped the efforts of Talbot, much to the Englishman's chagrin" (Parr-Badger vol. 1, p. 13).


PRIX : 2 FR.

HISTORIQUE ET DESCRIPTION

DES PROCÉDÉS DU

DAGUERRÉOTYPE

et du Diorama,

PAR DAGUERRE,

Peintre, inventeur du Diorama, officier de la Légion-d'Honneur, membre de plusieurs Académies, etc., etc.

PARIS.

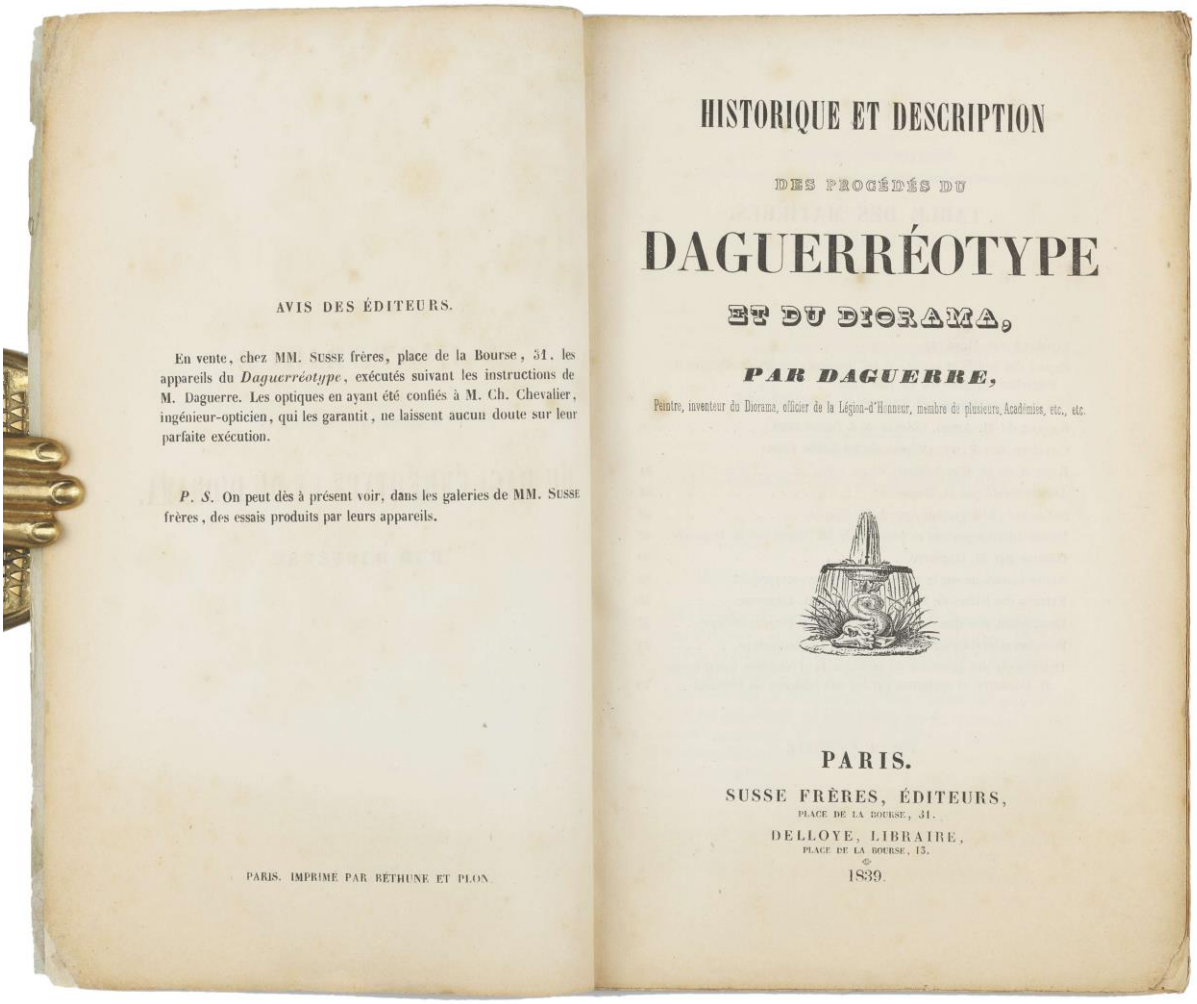
SUSSE FRÈRES, ÉDITEURS,
PLACE DE LA BOURSE, 31:

DELLOYE, LIBRAIRE,
PLACE DE LA BOURSE, 15.

1839.

Daguerre's manual was quickly sold out. A total of 39 reprints, new editions, and translations appeared in the following 18 months. The great demand accounts for the profusion of issues of the first edition: 7 are recorded, all from the same basic setting of type. Of these the first four differ in the booksellers' names alone. The present copy is of the first Susse issue which was released on 14 September 1939. It is the FIRST (and not the second) to appear, preceeding the Alphonse Giroux issue, which was long time thought to be the first and of which only two copies are known (see Honeyman 802), both preserved in the George Eastman Museum, Rochester. In the *Bibliography of Daguerre's Instruction Manuals*, Beaumont Newhall (wrongly) assigned priority to the Giroux printing stating "published on or about 20 August" (see Gernsheim pp.198-205). This assertion appears to be based solely on the fact that Daguerre arranged for Giroux, who was a relative of Madame Daguerre, to market his apparatus and *Manual* on an advertisement that appeared on the back page of the *Gazette de France* of 20 August 1839. But the legal literature of a case involving an engraver and printer named Giraldon helps to clarify priority. Giraldon sued Giroux for illegally reprinting the *Manual*, and reveals that Daguerre had contracted with Giraldon to publish his work. As no copies are known with a Giraldon imprint, it is evident that he printed the manual for several merchants, "Messrs. Giroux, Susse, and Lerebours," varying only the imprints and the inserted advertising material. Giroux testified in his deposition that "It was agreed with Mr. Giraldon that he would deliver to me the first 300 copies, bearing my imprint. *This undertaking was not fulfilled, and I therefore was no long bound to Mr. Giraldon*. I reprinted the brochure, which everyone had the right to do . . ." [italics added]. Daguerre scholar Pierre Harmant notes: "If one is to believe the *Bibliographie de la France*, only Susse Frères should be considered the original publishers of the Manual. The *Bibliographie* was the house organ of the Librairie Française. Each week it appeared with a list of works published in France during the week before. On 14th September, it listed Daguerre's Manual for the first time (No. 4456), and the publisher's name

given there is Susse Frères." After surveying notices of daguerreotypy at the other opticians in September, Harmant observes that no buyers or journalists mention it in August and writes, "we may safely conclude that the *Manual* was not available during August." On 8 September, Isidore Niépce, the son of Daguerre's late partner, wrote to his mother that "Daguerre has just published a brochure" on the process. In the letter, Niépce noted that "some days ago" he had quarreled with Daguerre concerning his father's role in the invention. Niépce wrote that he thought they had parted amicably but "now the brochure . . . has just appeared. It gives me a proof of his knavery." This 8 September letter additionally suggests that Newhall's 20 August date for the Giroux issue is in error. More significantly, Daguerre himself confirms Niépce's comment that the brochure had "just appeared" by 8 September. Daguerre in fact testified in the Giraldon lawsuit: "On the day of my first meeting on the Quai d'Orsay [his first public demonstration of his process, September 7], I was astonished to see my brochure in everyone's hands, while I myself did not have a copy. *These copies bore the address of Mr. Susse*, who was to have been supplied only after Mr. Alphonse Giroux" [italics added]. Given the family ties between Daguerre and Giroux, it is difficult to imagine that Giroux would have neglected to give the photographer a copy of the *Manual* had it been ready. As such, the present evidence clearly indicates that the Giroux *Manuals* were not immediately available, and further that the earliest copies issued in fact bore the Susse Frères imprint. (ref. Harmant, Pierre, Daguerre's Manual: A Bibliographical Enigma, *Journal of the History of Photography*, I: pp. 79-83).



AVIS DES ÉDITEURS.

En vente, chez MM. SUSSE frères, place de la Bourse, 31, les appareils du *Daguerréotype*, exécutés suivant les instructions de M. Daguerre. Les optiques en ayant été confiés à M. Ch. Chevalier, ingénieur-opticien, qui les garantit, ne laissent aucun doute sur leur parfaite exécution.

P. S. On peut dès à présent voir, dans les galeries de MM. SUSSE frères, des essais produits par leurs appareils.

PARIS. IMPRIMÉ PAR BÉTHUNE ET PLON.

HISTORIQUE ET DESCRIPTION

DES PROCÉDÉS DU

DAGUERRÉOTYPE

ET DU DIORAMA,

PAR DAGUERRE,

Peintre, inventeur du Diorama, officier de la Légion-d'Honneur, membre de plusieurs Académies, etc., etc.

PARIS.

SUSSE FRÈRES, ÉDITEURS,
PLACE DE LA BOURSE, 31.

DELLOYE, LIBRAIRE,
PLACE DE LA BOURSE, 13.

1839.

Louis-Jacques-Mandé Daguerre, inventor of the Diorama, a picture show based on lighting effects, started experiments in the 1820s with fixing the images of the camera obscura on silver chloride paper. His lack of success using this method stimulated his interest in the heliographic method invented by Nicephore Nièpce, who had produced the first successful photographic image in 1826 or 1827 on a pewter plate coated with bitumen of Judea dissolved in oil of lavender. In 1829 Daguerre succeeded in persuading the reluctant Nièpce to become his partner. However, it was only after Nièpce's death, in the spring of 1835, that Daguerre accidentally discovered a quicker method of exposing and developing the Niècian image through the application of mercury vapor. Using this method, with common table salt as the fixative, he produced his first successful permanent photographic image in 1837. Still under contract with Nièpce's son Isidore, Daguerre agreed to split the profits from the new invention in exchange for calling it by his name alone. He then proceeded to launch a publicity campaign with the goal of attracting 400 subscribers at 1,000 francs each, stipulating that the processes of heliography and 'daguerrotype' would not be revealed until 100 subscribers were enrolled. This failed, and the resourceful Daguerre turned to other methods, privately approaching a number of leading scientists with the goal of

interesting the government. "He was fortunate in finding in François Dominique Arago an influential ally, for he was a member of the Chamber of Deputies as well as a distinguished physicist and astronomer. Soon afterwards, Arago gave the discovery official status by a brief announcement at the Acadmie des Sciences, on 7 January 1839" (H. & A. Gernsheim, *The History of Photography*, p. 68). Arago energetically promoted the invention and succeeded in obtaining government funding for the two partners, although in the course of his arguments he gradually shifted credit for the invention to Daguerre, at the expense of Nièpce's pioneering work. By the summer, Daguerre was finally obliged to divulge the details of "his" process (though not before Fox Talbot, in reaction to the news of Daguerre' invention, had published his own announcement of his independent invention of a photographic process). On August 19 Arago made a full announcement to a packed house at a joint meeting of the Académies des Sciences and des Beaux-Arts at the Institut de France. The excitement was palpable. "Perhaps no other invention ever captured the imagination of the public to such a degree and conquered the world with such lightening rapidity as the daguerreotype" (H. & A. Gernsheim, *The History of Photography*, p. 71). Along with the official documents relating to the government's review of the procedure, Daguerre's manual includes details of its genesis, including a transcription of Nièpce's own description of his heliographic process, submitted to Daguerre in 1839, and a full illustrated description of his daguerreotype process - presented as an independent invention, superior to Nièpce's.

