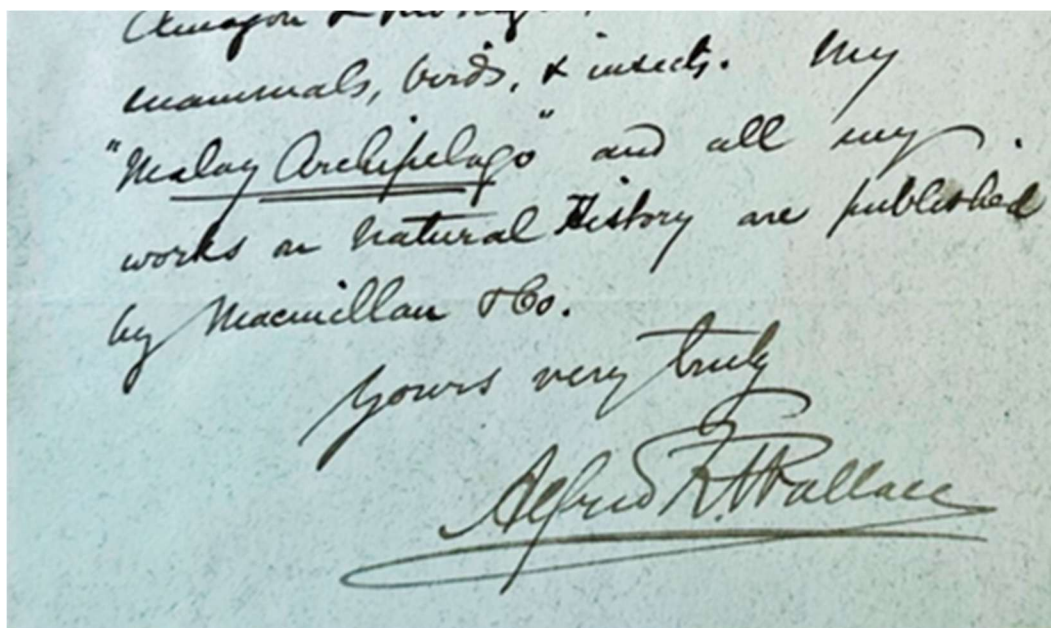


THE SCIENCES

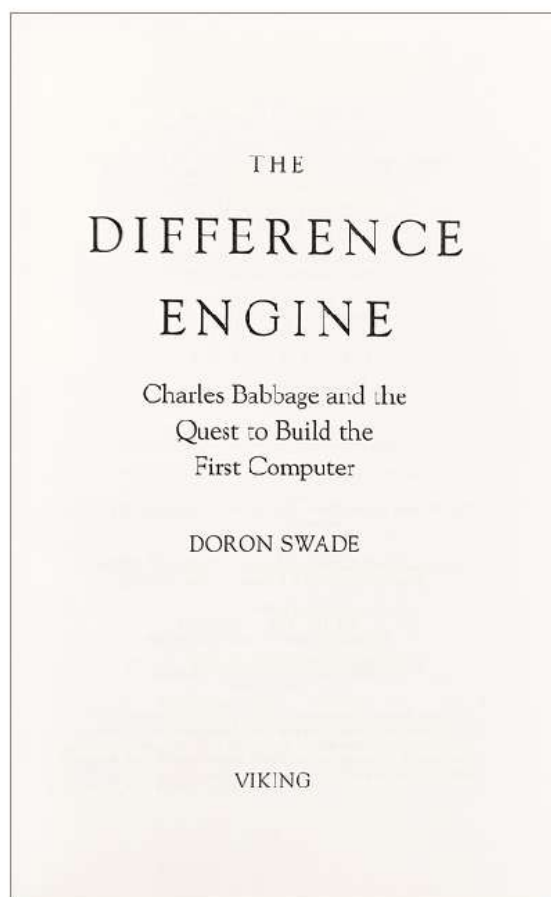
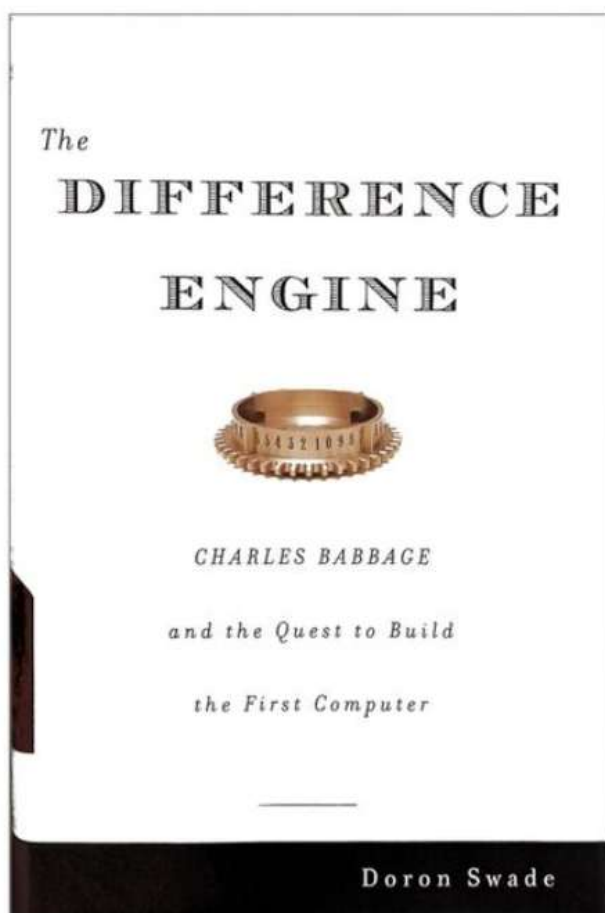


2 AUTOGRAPH LETTERS BY ALFRED RUSSEL WALLACE



JEFF WEBER RARE BOOKS

NEUCHÂTEL SWITZERLAND



41. [BABBAGE, Charles (1791-1871)] SWADE, Doron. *The difference engine: Charles Babbage and the quest to build the first computer*. New York: Viking, 2000. ¶
8vo. x, 342 pp. 42 figs. on plates, bibliog., index. Quarter cloth, dust-jacket.
Fine. S6038

\$ 10

The remarkable story of how Babbage tried to build a calculating engine, the precursor to the modern-day computer, which was (in fact) finally built to his designs in 1991.

Doron Swade MBE, born 1944, is a museum curator and author, Gresham College, specialising in the history of computing. He is especially known for his work on the computer pioneer Charles Babbage and his Difference Engine.

IV. *On the application of Integral Equations to the Determination of Upper and Lower Limits to the value of a Double Integral.* By H. BATEMAN, M.A., Fellow of Trinity College, Cambridge.

[Received February 8, 1908. Read February 24, 1908.]

1. In a former paper* we considered the properties of a certain function $w(\lambda)$ connected with an integral equation of the type

$$f(s) = \phi(s) - \lambda \int_a^b \kappa(s, t) \phi(t) dt \dots\dots\dots (1).$$

in which $\kappa(s, t)$ is a real continuous symmetric function of s and t . ($a \leq s \leq b$), ($a \leq t \leq b$).

This function $w(\lambda)$ which may be called the *energy function* of the integral equation (1) is defined by the equation

$$w(\lambda) = \int_a^b f(s) \phi(s) ds \dots\dots\dots (2).$$

If $f(s)$ is continuous for ($a \leq s \leq b$) the zeros and poles of the function $\lambda w(\lambda)$ occur alternately†. This result which is derived from the fact that $\lambda w(\lambda)$ increases continually with λ , will now be used to determine limits between which the value of the double integral

$$J = \int_a^b \int_a^b \kappa(s, t) x(s) x(t) ds dt \dots\dots\dots (3),$$

must lie‡. The function $x(s)$ is supposed to be a real continuous function satisfying the condition

$$\int_a^b [x(s)]^2 ds = 1 \dots\dots\dots (4),$$

but is otherwise perfectly arbitrary. The limits that will be determined are independent of the functional form of $x(s)$.

* *Cambridge Phil. Trans.* vol. ix. no. xv. (1906) pp. 371—382.

† *Op. cit.* p. 374.

‡ This problem is solved by Hilbert, *Gött. Nachr.* (1904)

for the case in which $\kappa(s, t)$ is a definite function, i.e. when the integral J is always positive. Another investigation is given by E. Holmgren, *Comptes Rendus*, t. cxlii. (1906) pp. 331—333.

42. **BATEMAN, Harry** (1882-1946). *On the application of integral equations to the determination of upper and lower limits to the value of a double integral. with: The solution of linear differential equations by means of definite integrals. with: The determination of solutions of the equation of wave motion involving an arbitrary function of three variables which satisfies a partial differential equation.* Cambridge: University Press, 1912. ¶ In: *Transactions of the Cambridge Philosophical Society*, Volume XXI. 280 x 229 mm. 4to. Pages 123-128; 171-196; 257-280. [Entire volume: vi, 481 pp.] Full brown cloth; lightly freckled, spine ends frayed. Blind stamp of the Carnegie Institution, Washington, D.C. Very good. S3077

\$ 95

FIRST EDITIONS. Bateman was an expert in classical analysis and partial differential equations. He was heavily influenced by David Hilbert's work on integral equations following a visit to Göttingen in 1906. He spent much of his career investigating how complex boundary value problems could be condensed and bounded using functional analysis and integral systems. – Cal Tech.