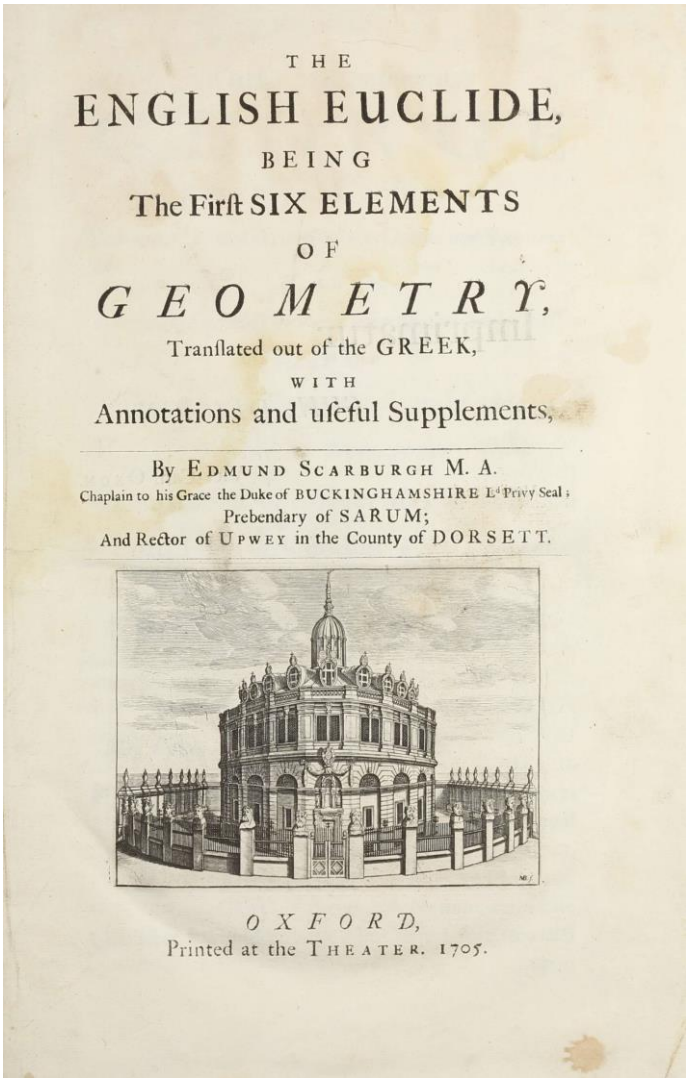
We know of only three other unsophisticated copies of the first issue in its original printed wrappers that have appeared at auction in the past 40 years: the Honeyman copy (Sothebys 1979, lot 802, GBP 1400), the Meyer Friedmann copy (Sothebys 2001, lot 40, $55375) and finally the Richard Green copy (Christies 2008, lot 66, $122500). In contrast to ours, those copies are in yellow wrappers and we know of no other copy in green wrappers.

References: PMM / *Printing and the Mind of Man* 318b; Dibner 183; *En français dans le texte* 255; H. & A. Gernsheim, *The History of Photography*, chapter 6; Horblit/Grolier 21a (reproducing the 4th issue); Norman 569 (same issue); P.G. Harmant, Daguerre's Manual: A Bibliographical Enigma, *Journal of the History of Photography*, vol. I, 1977, pp. 79-83.

8 **EINSTEIN, Albert.** Die Plancksche Theorie der Strahlung und die Theorie der spezifischen Wärme. In: *Annalen der Physik*, series 4, vol. 22, 1907, pp. 180-190. Berlin: J. A. Barth, 1907. 8vo (223 x 147 mm). Entire "Heft 1" (part 1) offered, 208 pp., 1 folding plate, text diagrams. Original publisher's printed orange wrappers (front cover torn and repaired at upper corner with partial loss of border and at foot affecting a few letters, paper over spine repaired affecting a few letters of title, covers soiled). Light even age-toning of text and plate, pencile not on first page. Good copy. (#003655) € 550

Weil *15; DSB 4, 316 - First edition of this fundamental work. In 1907 Einstein pointed out how one could use the quantized energy of the oscillations of atoms in solids to account for departures from the rule of Dulong and Petit. This empirical rule, that the specific heat is the same for one mole of any element in solid form, was understood as a consequence ot the theorem of equipartition of energy" (DSB).

9 **EUCLID; SCARBURGH, Charles, Sir**. *The English Euclide, Being the First Six Elements of Geometry, Translated out of the Greek, with Annotations and useful Supplements, by Edmund Scarburgh, M.A*. Oxford: Printed at the Theater, 1705. Folio (341 x 223 mm). [12], 282 pp., including half-title, title with engraved vignette of the Sheldonian theater, final blank leaf Qq4, numerous woodcut and typographic text diagrams throughout. Signatures: pi^2 a-b^2 A-G^2 H-Z^4 Aa-Qq^4. Contemporary Cambridge-style speckled calf, spine with 6 raised bands richly gilt in compartments and with gilt-lettered red morocco label in second compartment, red-sprinkled edges, original endpapers (boards rubbed and scratched, joints partially split but cords sound, wear to extremities, corners bumped). Light pale dampstaining to first 4 leaves, leaf a2 of prelims with paper repair of tears (without loss), very minor occasional spotting, generally quite crisp and clean throughout. Provenance: Sir William Beauchamp Proctor* (his armorial bookplate with motto "tria juncta in uno" to front pastedown). (#003735) € 3800


THE
ENGLISH EUCLIDE,
BEING
The First SIX ELEMENTS
OF
GEOMETRY,
Translated out of the GREEK,
WITH
Annotations and useful Supplements,
By EDMUND SCARBURGH M. A.
Chaplain to his Grace the Duke of BUCKINGHAMSHIRE L^d Privy Seal;
Prebendary of SARUM;
And Rector of UPWEY in the County of DORSETT.
OXFORD,
Printed at the THEATER. 1705.

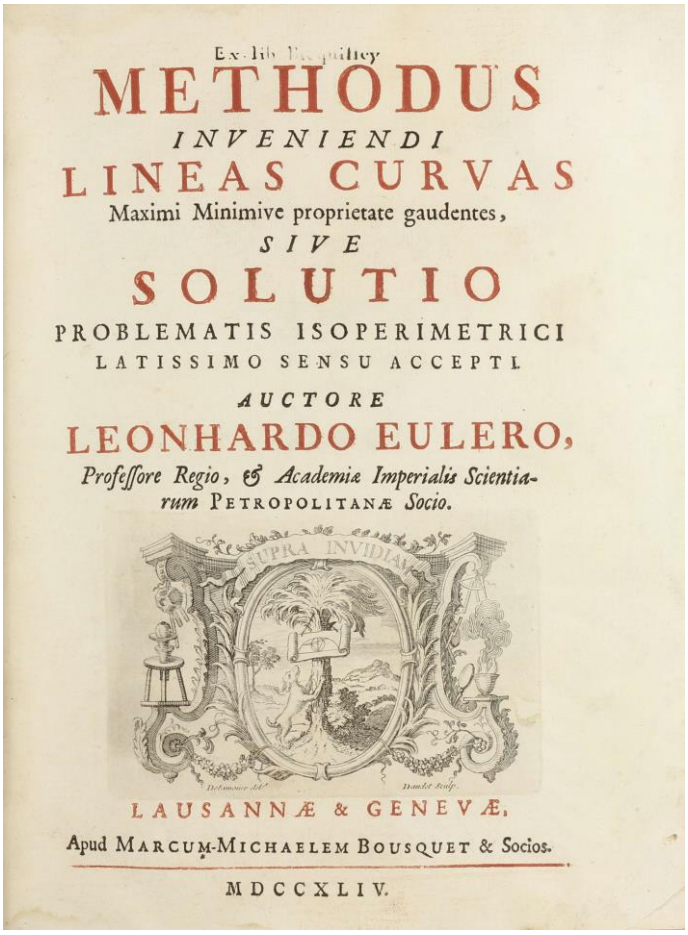
FIRST EDITION of Scarburgh's translation of Euclide, published from his manuscript by his son. Physician and mathematician Sir Charles Scarburgh was an original fellow of the Royal Society. John Evelyn described his library as "the very best collection, especially of mathematical books, that was, I believe, in Europe."

*Sir William Beauchamp-Proctor, 1st Baronet (1722-1773) was an English politician who served as a member of Parliament from Middlesex from 1747 to 1768. He was the first of the Proctor-Beauchamp baronets. References: Wallis, *British Euclids*, p.5.

Interesting association copy

10 **EULER, Leonhard**. *Methodus inveniendi lineas curvas maximi minimive proprietate gaudentes, sive Solutio problematis isoperometrici latissimo sensu accepti*. Lausanne & Geneva: Marc-Michel Bousquet, 1744. 4to (239 x 186 mm). [4], 322, [2] pp., including initial blank and final leaf of binder's instructions, title page printed in red and black with engraved vignette, woodcut head-piece and initial, 5 folding engraved plates bound at end. Contemporary mottled calf, spine with 5 raised bands gilt-decorated and gilt-lettered in compartments, red-dyed edges, original endpapers (minor soiling and rubbing of leather, upper board with loss of small patch of leather, lower spine partially chipped, wormtracks to inner boards and final flyleaf). Light even browning of text leaves, occasional minor spotting, light pale dampstaining to several pages, plates a bit more browned, a few wormholes to final two plates. Provenance: Charles François de Bicquilley* (wet stamp on title verso). Still a crisp and clean copy despite the light dampstaining. (#003720) € 4500

FIRST EDITION. With the publication of this work, the calculus of variations came into being as a new branch of mathematics. Leonhard Euler (1707-1783) was "one of the most prolific and versatile mathematicians and founder of modern fluid dynamics. In the above book he presented his calculus of variations, derived from his studies of isoperimetrical curves, a method for finding the variation when the values of some or all the expressions are varied" (Dibner).


Ex-lib
METHODUS
INVENIENDI
LINEAS CURVAS
Maximi Minimive proprietate gaudentes,
SIVE
SOLUTIO
PROBLEMATIS ISOPERIMETRICI
LATISSIMO SENSU ACCEPTI
AUCTORE
LEONHARDO EULERO,
Professore Regio, & Academiæ Imperialis Scientiarum Petropolitanæ Socio.
LAUSANNÆ & GENEVÆ,
Apud Marcum-Michaelem Bousquet & Socios.
MDCCXLIV.

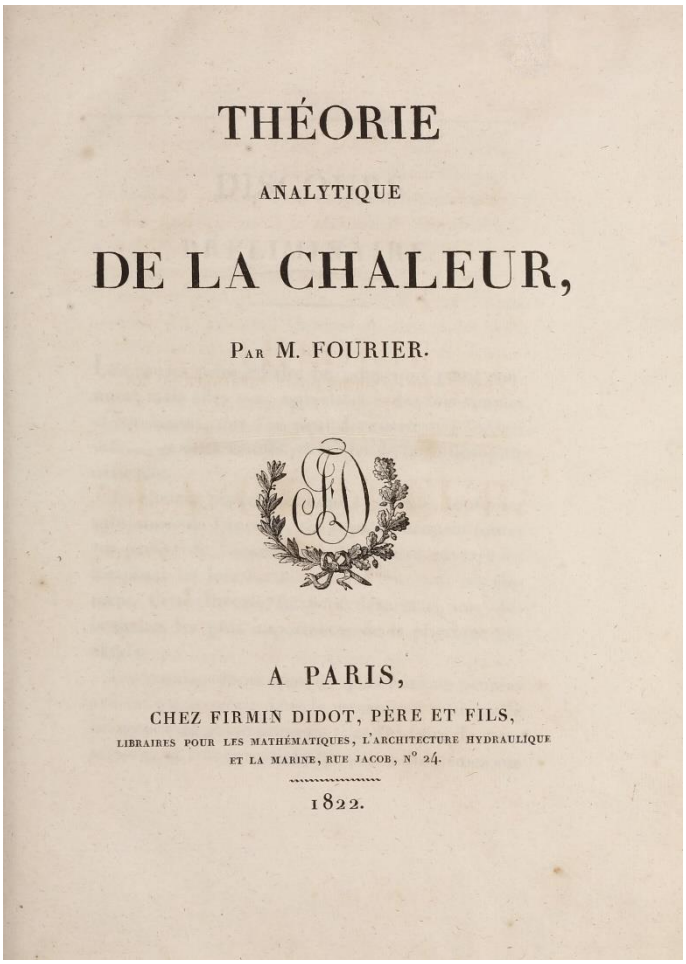
"Starting with several problems posed by Johann and Jakob Bernoulli, Euler was the first to formulate the principal problems of the calculus of variations and to create general methods for their solution" (D.S.B.). Of equal significance for the development of mechanical science is the first of two appendices, in which Euler applied the calculus of variations to several problems in the theory of elasticity. "In this appendix, which was in fact the first general work on the mathematical theory of elasticity, Euler studied bending and vibrations of elastic bands... and of a plate under different conditions... and deduced the famous Euler buckling formula, or Euler critical load, used to determine the strength of columns" (DSB).

*Charles François de Bicquilley (1738-1814), French mathematician, author of a treatise on the calculation of probabilities and a pioneering work on mathematics applied to economics. Both Euler and Bicquilley won the Academy Grand Prize. Pages 208 and 211 contain faint ink corrections of equations, possibly by Bicquilley.

References: Horblit 28; Dibner 111; Sparrow 60; Norman 731; Roberts & Trent 104; Eneström, Die Schriften Eulers, 65; DSB IV, p.479.

11 **FOURIER, Jean Baptiste Joseph**. *Théorie Analytique de la Chaleur*. Paris: Firmin-Didot, 1822. 4to (254 x 200 mm). [4], xxii, 639 [1] pp., including half title and two engraved plates at end. Contemporary half leather over marbled boards, spine lettered and decorated in gilt (spine very little rubbed, head of spine chipped), endpapers and cut edges marbled. Internally crisp and unmarked, about 20 leaves with insignificant pale damp staining, very little spotting in places. A clean, well-margined copy of a milestone work in mathematics. (#102022) € 16,000

Dibner 154; Sparrow 68; Norman 824; DSB V, pp. 93-99; Bibliotheca Mechanica, p.118; En Français dans le Texte 232; Honeyman 1358; Evans 37. - FIRST EDITION of the first mathematical study of heat diffusion, originally presented as a paper to the Academie des Sciences in 1807. Fourier showed that heat diffusion was subject to simple observable physical constants that could be expressed mathematically. While Galileo and Newton had revolutionized the study of nature by discerning mathematical laws in the movement of solids and fluids, this approach had not been satisfactorily applied to the study of heat before Fourier. His work had major repercussions for the development of both physics and pure mathematics: first, he extended the range of rational mechanics beyond the fields defined in Newton's Principia, establishing an essential branch of modern physics. Secondly, his invention of unprecedentedly powerful mathematical tools for the solution of equations "raised problems in mathematical analysis that motivated much of the leading work in that field for the rest of the century and beyond" (DSB).


THÉORIE

ANALYTIQUE

DE LA CHALEUR,

PAR M. FOURIER.

A PARIS,

CHEZ FIRMIN DIDOT, PÈRE ET FILS,

LIBRAIRES POUR LES MATHÉMATIQUES, L'ARCHITECTURE HYDRAULIQUE ET LA MARINE, RUE JACOB, N° 24.

1822.

"Fourier's most celebrated work in which he succeeded in putting the science of heat on an analytical or mathematical basis" (Honeyman).

"Fourier's application of new methods of mathematical analysis to the study of heat extended rational mechanics to fields outside of those defined in Newton's Principia, enabling the systematization of a wide range of phenomena. To further his study of heat, Fourier introduced the Fourier series and Fourier integrals." (Norman).

"Fourier's methods find their widest application to problems of vibration such as in heat, sound and in fluid motion" (Dibner).

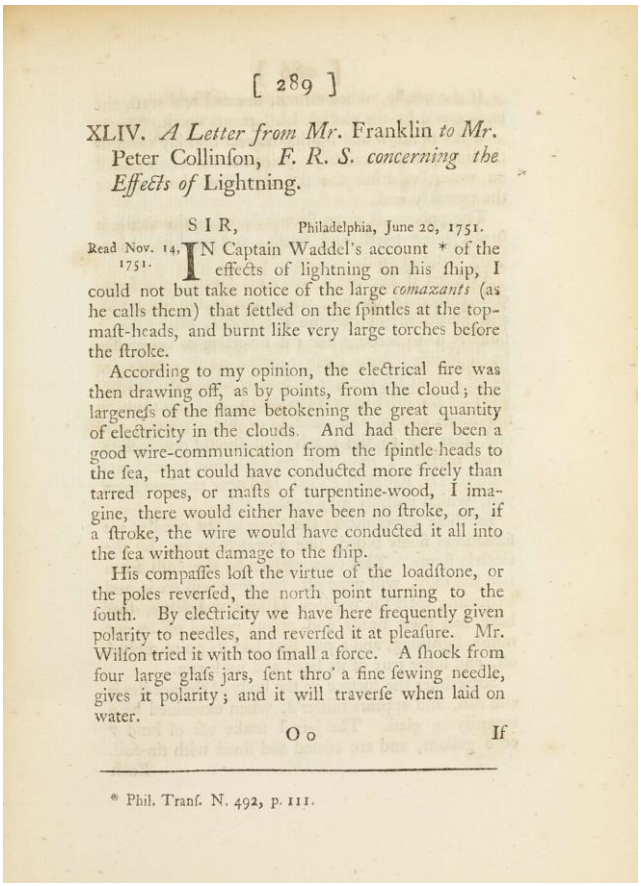
12 **FOURIER, Jean Baptiste Joseph**. Remarques générales sur les températures du globe terrestre et des espaces planétaires / Résume théorique des propriétés de la chaleur rayonnante. In: *Annales de Chimie et de Physique*, Ser. 2, vol. 27, pp. 136-67 and 236-81. Paris: Crochard, 1824. 8vo (200 x 122 mm). Entire volume: 448 pp., including half title, general title, 1 engraved plate. Contemporary half calf over marbled boards, spine with gilt decoration, gilt-lettered labels and additional printed and hand-lettered paper label, brown sprinkled edges, original light-blue endpapers (leather and extremities rubbed, minor wear to corners). Little age-toning and minor occasional spotting. Provenance: Lycee Faidherbe de Lille (title and some text pages with old library stamp, shelf mark in manuscript to title). (#003753) € 1700

FIRST EDITION of two milestone papers by Fourier relating to the Greenhouse Effect. "In October 1824, Fourier published a scientific paper titled 'Remarques generales sur les Temperatures du globe terrestre et des espaces planetaires' in the journal *Annales de Chimie et de Physique*, Tome XXVII (pp. 136-167), in which he presented his results from a mathematical analysis, that climate-change experts today [...] generally regard as the start of climate-change science. Fourier stumbled across the greenhouse effect when he puzzled over this particularly tantalizing question: Every day the Sun's rays strike the Earth's surface and warm it up, so why doesn't the planet

keep heating up until it is as hot as the Sun itself? His answer was that the heated surface must emit invisible infrared radiation, which carries the heat energy away into space. But when he calculated the effect mathematically, he got a temperature well below freezing, much colder than the actual Earth. The difference, he suggested, must be due to the Earth's atmosphere. Somehow it kept part of the heat radiation in. He tried to explain this by comparing way Earth's atmosphere holds in heat from the Sun to the way the glass of a greenhouse keeps in the heat. He actually wrote about a glass box rather than a greenhouse, but the name "greenhouse effect" for the effect he described was coined soon afterwards. Fourier did not set out to think about climate change as such. Rather he was investigating the purely scientific question of what determines the average temperature of a planet like the Earth? This was the sort of question that physicists were just beginning to learn how to attack back in the early 19th century. To understand heat transfer, Fourier invented the powerful mathematical techniques he is best known for to mathematicians today - techniques that turned out to have many applications besides heat flow, in particular, forming the basis of modern music synthesizers and MP3 players" (Devlin Angle, *The Other Thing Fourier Did*, Nov. 2010, online resource).

13 **FRANKLIN, Benjamin**. *A Letter from Mr. Franklin to Mr. Peter Collinson, F.R.S. concerning the Effects of Lightning*. In: Philosophical Transactions of the Royal Society of London, vol. 47, pp. 289-291. [Ibid] *A Letter of Benjamin Franklin, Esq; to Mr. Peter Collinson, F.R.S. concering an electrical Kite*, pp. 565-567. London: C. Davis, 1753. 4to (218 x 170 mm). Entire volume 47, for the Years 1751 and 1752 offered: [18], 571, [17] pp., 20 engraved plates (19 folding), folding table, text illustration and diagrams. Bound in contemporary sprinkled calf, spine with gilt lettered morocco label, red-sprinkled edges, lower board with cental gilt supralibros and blind tooling (upper board and joints restored, spine soiled and darkend with gilt decoration mostly rubbed off, board leather scratched, corners worn). Text somewhat browned, minor dust-soiling, some scattered spotting of text and plates. (#003427) € 3000

FIRST EDITION of both letters in which Franklin describes his lightning experiment and in which he proves that lightning is an electrical phenomenon. "Benjamin Franklin was the first American to win an international reputation in pure science and the first man of science to gain fame for work done wholly in electricity. His principle achievement was the formulation of a widely used theory of general electrical 'action' (explaining or predicting the outcome of manipulations in electrostatics: charge production charge transfer, charging by electrostatic induction). He advanced the concept of a single 'fluid' of electricity, was responsible for the principle of conservation of charge, and analyzed the distribution of charges in the Leyden jar, a capacitor. He introduced into the language of scientific discourse relating to electricity such technical words as 'plus' and 'minus,' 'positive' and 'negative,' 'charges' and battery. By experiment he showed that the lightning discharge is an electrical phenomenon, and upon this demonstration (together with his experimental findings concerning the action of grounded and of pointed conductors) he based his invention of the lightning rod . . . Franklin devised a second experiment to test the electrification of clouds, one which has become more popularly known: the lightning kite. Franklin reported this experiment to Collinson in a letter of 1 October 1752, written after Franklin had read 'in the publick papers from Europe, of the success of the Philadelphia-Experiment for drawing the electrick fire from clouds by means of pointed rods of iron erected on high buildings. . . .' Actually, Franklin appears to have flown his electrical kite prior to having learned of Dalibard's successful execution of the sentry-box experiment. The kite letter, published in the philosophical Transactions, referred to the erection of lightning rods on public buildings in Philadelphia. The lightning experiments caused Franklin's name to become known throughout Europe to the public at large and not merely to men of science. Joseph Priestley, in his History . . . of Electricity, characterized the experimental discovery that the



[289]

XLIV. *A Letter from Mr.* Franklin *to Mr.* Peter Collinſon, *F. R. S. concerning the Effects of* Lightning.

SIR, Philadelphia, June 20, 1751.