“General theories had little attraction for Bateman; he was a master of the special instance. Much of his work consisted of finding special functions to solve partial differential equations. . . . Bateman's most significant single contribution to mathematical physics was a paper (1909) in which, following the work of Lorentz and Einstein on the invariance of the equations of electromagnetism under change of coordinates of constant velocity and constant acceleration, he showed that the most general group of transformations which reserve the electromagnetic equations and total charge of the system and are independent of the electromagnetic field is the group of conformal maps of four-dimensional space.” – *DSB*, I, pp. 499-500.

Bateman was given a PhD by Johns Hopkins in 1913, a year after this paper, and it is highly irregular that he had more than 60 published papers to his name already by the time of his advanced degree – an astonishing achievement for a PhD student. He was already “an extremely eminent mathematician” [MacTutor].



Among his few other interests, one was chess – which he played competitively.

XXV.—On Bernoulli's Numerical Solution of Algebraic Equations.
By A. C. Aitken, D.Sc.

(MS. received April 21, 1926. Read May 24, 1926.)

§ 1. INTRODUCTORY.

THE aim of the present paper is to extend Daniel Bernoulli's method* of approximating to the numerically greatest root of an algebraic equation. On the basis of the extension here given it now becomes possible to make Bernoulli's method a means of evaluating not merely the greatest root, but all the roots of an equation, whether real, complex, or repeated, by an arithmetical process well adapted to mechanical computation, and without any preliminary determination of the nature or position of the roots. In particular, the evaluation of complex roots is extremely simple, whatever the number of pairs of such roots. There is also a way of deriving from a sequence of approximations to a root successive sequences of ever-increasing rapidity of convergence.

Bernoulli's method consists in forming a sequence of solutions of the linear difference equation associated with the given algebraic equation. Thus, if the equation to be solved is

$$a_0x^n + a_1x^{n-1} + a_2x^{n-2} + \dots + a_n = 0 \quad (1.1)$$

then the following difference equation in $f(t)$ is considered:

$$a_0f(t+n) + a_1f(t+n-1) + a_2f(t+n-2) + \dots + a_nf(t) = 0 \quad (1.2)$$

Arbitrary values are assigned to the consecutive n values of f , namely, $f(t+n-1)$, $f(t+n-2)$, ..., $f(t)$, and by (1.2) $f(t+n)$ is found. Next, the n consecutive values $f(t+n)$, $f(t+n-1)$, ..., $f(t+1)$ serve in the same way to determine $f(t+n+1)$, and by repeating this process a sequence of solutions of the difference equation is obtained, with arguments increasing by unity. Then, if $|z_1|$, the modulus of the greatest root of the equation (1.1), is greater than the modulus of any other root, the sequence $f(t)$ will tend to become a geometric sequence with common ratio z_1 ; in fact, we shall have

$$\lim_{t \rightarrow \infty} \frac{f(t+1)}{f(t)} = z_1 \quad (1.3)$$

* *Commentarii Acad. Sc. Petropol.*, III (1738); cf. Euler, *Introductio in Analysin Infinitorum*, I, Cap. XVII; Lagrange, *Résolution des équations numériques*, Note VI. P.R.S.E.—VOL. XLVI.

XX.—Studies in Practical Mathematics. II. The Evaluation of the Latent Roots and Latent Vectors of a Matrix.
By A. C. Aitken, D.Sc., F.R.S., Mathematical Institute, University of Edinburgh.

(MS. received April 15, 1937. Read June 7, 1937.)

1. INTRODUCTORY.

IN many branches of applied mathematics problems arise which require for their solution a knowledge of the latent roots of a matrix A , sometimes only the root of greatest modulus but often the second and other roots as well, and the corresponding latent vectors. A few examples, among many that might be cited, are problems in the dynamical theory of oscillations, problems of conditioned maxima and minima, problems of correlation between statistical variables, the determination of the principal axes of quadrics, and the solution of differential or other operational equations. It is important, therefore, to have a choice of methods for obtaining latent roots and latent vectors without undue labour, and the object of the present paper is to augment the existing store of such methods.

The present paper may also be regarded as in several respects an extension and a sequel to two earlier papers (Aitken, 1925, 1931); the first of these was concerned with the solution of algebraic equations by the process of forming convergent sequences of quotients of symmetric functions of the coefficients, the second examined the method of matrix-powering as applied to matrices in general and to the companion matrix of an algebraic equation (i.e. the matrix in "rational canonical form" for which the equation is characteristic) in particular. In resuming these studies we take the opportunity of acknowledging the stimulus received from some related work of Hotelling (1933, 1936 a, b) on finding the latent roots and latent vectors of a symmetric matrix by successive operations on an arbitrary vector.

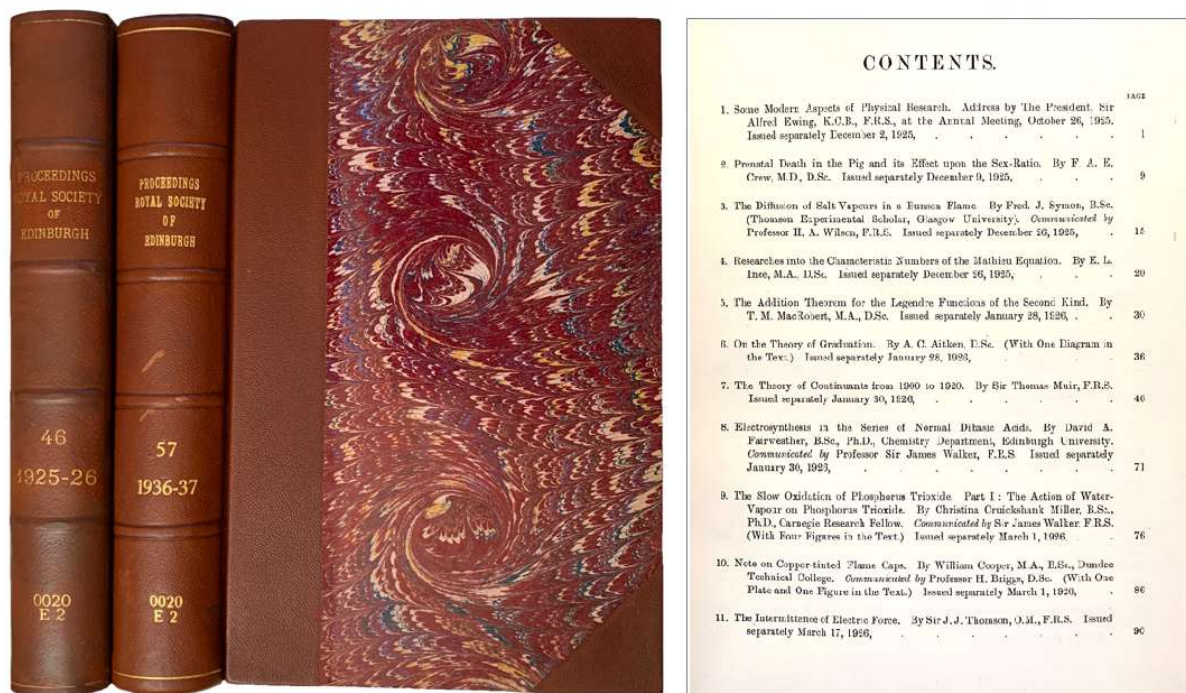
When the matrix A is not symmetric there are two kinds of latent vectors to be considered, row vectors u , satisfying $uA = \lambda u$ (or, in transposed form, $A'u' = \lambda u'$), and column vectors x , satisfying $Ax = \lambda x$. In addition there may be complex roots, or multiple roots real or complex which may also be associated with non-linear elementary divisors of the characteristic determinant. We extend the method of the arbitrary

43. [Bernoulli, Daniel (1700-1782)] AITKEN, Alexander Craig (1895-1967). [2 papers] "*On Bernoulli's numerical solution of algebraic equations.*" with: "*On the theory of graduation.*" with: "*Studies in practical mathematics. I. The evaluation, with applications, of a certain triple product matrix.*" with: "*Studies in practical mathematics. II. The evaluation of the latent roots and latent vectors of a matrix.*" Edinburgh: Neill, 1927, 1938. ¶ Two volumes. In: *Proceedings of the Royal Society of Edinburgh*, Vol. XLVI, 1925-1926; Vol. LVII, 1936-1937. 8vo. Pages 289-305; 36-45; 172-181; 269-304. [Entire volume: viii, 458; vii, 520 pp.] A few figs. and tables. Quarter brown morocco, morocco corners, marbled sides, raised bands, gilt spine. Blind stamp of the Carnegie Institution of Washington, Mount Wilson Observatory. Very good. S6715

\$ 125

FIRST EDITIONS. "The aim of the present paper is to extend Daniel Bernoulli's method of approximating to the numerically greatest root of an algebraic equation. On the basis of the extension here given it now becomes possible to make Bernoulli's method a means of evaluating not merely the greatest root, but all the roots of an equation, whether real, complex, or repeated, by an arithmetical process well adapted to mechanical computation, and without any preliminary

determination of the nature or position of the roots. In particular, the evaluation of complex roots is extremely simple, whatever the number of pairs of such roots. There is also a way of deriving from a sequence of approximations to a root successive sequences of ever-increasing rapidity of convergence.” – Cambridge Univ. Press.