Read Nov. 14, 1751. IN Captain Waddel's account * of the effects of lightning on his ſhip, I could not but take notice of the large *comazants* (as he calls them) that ſettled on the ſpintles at the top-maſt-heads, and burnt like very large torches before the ſtroke.

According to my opinion, the electrical fire was then drawing off, as by points, from the cloud; the largeneſs of the flame betokening the great quantity of electricity in the clouds. And had there been a good wire-communication from the ſpintle-heads to the ſea, that could have conducted more freely than tarred ropes, or maſts of turpentine-wood, I imagine, there would either have been no ſtroke, or, if a ſtroke, the wire would have conducted it all into the ſea without damage to the ſhip.

His compaſſes loſt the virtue of the loadſtone, or the poles reverſed, the north point turning to the ſouth. By electricity we have here frequently given polarity to needles, and reverſed it at pleaſure. Mr. Wilſon tried it with too ſmall a force. A ſhock from four large glaſs jars, ſent thro' a fine ſewing needle, gives it polarity; and it will traverſe when laid on water.

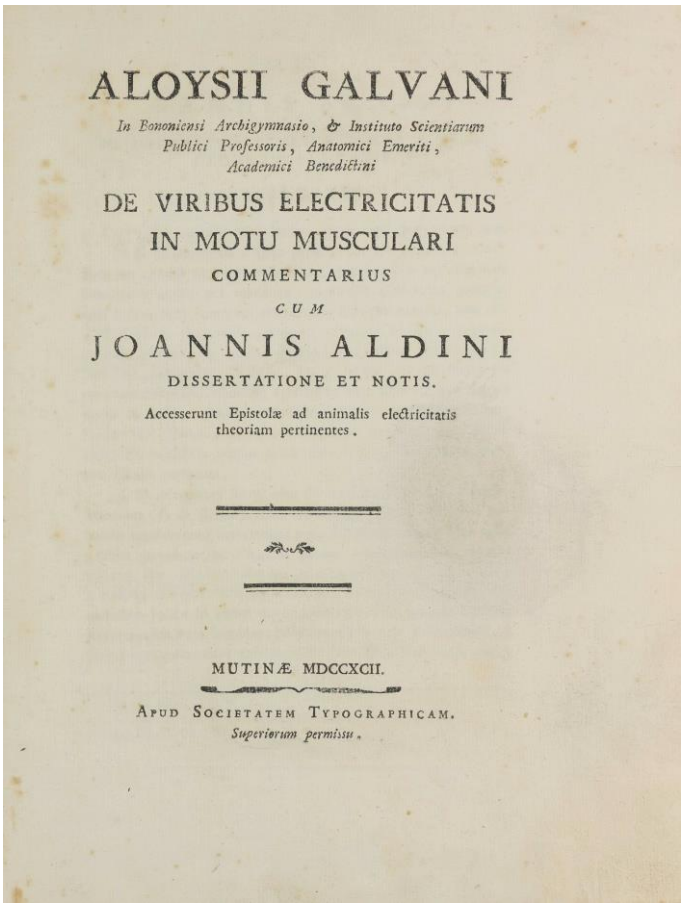
O o If

* Phil. Tranſ. N. 492, p. 111.

lightning discharge is an electrical phenomenon as 'the greatest, perhaps, since the time of Sir Isaac Newton.' Of course, one reason for satisfaction in this discovery was that it subjected one of the most mysterious and frightening natural phenomena to rational explanation. It also proved that Bacon had been right in asserting that a knowledge of how nature really works might lead to a better control of nature itself: that valuable practical innovations might be the fruit of pure disinterested scientific research." (DSB V, pp. 129, 134-135).

14 **GALVANI, Luigi**. *De viribus electricitatis in motu musculari commentarius cum Joannis Aldini dissertatione et notis. Accesserunt epistolae ad animalis electricitatis theoriam pertinentes*. Modena: Societatem Typographicam, 1792. 4to (278 x 210 mm). xxvi, 80 pp. and 3 folding engraved plates (plate III in first state with the letter 'E' in fig. 22 uncorrected); woodcut headpieces; bound without intermediate blank leaf C6 as usual. Contemporary Italian cardboard, pasted over with orange metallic paper, red-sprinkled boards, original endpapers (some paste-paper chipping to extremities and spine). Title-leaf with erased circular stamp (resulting in some paper-thinning outside printed area); crisp and bright throughout with just some minor occasional spotting of text and plates; small hole in blank fore-marging of plate I. Provenance: from an Italian private collection. This copy comes with an official export permit issued by Italian government. A near fine, wide-margined copy. (#003732) € 9500

RARE FIRST EDITION IN BOOK FORM. Galvani first published his theory in 1791 in volume V of the proceedings of the Bologna Academy of Science. He believed that "animals possess in their nerves and muscles a subtle fluid quite analogous to ordinary electricity" (DSB). The offprint of his 1791 article, the first separate edition of the work, is known in only a dozen copies. Galvani's nephew, Aldini, became his uncle's most ardent supporter, and published this edition - the first in book form - the following year with his extended notes and commentary. At the end appears an exchange of letters between Don Bassano Carminati and Galvani, containing Carminati's report of Volta's repetition of Galvani's experiments, which Volta interpreted correctly as the result of contact electricity.


ALOYSII GALVANI

In Bononiensi Archigymnasio, & Instituto Scientiarum Publici Professoris, Anatomici Emeriti, Academici Benedictini

DE VIRIBUS ELECTRICITATIS IN MOTU MUSCULARI COMMENTARIUS

CUM

JOANNIS ALDINI

DISSERTATIONE ET NOTIS.

Accesserunt Epistolæ ad animalis electricitatis theoriam pertinentes.

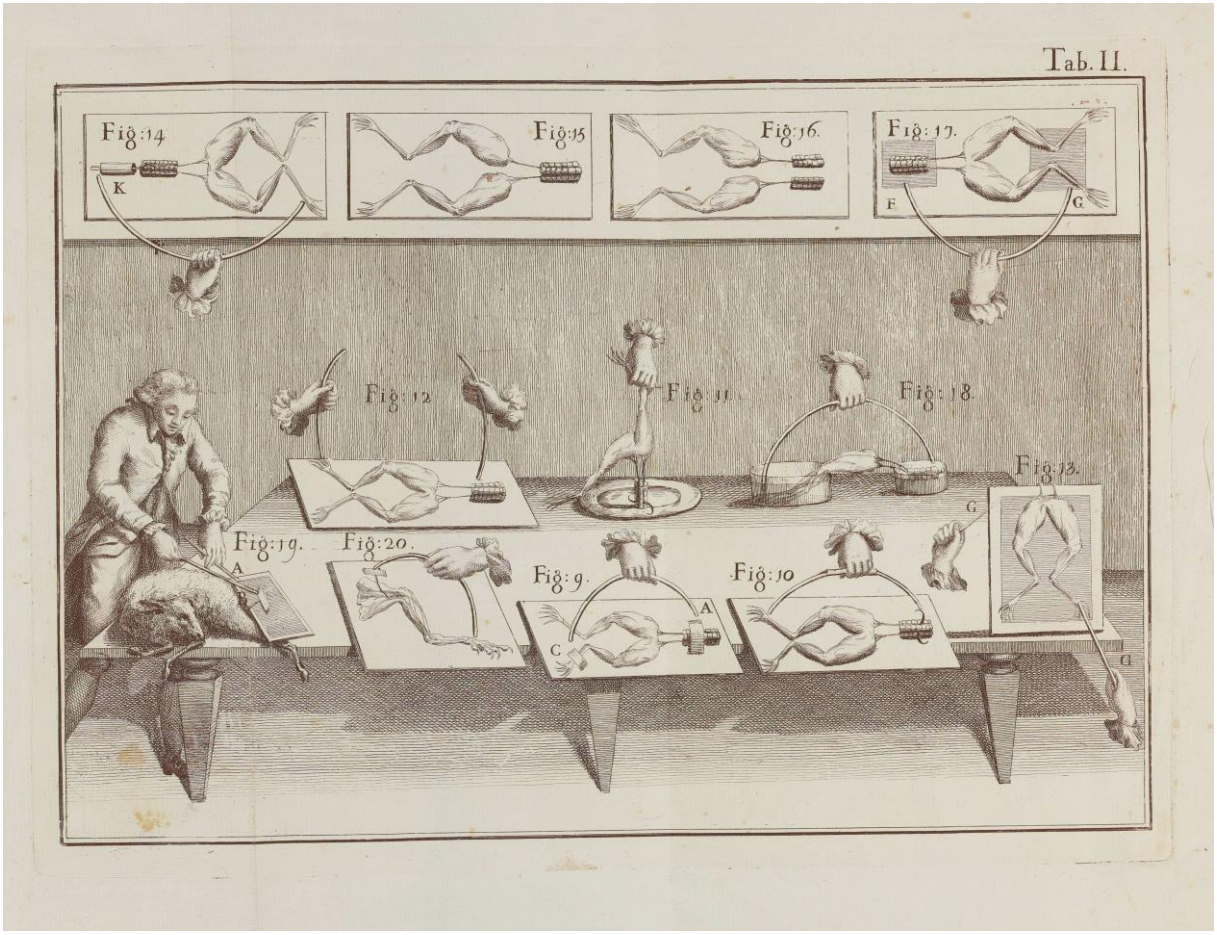
MUTINÆ MDCCXCII.

Apud Societatem Typographicam.

Superiorum permissu.

"By the end of the eighteenth century the connexion between nervous action and electricity had been the subject of investigation for some time. Newton, when discussing the properties of aether, had made suggestions that an electric spirit might convey sensations to the brain along the nerves and produce muscular reactions: see Book m of *Opticks* and the General Scholium concluding the second edition of the *Principia*. Haller also made experiments trying to prove a connexion between electrical action and reflexes of the muscles. It was left to Luigi Galvani, professor of anatomy at Bologna, in 'On the Effects of Electricity on Muscular Motion', to provide, as he thought, dramatic experiments on what was called 'animal electricity' and afterwards 'galvanism'. Galvani observed in his laboratory that when a nerve in a frog's leg was touched with a scalpel, violent contractions of the muscles occurred simultaneous with the sparks discharged from a nearby electrical machine. He further discovered that when one metal was placed in contact with a frog's nerve, another with a muscle, and the metals touched, contraction of the muscle took place, without needing a spark from an electrical machine. As a physiologist, Galvani thought that this action was due to the presence of electricity in the animal itself, as in the 'electric eel', and that the metal wires simply served as conductors. He did not realize that he had not discovered just a new physiological source of electricity, but a new source of continuous electric flow in chemical action. Hitherto electricity had been produced only in high-voltage, intermittent surges from frictional machines. It was Alessandro Volta, a physicist, who proved that animals were inessential to 'galvanic' electricity, and who constructed the first battery to cause a current to flow by chemical action. Galvani's paper immediately aroused great interest in the scientific world, and it involved him in controversy with Volta (largely carried on by Galvani's

nephew, Giovanni Aldini, on his uncle's behalf). Galvani's influence on the modem development of energy, electrochemistry and electromagnetism is an indirect one. But there is no doubt that modern electrophysiology, as was emphasized by one of its foremost representatives, Du Bois-Reymond in Germany, derives from those observations of the behaviour of the frog's legs" (PMM 240).