A. C. Aitken, of the Mathematical Institute, University of Edinburgh, made important contributions in the field of numerical analysis, powerful methods for the solution of general mathematical problems in numerical terms. These methods, in turn, provided the logical basis for modern computers. A practical method for finding a numerical value of $f(x)$, for a given value of x , when several values of x and $f(x)$ are known, as Aitken's process of iteration. These methods are well adapted to computing machinery. It consists of an iteration of the familiar process of linear interpolation. These and other methods, such as that in Aitken's paper on Bernoulli's method for solving algebraic equations, are offered here. Engineering Research Associates, *High-speed computing devices*, pp. 108-109; Fox, "Early numerical analysis in the United Kingdom," in Nash, *A history of scientific computing*, p. 284; Hartree, *Numerical analysis*, pp. 84 & 280.

Alexander Craig "Alec" Aitken FRS FRSE FRSL FRSNZ (1 April 1895 – 3 November 1967) was one of New Zealand's most eminent mathematicians.



44. **BÉZOUT, Étienne** (1730-1783). *Cours de Mathématiques; à l'Usage des Gardes du Pavillon et de la Marine*. Paris: Ph. -D. Pierres, 1787, 1782, 1787, 1784, 1784, 1781. ¶ 6 volumes. 8vo. xvi, 256; viii, 357, [1]; xii, 488; viii, 432; viii, 479, [1]; [ii], xiv, 319, [1], 98 pp. Title woodcut vignettes, vol. VI with half-title [*Traité de Navigation*], extensive logarithmic tables, 37 [=7 + 4 + 5 + 11 + 10] engraved folding plates (incl. atlas & star maps). Contemporary full calf, gilt-decorated spine, red leather gilt-stamped spine labels; minor wear to spine ends. Near fine, a choice complete set.

\$ 850

Bézout was a French mathematician and member of the French Academy of Science who did pioneering work in elimination theory. He is the namesake of *Bézout's Theorem*, which plays a crucial role in the study of intersection of manifolds in algebraic geometry. While his impact on mathematical research was significant, he played a larger role in the development of mathematical education, as his textbooks dramatically influenced the course of math education in both France and abroad. His works were popular and thus frequently reprinted.

“Bézout treated geometry before algebra, observing that beginners were not yet familiar enough with mathematical reasoning to understand the force of algebraic demonstrations, although they did appreciate proofs in geometry. He eschewed frightening terms like ‘axiom,’ ‘theorem,’ ‘scholium,’ and tried to avoid arguments that were too close and detailed. Although criticized occasionally for their lack of

rigor, his texts were widely used in France. In the early nineteenth century, they were translated into English for use in American schools; one translator, John Farrar, used them to teach the calculus at Harvard University. The obvious practical orientation, as well as the clarity of exposition, made the books especially attractive in America. These translations considerably influenced the form and content of America mathematical education in the nineteenth century.” – DSB II, p. 112.

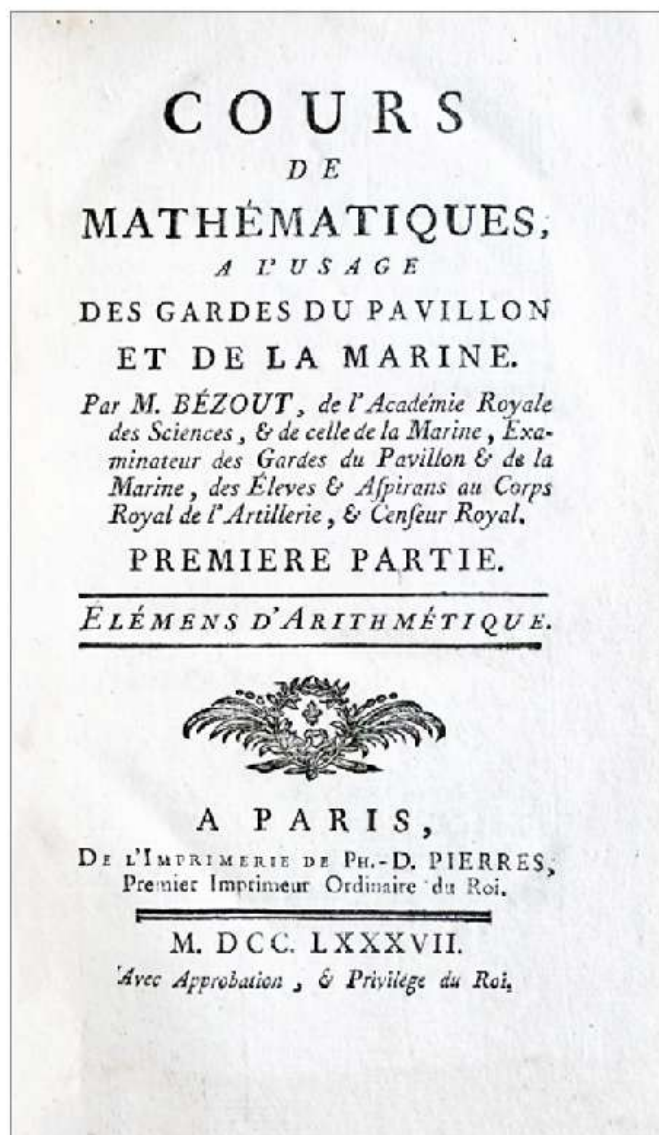
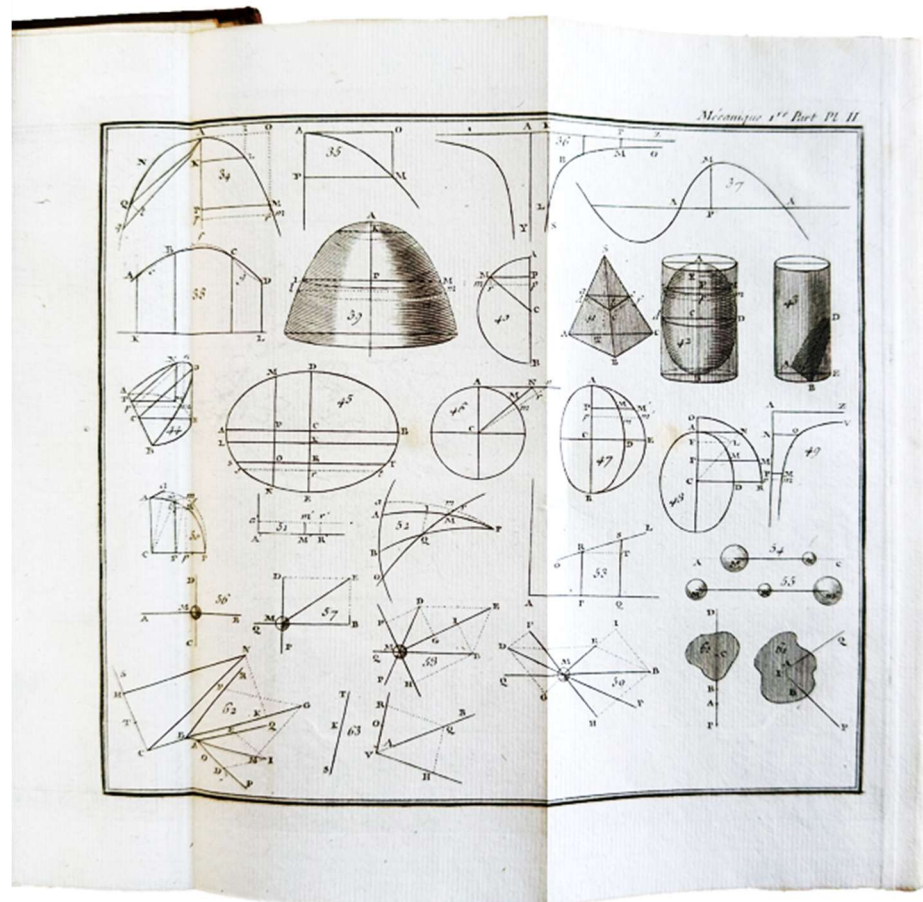
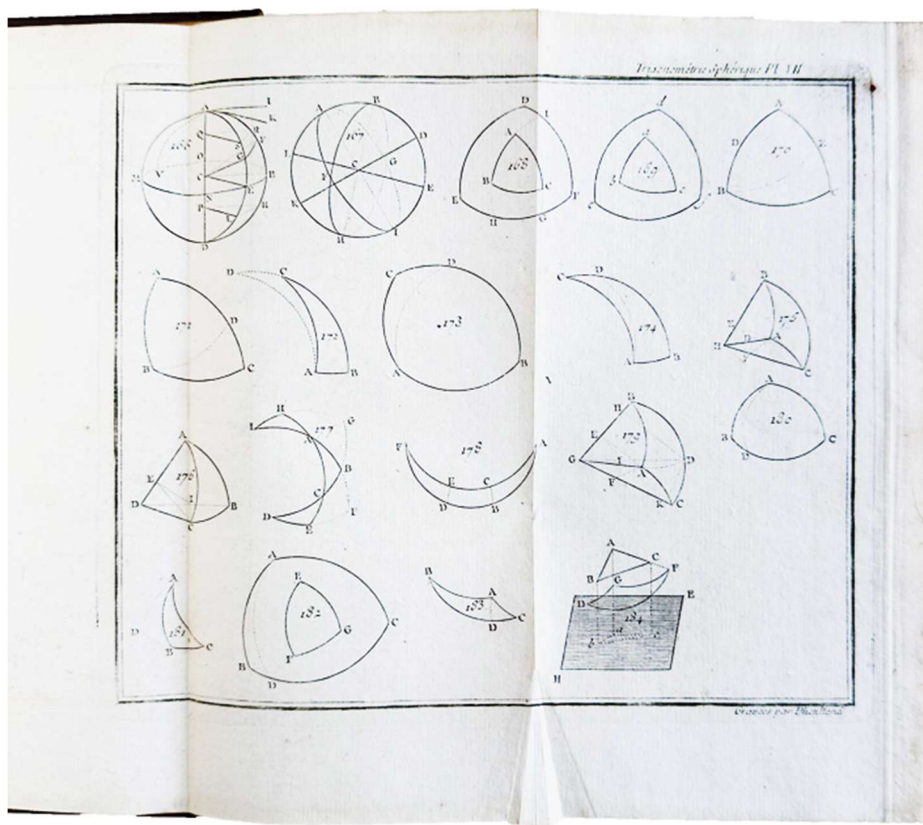



TABLE
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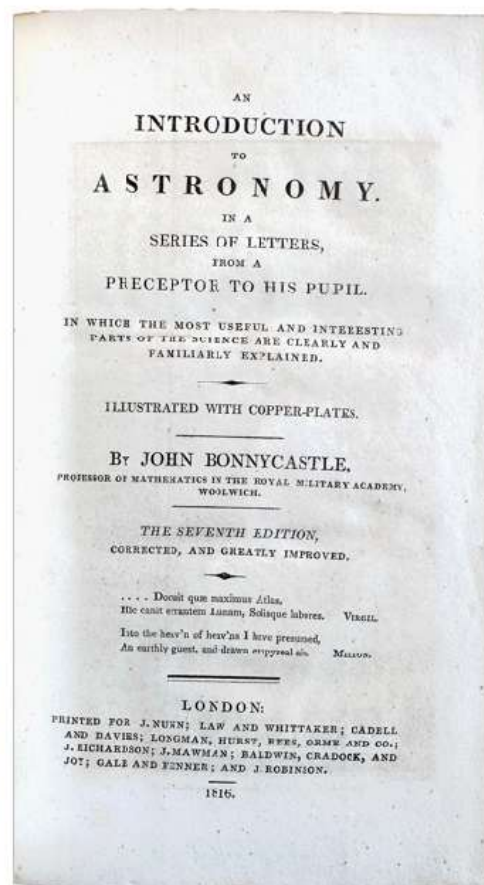
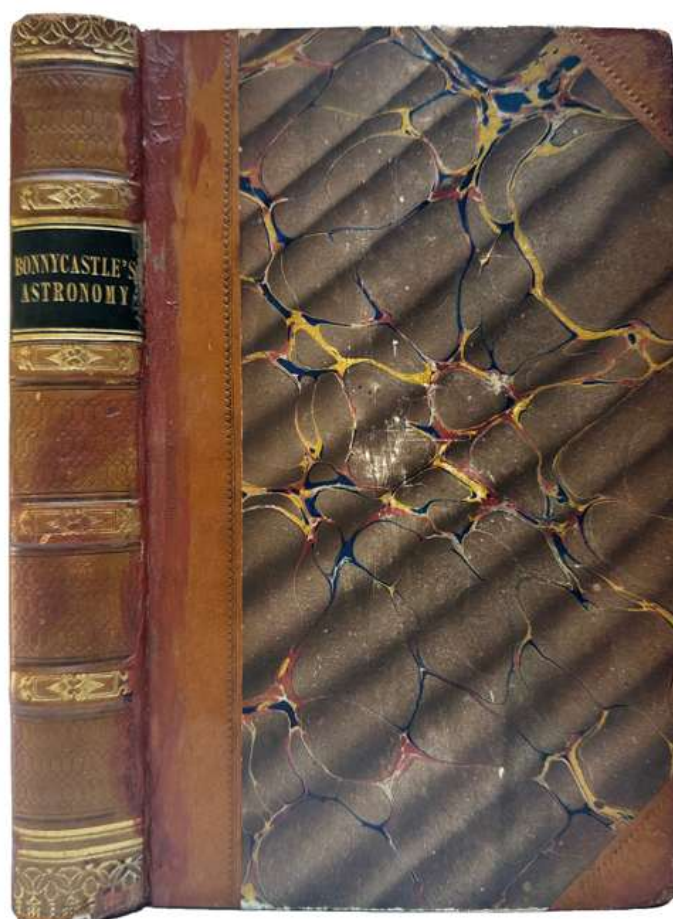
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§ Jean Polak, *Bibliographie Maritime Française*, 811-812; Poggendorff I, 184. Note: Honeyman had only a Spanish translation in one volume, 1805.