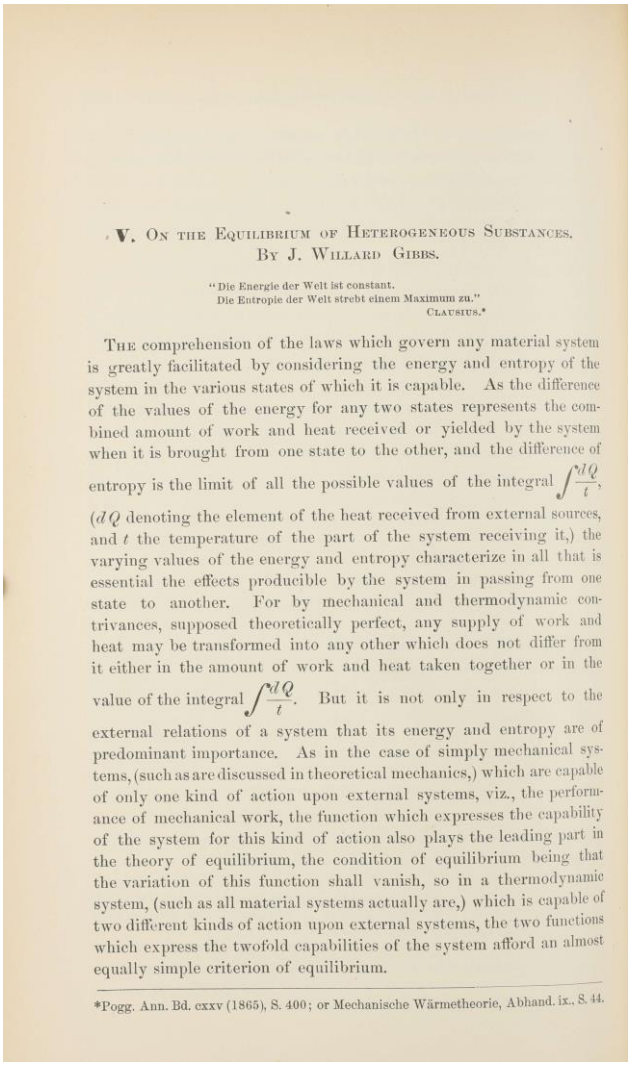


"In his experiments on the irritable responses provoked by static electricity in prepared frogs, Galvani inadvertently discovered the central phenomenon of galvanism: the production of electric current from the contact of two different metals in a moist environment" (Norman).

References: Norman 869; PMM, *Printing and the Mind of Man*, 240 (journal issue); Dibner 59 (Journal issue); Fulton and Stanton, *A bibliography of Galvani's Writings on Animal Electricity*, 5; Osler 1243; Waller 11346; Wellcome III, p. 86; Wheeler Gift 575; DSB V, pp. 267-69.

15 **GIBBS, Josiah Willard**. On the Equilibrium of Heterogeneous Substances, pp. 108-248 [With:] On the Equilibrium of Heterogeneous Substances (concluded), pp. 343-524, in: *Transactions of the Connecticut Academy of Arts and Sciences*, vol. III. New Haven: Published by the Academy, 1874-78. 8vo (227 x 143 mm). Entire volume: xi [1], 529 [1] pp., including 60 photo-lithographed plates and errata on final unnumbered page. Contemporary half sheepskin over marbled boards, spine blind-ruled and lettered in gilt, red-sprinkled edges (extremities rubbed, traces of white paint on spine). Text with light browning mostly to outer margins, otherwise crisp and clean throughout. Provenance: William North Rice* (1845-1928) (signature on front free endpaper and ink stamp on first page of contents dated 23 May 1938); Wesleyan College (library bookplate on front paste-down). Very good+ copy. (#003659) € 15,000

VERY RARE FIRST EDITION, in the complete journal volume, of Gibbs' epoch-making work which can be regarded "A foundation treatise on physical chemistry, the interpretation of chemical processes by application of thermodynamics and mathematics" (Horblit 40). Here, "Gibbs showed by the use of mathematical processes how thermodynamics may be used in the interpretation of chemical processes, and gave the first demonstration of the Phase Rule" (Evans 60). "This work of over three hundred pages was of immense importance. When scientists finally realized its scope and significance, they praised it as one of the greatest contributions of the century" (Crowe, p. 151). "Gibbs, the greatest American mathematical physicist, introduced in ['On the Equilibrium of Heterogeneous Substances'] the 'phase rule' to solve the intricate problem of the equilibrium of such mixtures as chemical solutions and metal alloys. Largely ignored both in America and abroad for more than ten years after this initial appearance, its impact upon modern industrial technology was enormous, leading directly to the modern manufacture of plastics, drugs, dyes and organic solvents. His mathematical equations relieved scientists of immeasurable numbers of experiments in order to ascertain the precise conditions for successful chemical processes" (Norman 899). His "early papers, as well as Gibbs's major memoir on thermodynamics that soon followed them, appeared in the *Transactions of the Connecticut Academy of Arts and Sciences*, a new and relatively obscure journal whose non-local circulation consisted largely of exchanges with other learned societies, including some 140 outside the United States. Gibbs did not count on finding his potential readers among those who checked the contents of the *Transactions*" (DSB, p. 389). "Though Gibbs's work was published in one of the most obscure of American scientific periodicals, Gibbs attempted to gain wider circulation for his ideas by mailing a larger than usual number of offprints of the papers to scientists he believed would be interested [. . .] Gibbs mailed nearly 100 copies of [the offprint of] each of the two parts of his paper, mostly to individuals, and 10 each to institutions. Of these few appear to have survived" (historyofinformation online resources). The work is rare on the market in any form: ABPC/RBH list four copies in the last 25 years including only the Norman copy in the offprint form.



V. On the Equilibrium of Heterogeneous Substances.
By J. Willard Gibbs.

"Die Energie der Welt ist constant.
Die Entropie der Welt strebt einem Maximum zu."
Clausius.*

The comprehension of the laws which govern any material system is greatly facilitated by considering the energy and entropy of the system in the various states of which it is capable. As the difference of the values of the energy for any two states represents the combined amount of work and heat received or yielded by the system when it is brought from one state to the other, and the difference of entropy is the limit of all the possible values of the integral $\int \frac{dQ}{t}$, (dQ denoting the element of the heat received from external sources, and t the temperature of the part of the system receiving it,) the varying values of the energy and entropy characterize in all that is essential the effects producible by the system in passing from one state to another. For by mechanical and thermodynamic contrivances, supposed theoretically perfect, any supply of work and heat may be transformed into any other which does not differ from it either in the amount of work and heat taken together or in the value of the integral $\int \frac{dQ}{t}$. But it is not only in respect to the external relations of a system that its energy and entropy are of predominant importance. As in the case of simply mechanical systems, (such as are discussed in theoretical mechanics,) which are capable of only one kind of action upon external systems, viz., the performance of mechanical work, the function which expresses the capability of the system for this kind of action also plays the leading part in the theory of equilibrium, the condition of equilibrium being that the variation of this function shall vanish, so in a thermodynamic system, (such as all material systems actually are,) which is capable of two different kinds of action upon external systems, the two functions which express the twofold capabilities of the system afford an almost equally simple criterion of equilibrium.

*Pogg. Ann. Bd. cxxv (1865), S. 400; or Mechanische Wärmetheorie, Abhand. ix., S. 44.

*William North Rice (1845–1928) was an American geologist, educator, and Methodist minister and theologian concerned with the reconciliation of science and religious faith. Rice served as professor of geology and natural history at Wesleyan University in Middletown, Connecticut, beginning in 1868. He served as acting president of Wesleyan on three occasions – in 1907, from 1908 to 1909, and again in 1918.

References: Dibner 49; Evans 60; Horblit 40; Honeyman 1495; Norman 899 (offprint issues); DSB V, pp. 286-93; Crowe, *A History of Vector Analysis*, 1967.

16 **KIRCHHOFF, Gustav Robert & BUNSEN, Robert**. Chemische Analyse durch Spectralbeobachtungen. (Erste-) Zweite Abhandlung. In: *Annalen der Physik und Chemie*, vol. 110, pp. 161-89, plates V, VI + vol. 113, pp. 337-81, plates III, V, VIII. Leipzig: Johann Ambrosius Barth, 1860-1861. Entire volumes, 8vo (208 x 128 mm); IX [1], 668 pp., 8 folding plates; X, 660 pp., 8 folding plates. Uniformly bound in contemporary polished half-calf and marbled boards, gilt-lettered morocco labels, marbled edges (extremities slightly rubbed, corners partly bumped). Text and plates with occasional minor foxing, otherwise crisp and clean throughout. A very good set in untouched original bindings. (#003795) € 1500

FIRST PRINTING OF THE TWO FOUNDING PAPERS OF SPECTRUM ANALYSIS. In 1860, Gustav R. Kirchhoff and Robert W. Bunsen discovered in their Heidelberg laboratory that the light of heated chemical elements passed through a prism produces characteristic lines. These lines allow unambiguous remote identification of the substances involved. The two researchers published their discovery in the Annalen der Physik und Chemie. Kirchhoff and Bunsen demonstrated that the presence of certain spectral lines can clearly be used to infer the presence of the chemical element in question, regardless of the specific compound in which the element is present.

"The perfection of the spectroscope has made possible other great forward strides. In 1861, Kirchhoff and Bunsen discovered two new elements - caesium and rubidium" (PMM 278b).

The second volume also contains the "Vorschlag eines reproducirbaren Widerstandsmaasses" by Werner Siemens (Darmstaedter 604), a paper "Ueber die Ringbildung in Flüssigkeiten" by E. Reusch, "Ueber die Bestimmung des galvanischen Leitungswiderstandes" by H. W. Schröder van der Kolk, and contributions by Gustav Zeuner, Gustav Quincke, G. vom Rath, Heinrich Rose, H. W. Dove, and others.