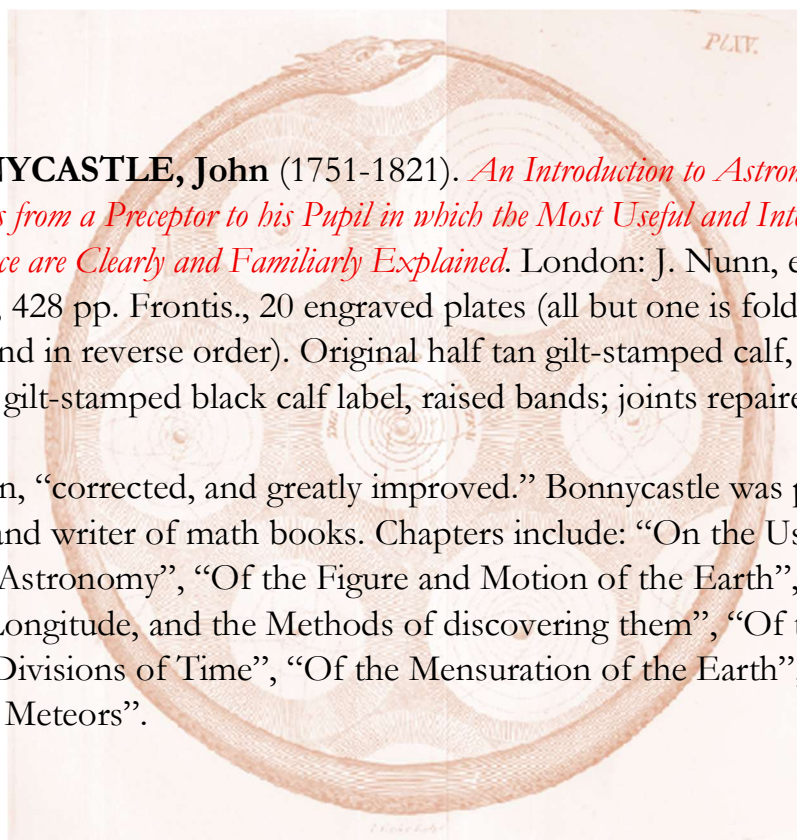


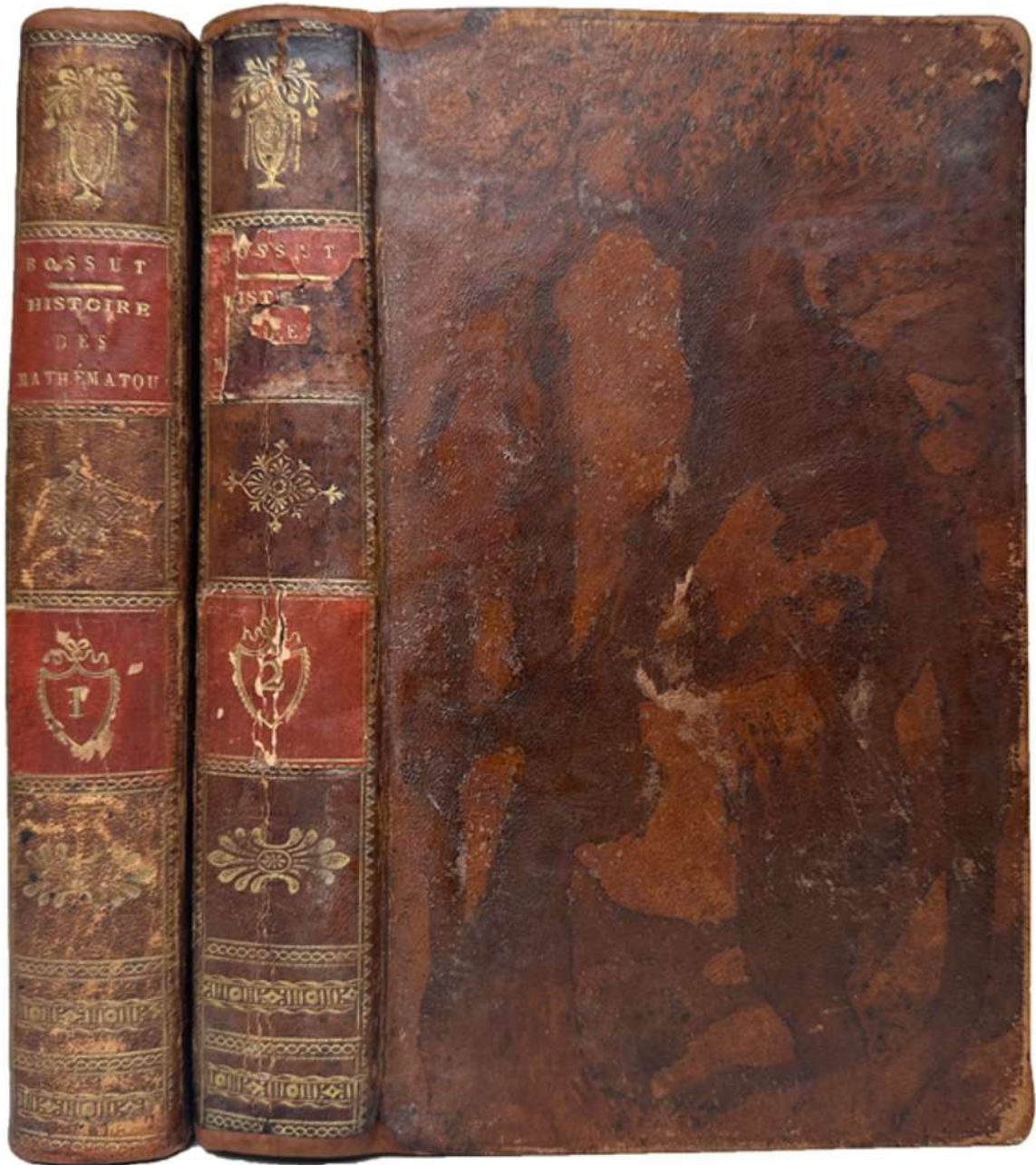
[44] BÉZOUT



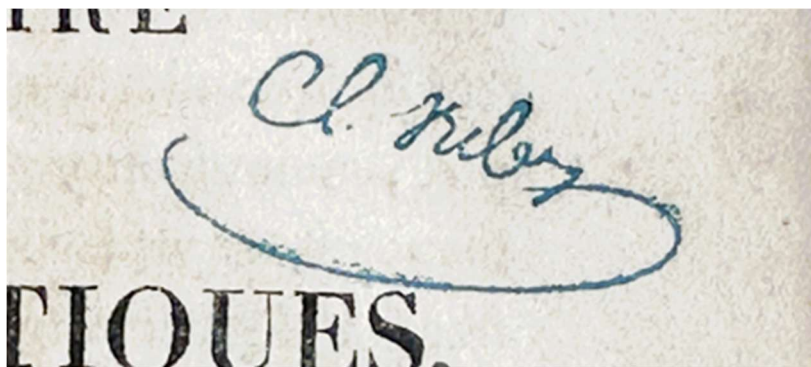
45. **BONNYCASTLE, John** (1751-1821). *An Introduction to Astronomy in a Series of Letters from a Preceptor to his Pupil in which the Most Useful and Interesting Parts of the Science are Clearly and Familiarly Explained*. London: J. Nunn, etc., 1816. ¶
8vo. xii, 428 pp. Frontis., 20 engraved plates (all but one is folding, and all 20 are bound in reverse order). Original half tan gilt-stamped calf, marbled boards, gilt-stamped black calf label, raised bands; joints repaired. Very good. \$ 150

Seventh edition, "corrected, and greatly improved." Bonnycastle was primarily a math teacher and writer of math books. Chapters include: "On the Use and Advantage of Astronomy", "Of the Figure and Motion of the Earth", "Of the Latitude and Longitude, and the Methods of discovering them", "Of the Natural and Artificial Divisions of Time", "Of the Mensuration of the Earth", "Of Comets, Aeroliths, and Meteors".

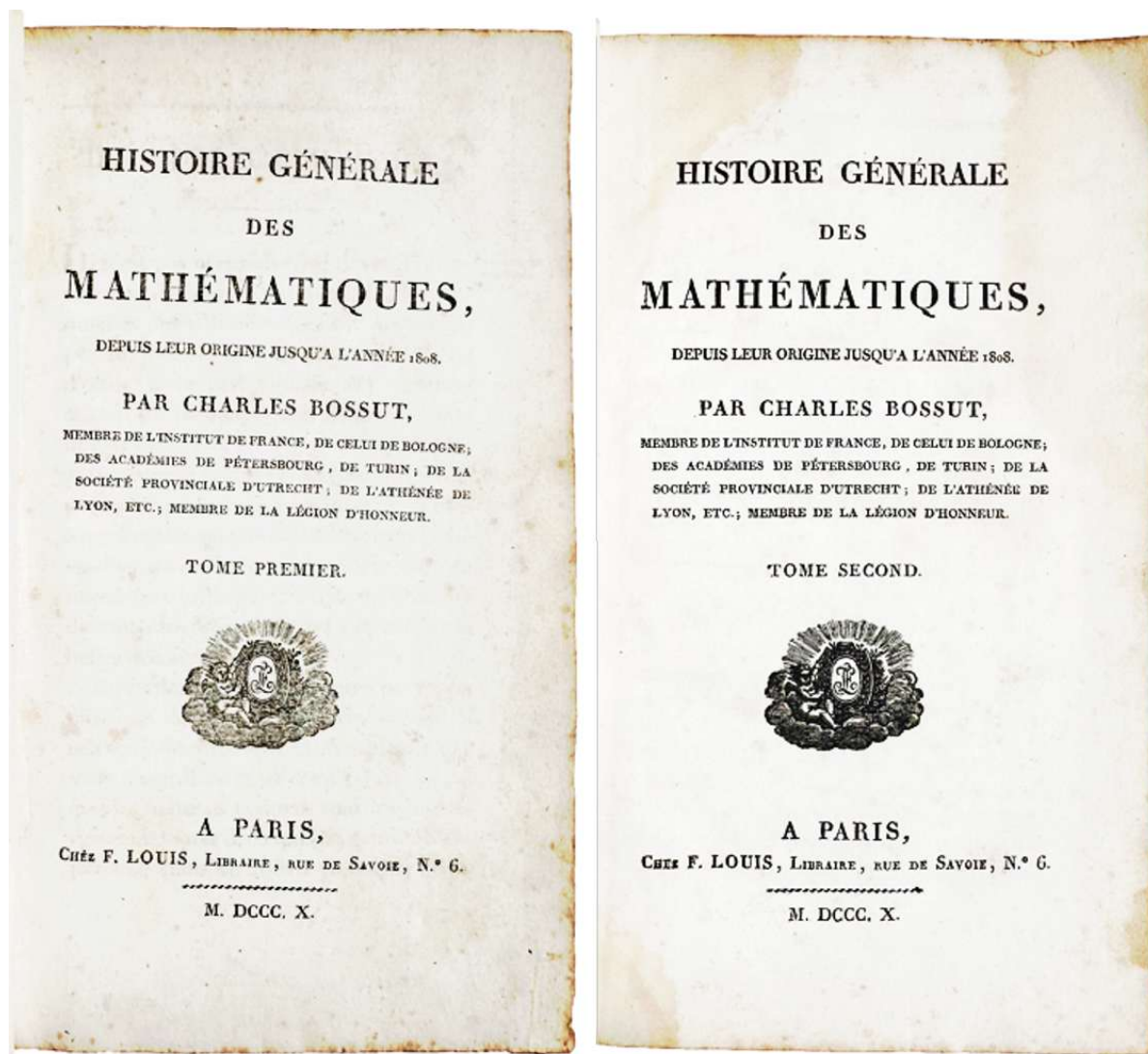




[46] BOSSUT



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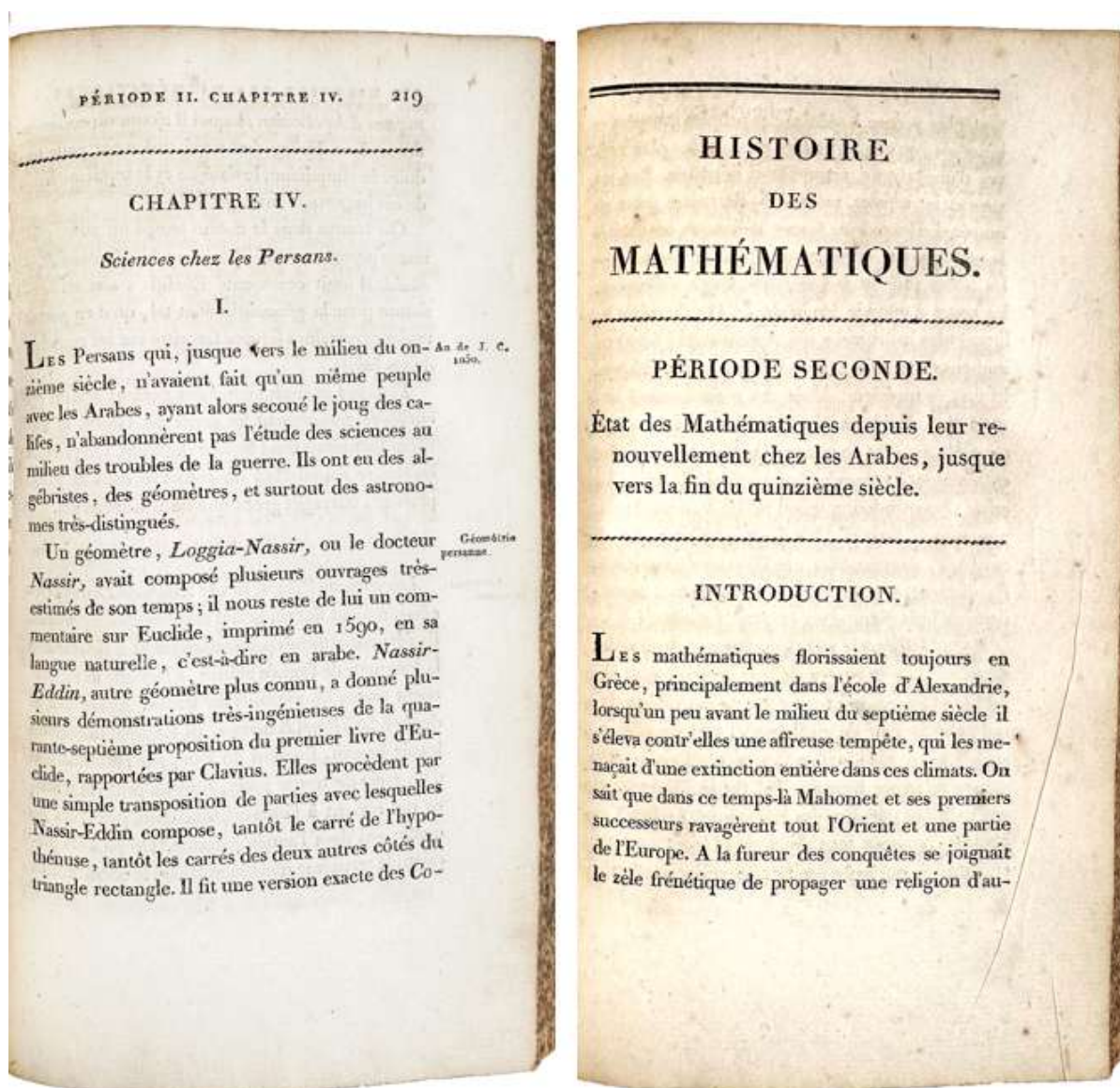
46. **BOSSUT, Charles** (1730-1814). *Histoire générale des mathématiques, depuis leur origine jusqu'à l'année 1808*. Paris: F. Louis, 1810. ¶ Two volumes. 8vo. [iv], xxviii, 459, [1 blank]; [iv], 533, [2, 1 blank, ads 4] pp. Half-titles, Engraved frontis. port. in Vol. I, woodcut title-page vignettes, index, table; foxed, Vol. II: margins water-stained, bottom margins of pages 257-282 oddly damaged/chipped. Contemporary tree calf, red leather spine labels, gilt spines, neatly repaired spine ends and corners; rubbed, spine label chipped (Vol. II). Rubber-stamp ownership name applied to both volumes (found in vols. I & II, p. 1) – hard to read it – should be a French mathematician: Cl. Neley/Heber/Kibey[?]; the rear e.p. of vol. II retains an old ink inscription: Sapier Cassé . . . no. 32[?]. Generally very good.

\$ 175

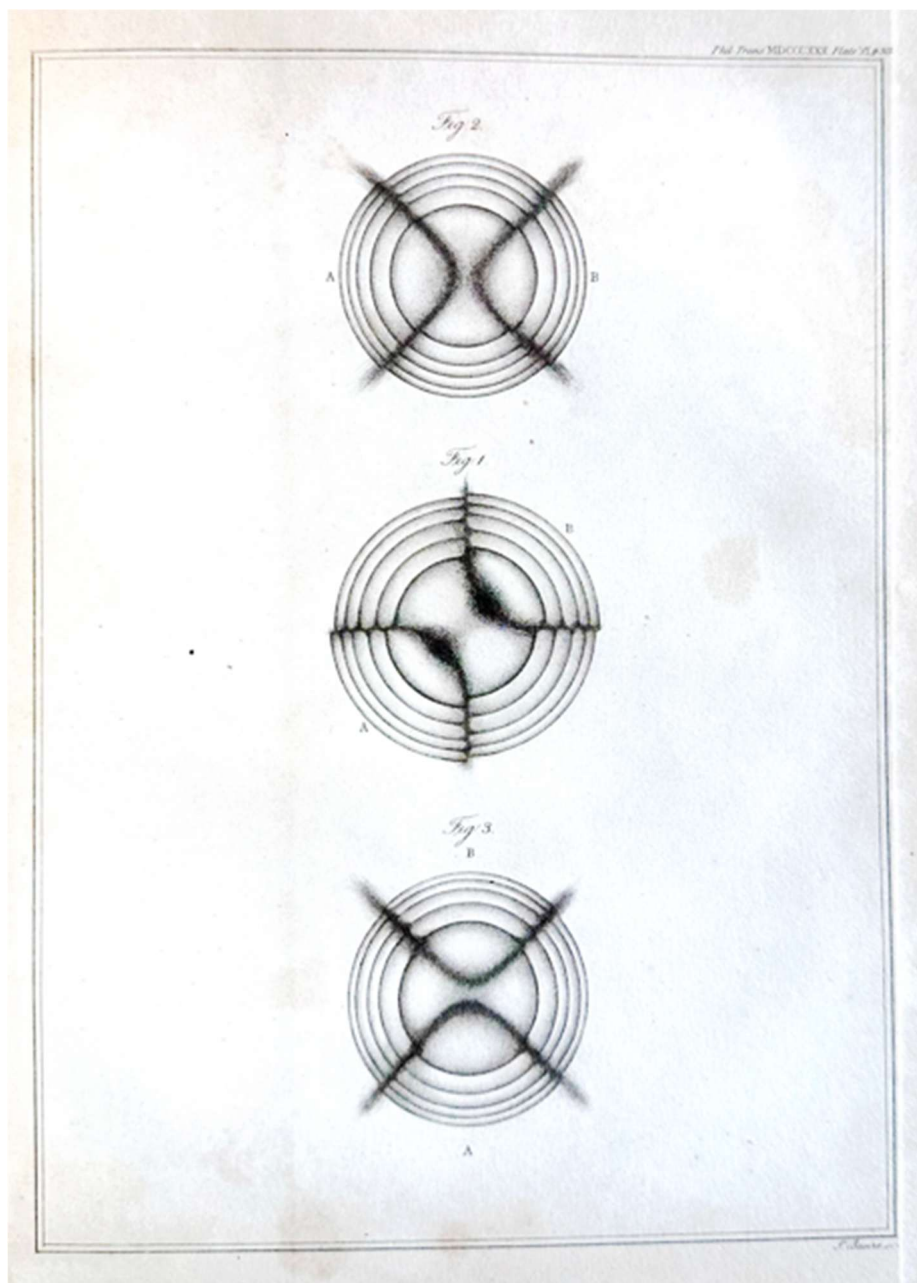
LATER EDITION of Charles Bossut's important history of mathematics (first edition, Paris, 1802, 2 vols.). "Bossut's importance for the history of science lies in his role as a major contributor to European scientific education." - DSB.

The author offers histories: Vol. I: School of Alexandria and its destruction – origins of arithmetic – origins and progress of geometry – Of Mechanics – Of Hydrodynamics – Astronomy – Optics – Acoustics; II: State of Mathematics with the Arabs – Persians – Turks – Chinese – India – modern Greeks – eastern Christian math in the 13th through 15 centuries; III: Progress of math up to the end of the 15th century. Vol. II: “infinitesimal analysis” [Calculus] – Leibnitz – Newton – Bernoulli – Maxima & Minima – Invention of differential curves (Leibnitz & Newton) – Bernoulli and the English – etc., etc., for example Chap. VI returns to Astronomy and looks at more modern math as applied to astronomical science – Flux & reflux of the sea – theory of perturbations in celestial mechanics – Theory of the moon – Movement of comets . . .

§ *DSB*, II, pp. 334-335; Poggendorff, I, col. 249.



[46] BOSSUT

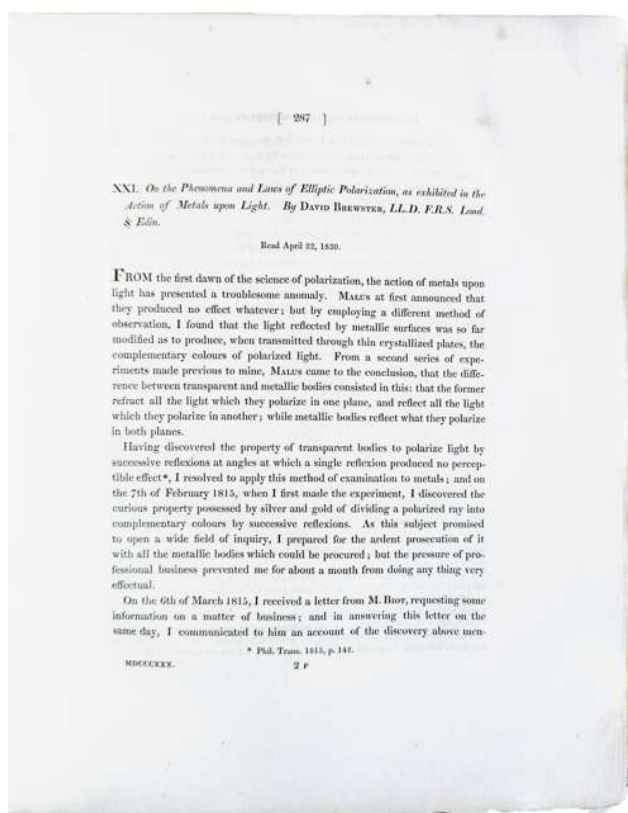


Major Contribution to the Laws of Metallic Reflection

47. **BREWSTER, Sir David** (1781-1868). *On the phenomena and laws of elliptic polarization, as exhibited in the action of metals upon light*. In: The Philosophical Transactions of the Royal Society . . . London: Printed by Richard Taylor, 1830. ¶ 279 x 225 mm. 4to. Vol. 120. Part two: vi, (223)-434, [8], 14 pp. (Brewster's article appears on pages 287-326). Numerous tables, 3 figs.; some offsetting associated with plates at the rear of the volume, some track-marks on series title. Original blue wrapper, untrimmed, blue kozo spine; top cover chipped. Very good.

\$ 300

FIRST EDITION. This paper contains Brewster's second major contribution: the laws of metallic reflection.