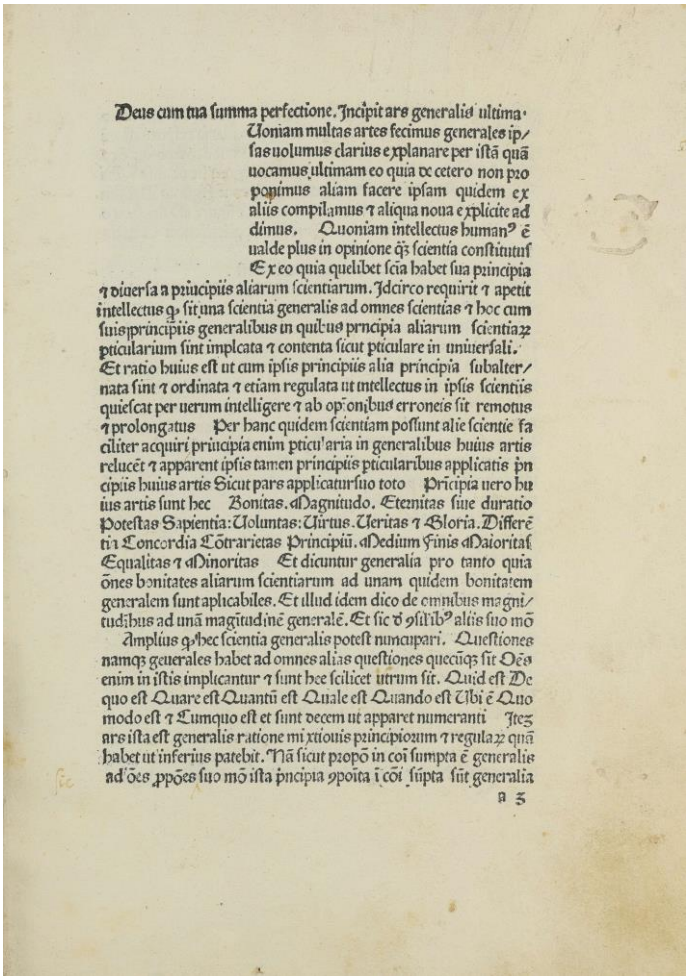
References: Poggendorff III, 721; Darmstaedter 587; PMM 278b (remark).

17 **LEHMANN, Otto**. *Molekularphysik. Mit besonderer Berücksichtigung mikroskophischer Untersuchungen und Anleitung zu solchen sowie einem Anhang über mikroskopische Analyse*. Leipzig: Wilhelm Engelmann, 1888. Two parts in two volumes. 8vo (228 x 155 mm). x, 852; vi, 697 [1] pp., including 624 text illustrations, 10 lithographed plates of which 6 printed in colors. Uniformly bound in contemporary half sheepskin and marbled boards, gilt-lettered spines, marbled edges (leather and extremities rubbed, minor wear to edges, boards protected by coated mylar foil). Text with little age-toning, but generally very clean and bright throughout. Provenance: 'SDL Bücherei' (stamps on front free endpapers); Collection of Peter and Margarethe Braune. Very good set. (#003534) € 450

FIRST EDITION of the author's first major work. "Lehmann discovered liquid crystals; substances which behave mechanically as liquids but display many of the optical properties of crystalline solids. [. . .] Lehmann's early scientific interest and experimentation were concerned with electric discharges in rarified gases, but he soon turned his attention to the study of the fine structure of matter as revealed under the microscope. His first major work describing his studies was 'Molekularphysik...'" (DSB). References: DSB VIII, p.148.

One of the first works on symbolic logic and the combinatorial art

18 **LULL, Ramon [LULLUS, Raymundus]**. *Ars generalis ultima [incipit]. Deus cum summa perfectione*. Edited by Joannes Cordubensis. Venice: Filippo di Pietro, for Johannes Cordubensis, 13 Nov. 1480. 4to (203 x 150 mm). 216 (of 224) unnumbered leaves. 35 lines, Gothic letter, 2- to 8-line initial spaces. Bound without first blank leaf a1 and final blank leaf y4 as well as the 6 leaves of final gathering ^{2}a of the *Logica brevis nova*. Signatures: a-v^{8} A-E^{8} F^{6} x^{8} y^{4} (-a1, -y4). Bound in 17th century Italian carta rustica, spine titled in manuscript, authors name added in ink on front cover, original endpapers (spine water-stained and damaged by worming, minor chipping at foot, ties gone, dust-soiling of covers). Several leaves preserved uncut at lower and fore-edge; a few short contemporary annotations in faint ink at beginning, foliation added in manuscript throughout. Internally quite crisp and clean throughout, with very minor browning of text (4 leaves of gathering k more heavy); fol. k7 with clean tear at upper corner (no loss); leaves of gathering p with staining (possibly from pressed plants); fol. v8 soiled on verso; paper flaw in fol. o8 with small hole outside print area, small wormholes in blank margin of first 2 leaves, worming at gutter and fore-margin of final 3 leaves affecting two letters of text, these leaves also reinforced at gutter. A very good, tall copy in untouched Italian binding. (#003719) € 45,000

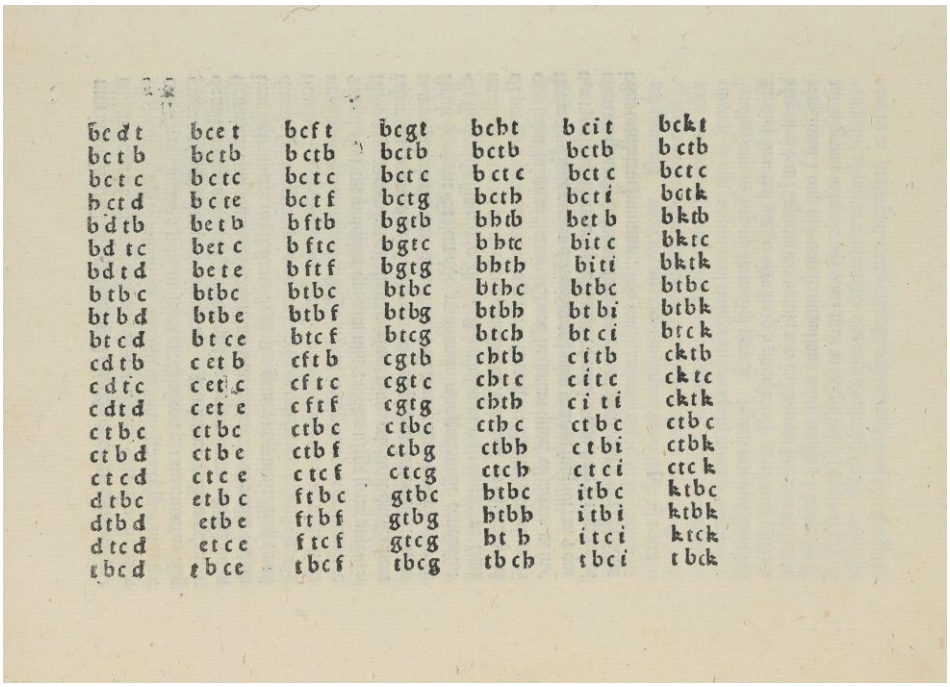

Deus cum tua ſumma perfectione. Incipit ars generalis ultima.
Uoniam multas artes fecimus generales ip/
ſas uolumus clarius explanare per iſtã quã
uocamus ultimam eo quia de cetero non pro
pomimus aliam facere ipſam quidem ex
aliis compilamus ⁊ aliqua noua explicite ad
dimus. Quoniam intellectus humanꝰ ẽ
ualde plus in opinione q̃s ſcientia conſtitutus
Ex eo quia quelibet ſcia habet ſua principia
⁊ diuerſa a principiis aliarum ſcientiarum. Idcirco requirit ⁊ apetit
intellectus qꝰ ſit una ſcientia generalis ad omnes ſcientias ⁊ hoc cum
ſuis principiis generalibus in quibus principia aliarum ſcientiarꝫ
particularium ſunt implcata ⁊ contenta ſicut particulare in uniuerſali.
Et ratio huius eſt ut cum ipſis principiis alia principia ſubalter/
nata ſint ⁊ ordinata ⁊ etiam regulata ut intellectus in ipſis ſcientiis
quieſcat per uerum intelligere ⁊ ab opiõibus erroneis ſit remotus
⁊ prolongatus Per hanc quidem ſcientiam poſſunt alie ſcientie fa
ciliter acquiri principia enim particularia in generalibus huius artis
relucẽt ⁊ apparent ipſis tamen principiis particularibus applicatis pn
cipiis huius artis Sicut pars applicatur ſuo toto Principia uero hu
ius artis ſunt hec Bonitas. Magnitudo. Eternitas ſiue duratio
Poteſtas Sapientia: Voluntas: Virtus. Veritas ⁊ Gloria. Differẽ
tia Concordia Cõtrarietas Principiũ. Medium Finis Maioritas
Equalitas ⁊ Minoritas Et dicuntur generalia pro tanto quia
õnes bonitates aliarum ſcientiarum ad unam quidem bonitatem
generalem ſunt aplicabiles. Et illud idem dico de omnibus magni/
tudibus ad unã magitudinẽ generalẽ. Et ſic ỽ ꝟſib⁹ aliis ſuo mõ
Amplius qꝫ hec ſcientia generalis poteſt numquam pari. Queſtiones
namq; generales habet ad omnes alias queſtiones quecũq; ſit Oẽs
enim in iſtis implicantur ⁊ ſunt hec ſcilicet utrum ſit. Quid eſt De
quo eſt Quare eſt Quantũ eſt Quale eſt Quando eſt Ubi ẽ Quo
modo eſt ⁊ Cumquo eſt et ſunt decem ut apparet numeranti Iteꝫ
ars iſta eſt generalis ratione mixtionis principiorum ⁊ regulaꝝ quã
habet ut inferius patebit. Nã ſicut propõ in coi ſumpta ẽ generalis
ad ões ppões ſuo mõ iſta principia ypotica i cõi ſũpta ſũt generalia
a 3

EXCEPTIONALLY RARE FIRST EDITION of Llull's most important work dedicated to mnemonics. It contains combinatory tables of the symbolic letters BCDEFGHIKT which are the forerunner of modern computer science. In later editions these letters were represented in simpler fashion by diagrams with volvelles. Lull invented an 'art of finding truth' which inspired Leibniz's dream of a universal algebra four centuries later. "The most distinctive characteristic of [his] Art is clearly its combinatory nature, which led to both the use of complex semi-mechanical techniques that sometimes required figures with separately revolving concentric wheels - 'volvelles', in bibliographical parlance - and to the symbolic notation of its alphabet. These features justify its classification among the forerunners of both modern symbolic logic and computer science, with its systematically exhaustive consideration of all possible combinations of the material under examination, reduced to a symbolic coding. The Art's function as a means of unifying all knowledge into a single system remained viable throughout the Renaissance and well into the seventeenth century" (DSB).

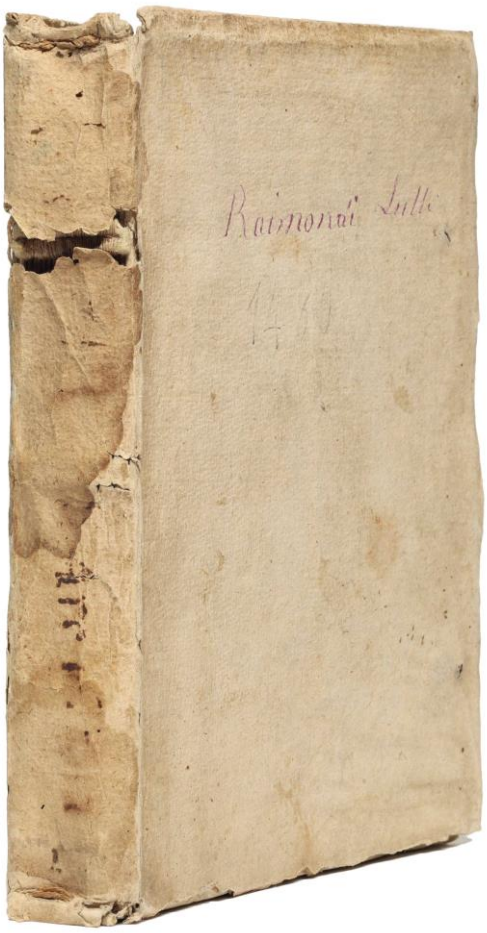
The *Ars generalis ultima* is the earliest recorded printing of any of Lull's writings apart from the extremely rare first edition of the *Ars brevis* by Gabriele di Pietro in c. 1475. The work can be regarded as a restatement of the *Ars magna praedicationis*, Llull's famous system of predictive thinking, first formulated in 1304 and intended to solve all possible questions in theology, metaphysics, morals and even natural science. According to a note at the end of the book, the *Ars generalis ultima* was begun at Lyons, on the Rhone, in November 1305. It is probable however that Llull, having lost everything in a shipwreck, had to recommence it from memory in the monastery of St. Dominic, near Pisa, some two and a half years later. The original text, now lost, is believed to have been in Catalan. The *Ars brevis*, a resumé of the work, was completed in January 1308 and enjoyed four centuries of popularity.