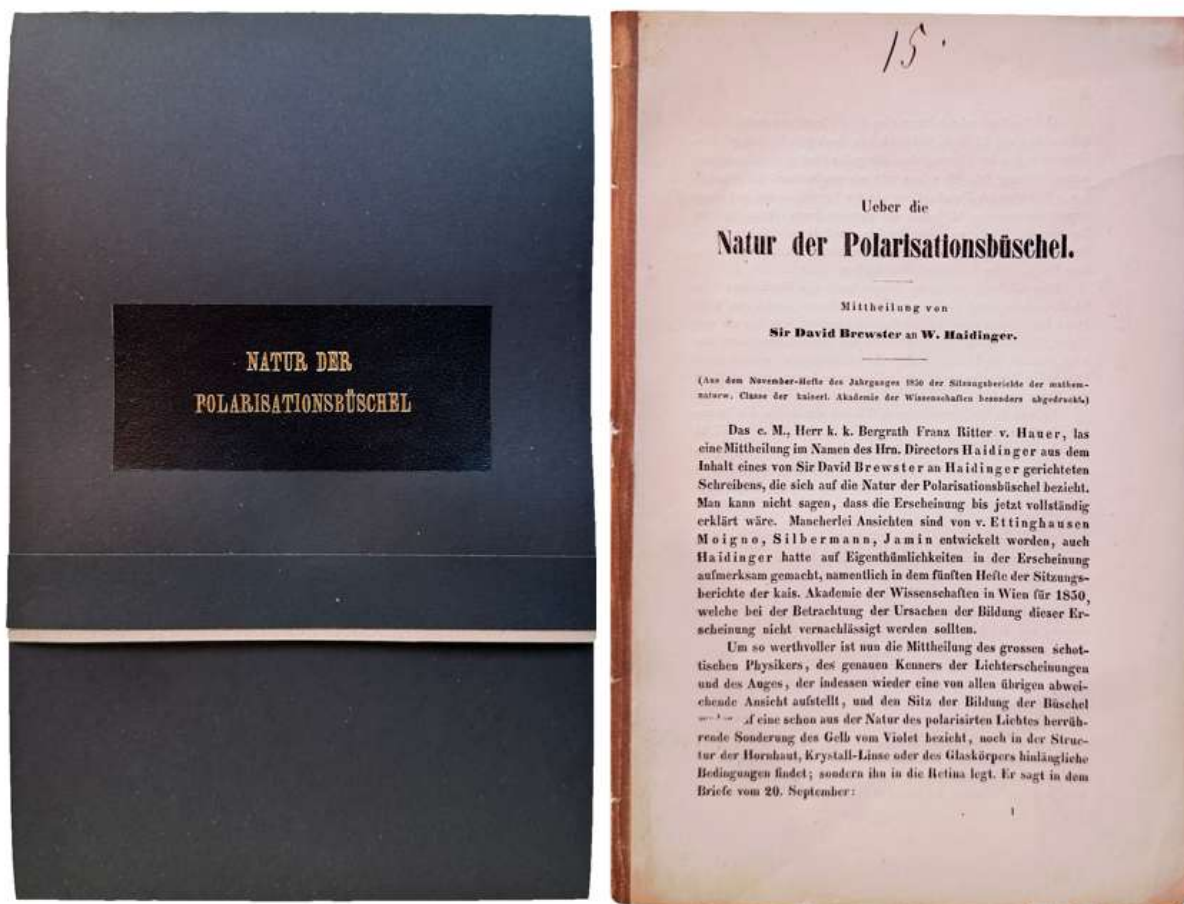
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XXIII. <i>On the Error in Standards of Linear Measure, arising from the thickness of the bar on which they are traced.</i> By Captain HENRY KATER, V.P. and Treasurer of the Royal Society.	359

“The most striking properties of metals are the power of brilliantly reflecting light at all angles of incidence, which is so well shown by the mirrors of reflecting telescopes, and the opacity, which causes a train of waves to be extinguished before it has proceeded many wave-lengths into a metallic medium. That these two attributes are connected appears probable from the fact that certain non-metallic bodies - e.g. aniline dyes - which strongly absorb the rays in certain parts of the spectrum, reflect those rays with almost metallic brilliance. A third quality in which metals differ from transparent bodies, and which, as we shall see, is again closely related to the other two, is in regard to the polarisation of the light reflected from them. This was first noticed by Malus; and in 1830 Sir David Brewster showed that plane-polarised light incident on a metallic surface remains polarised in the same plane after reflection if its polarisation is either parallel or perpendicular to the plane of reflection, but that in other cases the reflected light is polarised elliptically. It was this discovery of Brewster's which suggested to the mathematicians a theory of metallic reflection.” – Whittaker.



§ *DNB*, II, pp. 1207-1211; *DSB*, II, pp. 451-454; *Encyclopaedia Britannica*, 11th ed., IV, pp. 513-514; Morrison-Low, "Published writings of Sir David Brewster: a bibliography," in: Morrison-Low and Christie, 'Martyr of science', No. 477; Whittaker, *A history of the theories of aether & electricity*, I, p. 161.



48. **BREWSTER, Sir David** (1781-1868); **Wilhelm Karl HAIDINGER** (1795-1871). *"Ueber die Natur der Polarisationsbüschel."* Offprint from: Vienna: Sitzungsberichte der k. Akademie der Wissenschaften, (November, 1850). ¶ 227 x 148 mm. 8vo. 4 pp. Self-wraps. Laid within a modern folding chemise of stiff black paper stock, cover title and magnetic tab. Very good+. Rare. SS3559

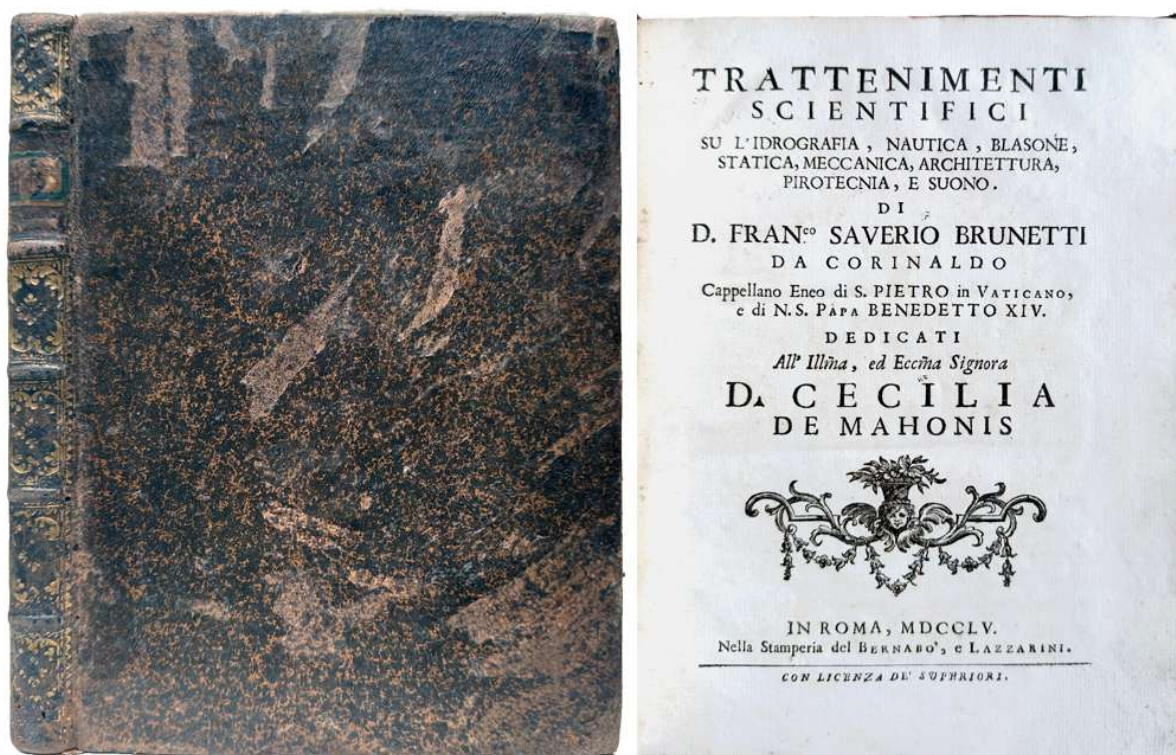
\$ 125

The astronomical spectroscopy of the nineteenth century based on Brewster's angle has evolved through into the microwave and the modern optical lasers of today. David Brewster's important contributions to the knowledge of the polarization of light include the discovery that compression in one direction causes an isotropic solid to exhibit double refraction. He showed that complete polarization occurred (only one polarization was reflected) when the reflected and refracted rays were perpendicular, a phenomenon which occurs at what is now known as Brewster's angle.

Wilhelm Karl Haidinger (1795-1871) after his education in Vienna, visited George Cuvier and J.-B. Biot in Paris and George Greenough, David Brewster and Thomas Allan in Edinburgh. In 1823 Haidinger moved to Edinburgh in order to arrange

Allan's mineral collection. Under Brewster's influence Haidinger studied the absorption of light in crystals and he designed a simple and effective instrument named Haidinger's dichroscope. Observations on the connection between absorption and the direction of polarization of transmitted and reflected light led in 1848 to a well-founded theory bearing on Babinet's rule that a greater absorption of the whole spectrum of visible light corresponds to a higher index of refraction.

See: *DSB*, VI, p. 19.