In the present copy, as almost always (including the British Library copy), the last gathering of six leaves with the *Logica brevis nova* (not the *Ars brevis* as stated by BMC and IGI) is missing. It was published separately by Christophorus Arnoldus in c. 1476 and can be treated as an independent publication. The text of the *Ars generalis*

ultima in our copy is complete and includes the colophon and register. We were unable to trace any copy recorded at auction that included the leaves of the *Logica brevis nova.*



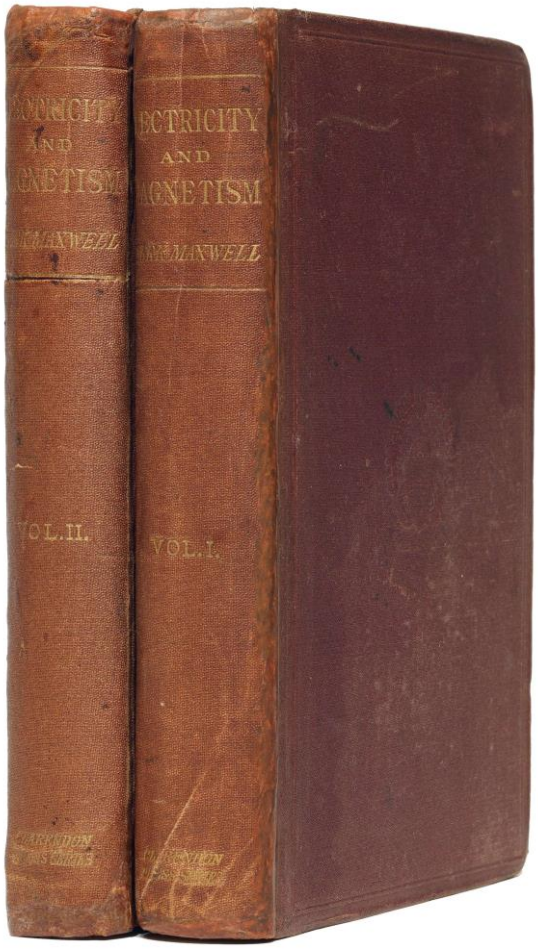
References: DSB VIII, p. 549; Klebs 628.1; Hain/Copinger 10320; BMC V, 222 (IA. 20185, without the "*Logica brevis*"); Goff L 388 (Morgan and Indiana Univ.); Palau 143690 (counting 218 leaves); Sarton II, 900 ff.; Peers, *Lull* p. 334.



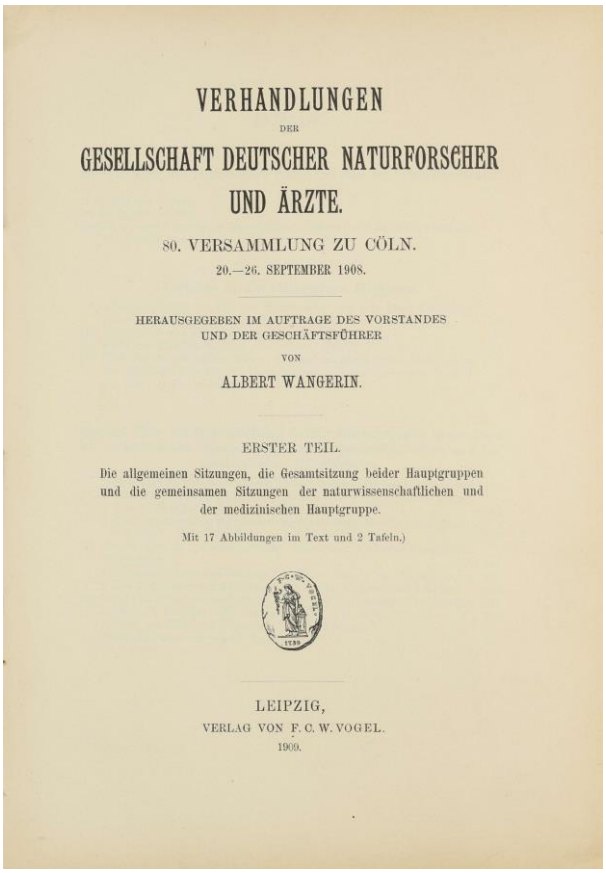
The first issue of the first edition in the publisher's bindings

19 **MAXWELL, James Clerk**. *A Treatise on Electricity and Magnetism*. Oxford: The Clarendon Press, 1873. Two volumes. 8vo (222 x 144 mm). xxix [3], [1] 2-425, [5]; xxiii [1], [1] 2-444, [2], 15 [1] pp. Including 21 lithographic plates (1 bound after p.148 of vol. I, the rest at end of volumes), half-titles, errata slip to vol. I, numerous diagrams and illustrations in text, 15 pp. of publisher's advertisements at rear of vol. II. Original publisher's blind-stamped plum cloth, spines lettered in gilt, glazed endpapers (spine ends, joints and inner hinges repaired, boards soiled, board edges rubbed, corners bumped and worn, bindings a bit weak). Pages untrimmed. Text only little age-toned; occasional light finger-soiling to lower right corner of pages in vol. II, half-title and plates somewhat foxed (stronger in vol. II), light pencil annotations to half-title of vol. I; some plate with short annotations and markings added in pencil or ink. Provenance: S. van Elzen Jr., Boekhandel s Gravenhage (bookseller's ticket on front pastedown of vol. I). Still very good set in its original publisher's binding. (#003768) € 15,000

Horblit 72; Norman 1466; PMM 355 (note); DSB IX, p.198ff; Wheeler-Gift 1872. - FIRST EDITION, FIRST ISSUE, OF A MAJOR SCIENTIFIC WORK with 'just published' in the listing for this title on page 10 of the publisher's advertisements at the rear of volume two. Maxwell saw electricity not as just another branch of physics but "as an aid to the interpretation of nature" and saw the study of electromagnetism "as a means of promoting the progress of science" (Preface p.vii). He demonstrated the importance of electricity to physics as a whole, advancing "the significant hypothesis that light and electricity are the same in their ultimate nature" (Grolier/Horblit). This theory, one of the most important discoveries of nineteenth-century physics, was Maxwell's greatest achievement, and laid the groundwork for Einstein's theory of relativity. "Maxwell once remarked that the aim of his *Treatise* was not to expound the final view of his electromagnetic theory, which he had developed in a series of five major papers between 1855 and 1868; rather, it was to educate himself by presenting a view of the stage he had reached in his thinking. Accordingly, the work is loosely organized on historical and experimental, rather than systematically deductive, lines. It extended Maxwell's ideas beyond the scope of his earlier work in many directions, producing a highly fecund (if somewhat confusing) demonstration of the special importance of electricity to physics as a whole. He began the investigation of moving frames of reference, which in Einstein's hands were to revolutionize physics; gave proofs of the existence of electromagnetic waves that paved the way for Hertz's discovery of radio waves; worked out connections between the electrical and optical qualities of bodies that would lead to modern solid-state physics; and applied Tait's quaternion formulae to the field equations, out of which Heaviside and Gibbs would develop vector analysis." (Norman 1466).



20 **MINKOWSKI, Hermann.** Raum und Zeit. In: *Verhandlungen der Gesellschaft deutscher Naturforscher und Ärtze*, vol. 80, part II, pp. 4-9. Versammlung zu Cöln. 20.-26. September 1908. Leipzig: Verlag von F.C.W. Vogel, 1909. 4to (240 x 167 mm). Parts I, II/i-ii and 'Geschäfts-Bericht' bound in single volume. 124, [2], [4], 246; x, [2], 218; xxi [1], 595, [3] pp. Contemporary library cloth with handwritten paper label, sprinkled edges (wear to extremities, spine creased, corners scuffed, binding a bit weak with few pages working loose). In modern cloth protective case with morocco spine label. Light marginal browning, but generally clean and bright throughout. The whole volume is offered. (#101879) € 1500


VERHANDLUNGEN
DER
GESELLSCHAFT DEUTSCHER NATURFORSCHER
UND ÄRZTE.
80. VERSAMMLUNG ZU CÖLN.
20.—26. SEPTEMBER 1908.
HERAUSGEGEBEN IM AUFTRAGE DES VORSTANDES
UND DER GESCHÄFTSFÜHRER
VON
ALBERT WANGERIN.
ERSTER TEIL.
Die allgemeinen Sitzungen, die Gesamtsitzung beider Hauptgruppen
und die gemeinsamen Sitzungen der naturwissenschaftlichen und
der medizinischen Hauptgruppe.
Mit 17 Abbildungen im Text und 2 Tafeln.)
LEIPZIG,
VERLAG VON F. C. W. VOGEL.
1909.

PMM 401 (Deutschen Mathematiker-Vereinigung issue); DSB IX, 414; Norman 1514 (offprint). - FIRST EDITION AND FIRST APPEARANCE. In this paper 'Space and Time,' read by Minkowski in Cologne only a few days before his death, he introduced the notion that made possible the expansion of the relativity theory of Einstein from its specific to its general form. The technical description of Minkowski's hypothesis is the four-dimensional space-time continuum. . . Minkowski maintained that the separation of time and space is a false conception; that time itself is itself a dimension, comparable to length, breadth and height; and that therefore the true conception of reality was constituted by a space-time continuum possessing these four dimensions . . ." (PMM).

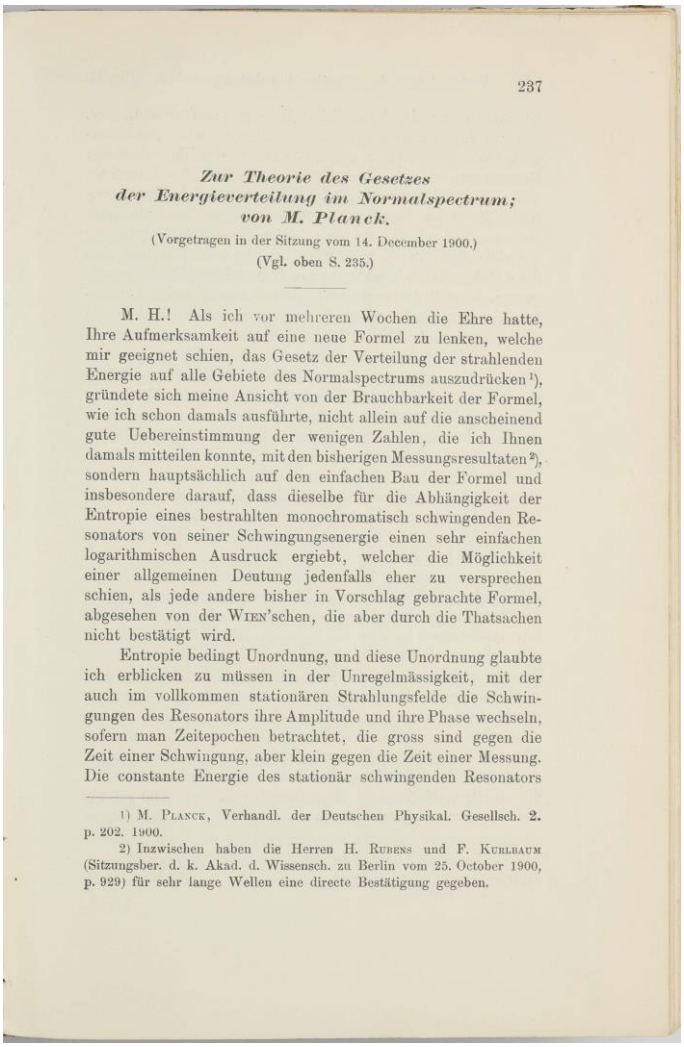
The paper was first published here (pp.4-9 of part II, i of the *Verhandlungen*) and was then reprinted in *Jahrsbericht der deutschen Mathematiker-Vereinigung*, vol. XVIII (1909). Following Minkowski's unexpected death in 1909, an offprint from the Jahrsberichts was commissioned as a tribute.

The foundation of quantum theory

21 **PLANCK, Max**. Zur Theorie des Gesetzes der Energieverteilung im Normalspectrum. In: *Verhandlungen der Deutschen Physikalischen Gesellschaft im Jahre 1900*, vol. 2, no. 17, pp. 237-245. Leipzig: Johann Ambrosius Barth, 1900. Entire first year (1899) and second year (1900) of this journal present, bound in one volume. 8vo (223 x 148 mm). vi, 292; vi, 260 pp., including general titles, member directories, and text diagrams. Contemporary half cloth and marbled boads (interim binding), spine with hand-written paper label and small sticker (extremities rubbed, minor paper chipping to board edges and spine label). Text bright and clean throughout. Provenance: Naturkundig Laboratorium Leiden (date stamp to upper corner of first page of each issue of 1899 vol.); Physisch Kabinet Leiden (ink stamps to book block edges and first title). A fine copy. (#003769) € 15,000

RARE FIRST EDITION of the "first printing of Planck's quantum theory, marking the dividing line between classical and modern physics. In attempting to define the characteristics of black-body radiation and the radiation of energy at high frequencies by hot bodies (the so-called 'ultraviolet catastrophe'). Planck postulated that radiant heat or energy is emitted in the form of sudden discrete bursts or 'quanta', each representing a quantity of energy equal to the product of the frequency of the vibration in the emitted radiation (v) and a universal constant (h) [the Planck constant]" (Norman).

"Here was a revolutionary theory. It contradicted the mechanics of Newton and the electromagnetics of Faraday and Maxwell. Moreover it challenged the notion of the continuity of nature. [. . .] The quantum theory has affected virtually every branch of physics. Its earliest and one of its most significant developments was Einstein's application of the theory to what is known as the 'photo-electric effect'. If ultra-violet light or X-rays are passed through a gas, some of its atoms are broken up and electrons are emitted from it. A puzzling feature of this phenomenon is that neither the number nor the speed of the ejected electrons bears a direct relation to the intensity of the beam. Feeble radiation of high frequency may be much more effective than intense radiation at



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Zur Theorie des Gesetzes der Energieverteilung im Normalspectrum; von M. Planck.

(Vorgetragen in der Sitzung vom 14. December 1900.)

(Vgl. oben S. 235.)

M. H.! Als ich vor mehreren Wochen die Ehre hatte, Ihre Aufmerksamkeit auf eine neue Formel zu lenken, welche mir geeignet schien, das Gesetz der Verteilung der strahlenden Energie auf alle Gebiete des Normalspectrums auszudrücken [1]), gründete sich meine Ansicht von der Brauchbarkeit der Formel, wie ich schon damals ausführte, nicht allein auf die anscheinend gute Uebereinstimmung der wenigen Zahlen, die ich Ihnen damals mitteilen konnte, mit den bisherigen Messungsresultaten [2]), sondern hauptsächlich auf den einfachen Bau der Formel und insbesondere darauf, dass dieselbe für die Abhängigkeit der Entropie eines bestrahlten monochromatisch schwingenden Resonators von seiner Schwingungsenergie einen sehr einfachen logarithmischen Ausdruck ergiebt, welcher die Möglichkeit einer allgemeinen Deutung jedenfalls eher zu versprechen schien, als jede andere bisher in Vorschlag gebrachte Formel, abgesehen von der WIEN'schen, die aber durch die Thatsachen nicht bestätigt wird.

Entropie bedingt Unordnung, und diese Unordnung glaubte ich erblicken zu müssen in der Unregelmässigkeit, mit der auch im vollkommen stationären Strahlungsfelde die Schwingungen des Resonators ihre Amplitude und ihre Phase wechseln, sofern man Zeitepochen betrachtet, die gross sind gegen die Zeit einer Schwingung, aber klein gegen die Zeit einer Messung. Die constante Energie des stationär schwingenden Resonators

1) M. PLANCK, Verhandl. der Deutschen Physikal. Gesellsch. 2. p. 202. 1900.

2) Inzwischen haben die Herren H. RUBENS und F. KURLBAUM (Sitzungsber. d. k. Akad. d. Wissensch. zu Berlin vom 25. October 1900, p. 929) für sehr lange Wellen eine directe Bestätigung gegeben.

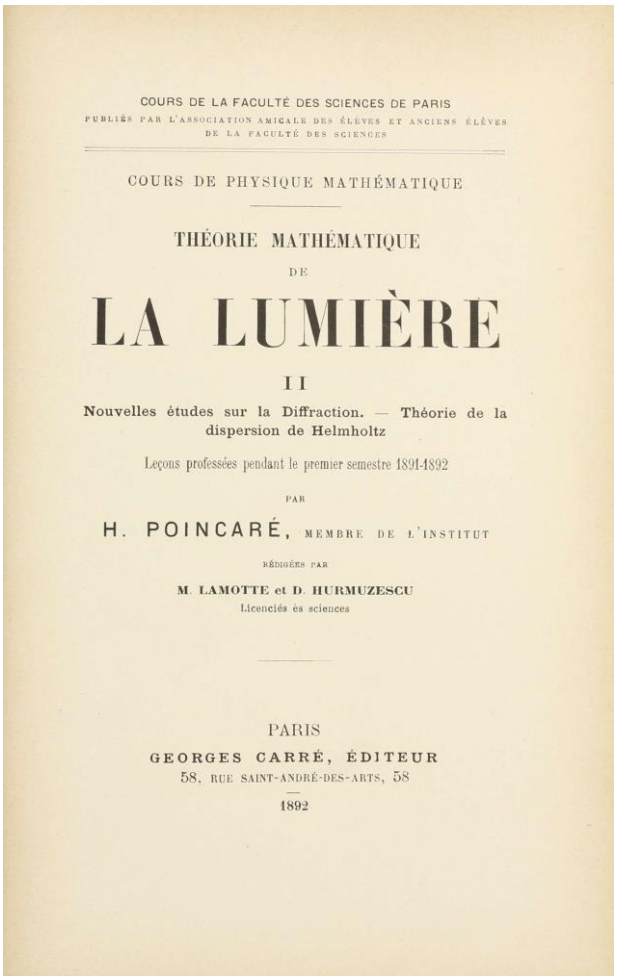
low frequency; but if the frequency of light is below a given figure no electrons will be ejected, however intense the beam. Above that figure the energy of the electrons depends on frequency and their number on intensity. Einstein explained this by suggesting that the classical view that light is emitted in the form of continuous waves must be abandoned. The photo-electric effect could be explained only as an example of quantum action where the waves of light or X-rays are emitted in minute particles or bullets. It is the size of the bullet (the wavelength of the radiation) which determines the number of electrons ejected. It was for this, and not for the theory of relativity, that Einstein was awarded the Nobel Prize in 1921. [. . .] Planck was the President of the Kaiser-Wilhelm- Gesellschaft from 1930 to 1937 but was deposed by the Nazis. After the Second World War the Gesellschaft was refounded under his name" (PMM).

Also contained in the in this volume are two other papers by Planck: *Ueber eine Verbesserung der Wierfschen Spectraigleichung*, pp. 202-204; and *Ein vermeintlicher Widerspruch des magneto-optischen Faraday-effectes mit der Thermodynamik*, pp. 206-210.

References: PMM, *Printing and the Mind of Man* 391a; Dibner *Heralds* 166; Grolier/Horblit 26a; Norman 1713.

Association copy from the library of Nobel laureate Pieter Zeeman

22 **POINCARÉ, Henri**. *Théorie mathématique de la lumière. II, Nouvelles études sur la diffraction ; théorie de la dispersion de Helmholtz : leçons professées pendant le premier semestre 1891-1892 . . . rédigées par M. Lamotte et D. Hurmuzescu*. . . Paris: G. Carré, 1892. 8vo (237 x 154 mm). vi, 310 pp., including half-title, diagrams in text troughout. Contemporary half cloth and marbled boards, gilt-lettered and blind-ruled spine, red sprinkled edges, original endpapers (minor rubbing of extremities, lower corners bumped). Text somewhat browned at outer margins, but generally clean and bright. Provenance: Pieter Zeeman (inscribed by him on first free endpaper). (#003699) € 1800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COURS DE PHYSIQUE MATHÉMATIQUE

THÉORIE MATHÉMATIQUE
DE
LA LUMIÈRE
II
Nouvelles études sur la Diffraction. — Théorie de la dispersion de Helmholtz
Leçons professées pendant le premier semestre 1891-1892
PAR
H. POINCARÉ, MEMBRE DE L'INSTITUT
RÉDIGÉES PAR
M. LAMOTTE et D. HURMUZESCU
Licenciés ès sciences
PARIS
GEORGES CARRÉ, ÉDITEUR
58, RUE SAINT-ANDRÉ-DES-ARTS, 58
1892

RARE FIRST EDITION, and the separately published continuation of the earlier published first volume of Poincaré's course on *Théorie mathématique de Lumière*, which was issued in Paris in 1889 by the same publisher and which is mentioned on the title-page ("Cours de la Faculté des sciences de Paris, publiés par l'Association amicale des élèves et anciens élèves de la Faculté des sciences. Cours de physique mathématique". - Fait suite aux leçons professées par l'auteur en 1887-88 et publiées sous le titre : "Leçons sur la théorie mathématique de la lumière).

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23 **RÖNTGEN, Wilhelm Konrad.** *Eine neue Art von Strahlen.* Würzburg: Verlag und Druck der Stahel'schen K.B. Hof- und Universitätsbuch- und Kunsthandlung, 1896. 8vo. 12 pages. Original printed wrappers with advertisements in the inner covers and on the back side. Very good-, with some wear and chipping to wrapper edges. (#002838) € 350

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