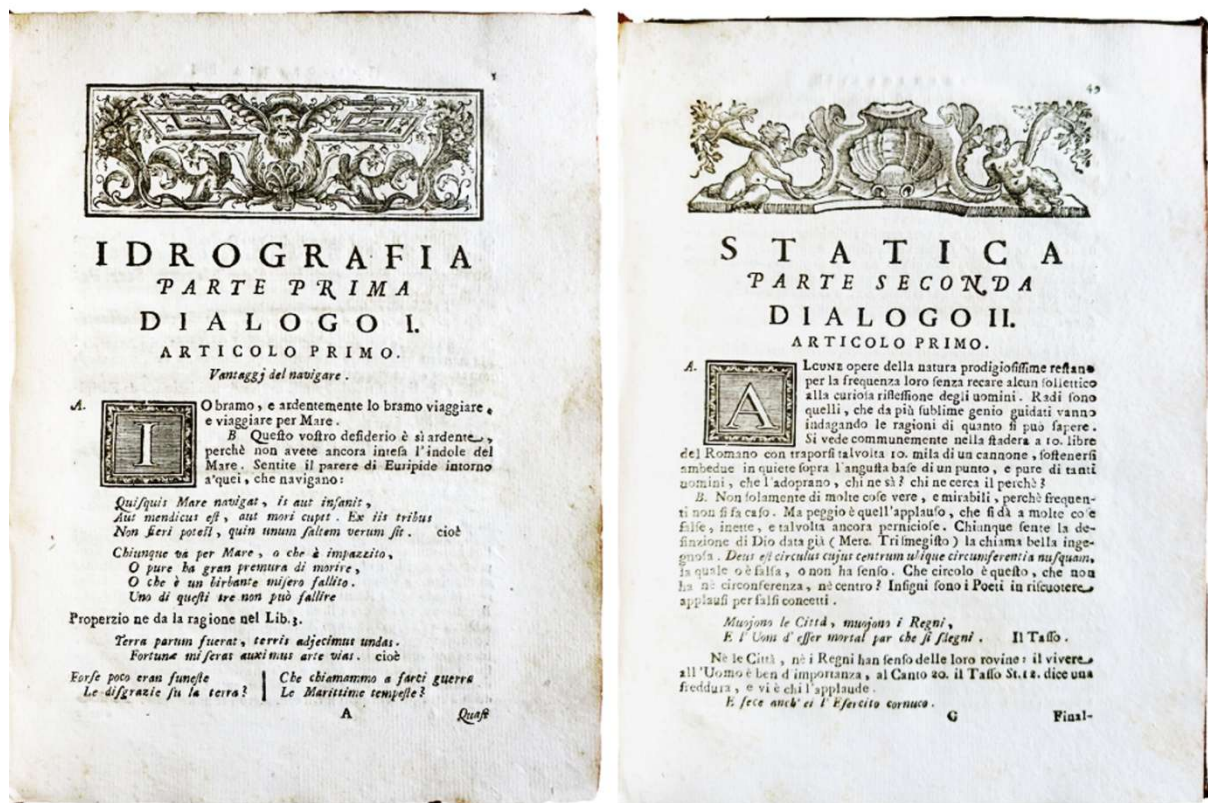


49. **BRUNETTI, Francesco Saverio** (1693-?). *Trattenimenti Scientifici su L'Idrografia, Nautica, Blasone, Statica, Meccanica, Architettura, Pirotecnica, e Suono.* Rome: Bernabo, e Lazzarini, 1755. ¶ Four parts in one vol. Small 4to. [viii], 173, [1] pp. Elaborate woodcut frontispiece, title vignette, figs., decorative headpieces. Original speckled calf, gilt-tooled spine, raised bands; rubbed. Ownership stamp of Wm. Frear. Very good. Rare.

\$ 750

First edition. A survey of various scientific subjects of interest to Brunetti, who was principally a mathematician. The text is arranged in four dialogues. Each of these discusses mechanics, the properties of Hydrography, Navigation at Sea, Pneumatic Sounds (noise caused by rapid movement), Hydrostatics, Civil or Structural Architecture, Strength of Solids, Vaults, Domes, Roofs, and Staircases, Chimneys,

Cisterns, and Fountains, Pyrotechnics (fireworks), and offer insight into the state of Italian popular science in the mid-18th century.



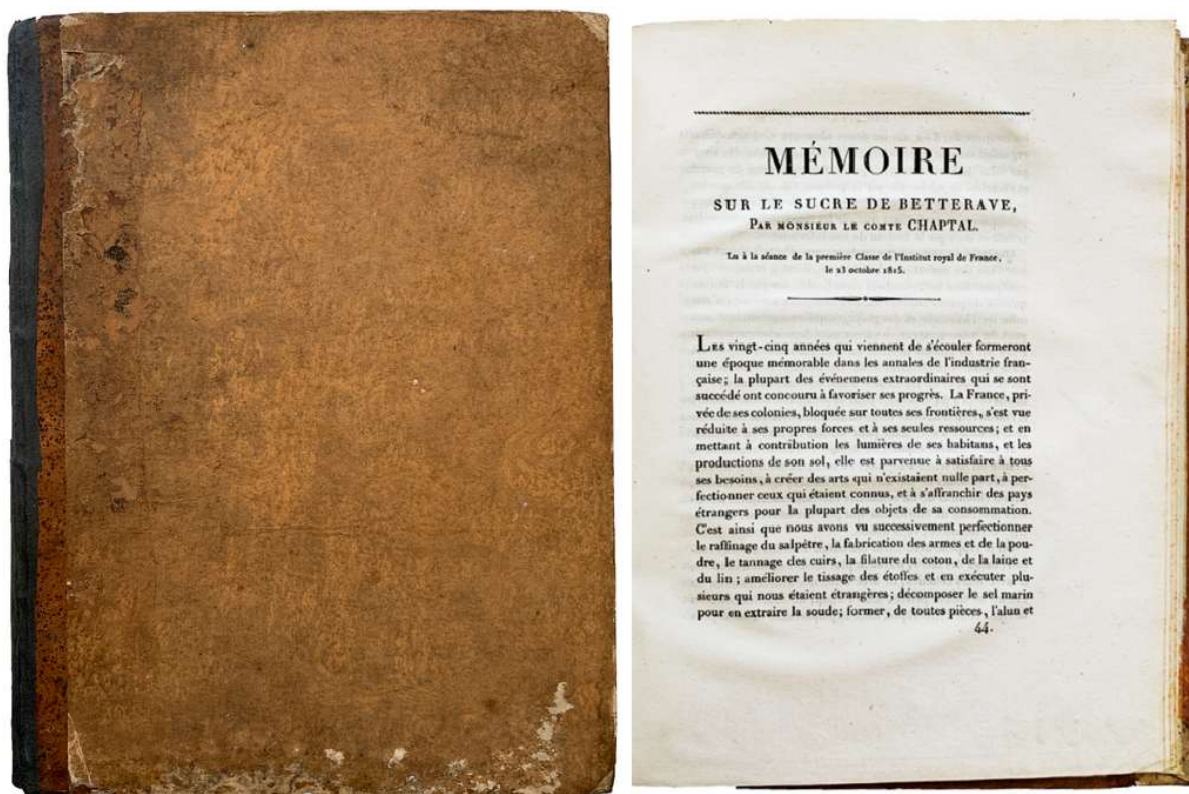
CONTENTS: Frontespizio -- Dedica: Eccellentissima Signora -- Approvazioni -- Imprimatur -- [Trattenimenti Scientifici] -- Idrografia. Parte Prima -- Dialogo I -- Articolo Primo. Vantaggi del navigare -- Articolo II. Acqua -- Articolo III. Moti del Mare -- Articolo IV. Varie riflessioni su la Filosofia Newtoniana -- Articolo V. Moti particolari del Mare -- Articolo VI. Nautica -- Articolo VII. Blasone -- Articolo VIII. Regola Nautiche -- Articolo IX. Carta Nautica -- Statica. Parte Seconda -- Dialogo II -- Articolo Primo -- Articolo II. Idrostatica -- Articolo III. Moto Artificiale in ordine all'Architettura -- Articolo IV. Resistenza dei solidi -- Articolo V. Contatto, e Confricazione nelle Macchine -- Architettura. Parte Terza -- Dialogo III -- Articolo Primo -- Articolo II. Colonne, e Pilastri -- Articolo III. Gradi della Bellezza, o sia percettibilità delle Opere Architetoniche -- Articolo IV. Magnificenza, e Disegno -- Articolo V. Fondamenti -- Articolo VI. Volte, Cupole, Tetti, e Scale -- Articolo VII. Camini, Cisterne, e Fontane -- Pirotecnia. Parte Quarta -- Dialogo IV -- Articolo Primo. Pirotecnia Militare, e Festiva -- Articolo II. Pirotecnia Militare -- Articolo III. Suono -- Articolo IV. Suoni Pneumatici -- Tavola degli Articoli.

In 1754 the author issued another similarly styled work on geography, meteorology, astronomy, entitled, *Trattenimenti scientifici su la sfera, geografia istorica, meteore, ed*

astronomia. Unknown to Robert Honeyman (who had two other works by this author), Hunter Rouse, Singer. “The cited works of Brunetti are fairly rare and sought after more for the singular way in which he deals with the subjects of applied mathematics rather than for their scientific importance.” – Riccardi, *Biblioteca Matematica Italiana* (translated from the Italian).

PROVENANCE: William Frear (1860-1922) was born in Reading, Pennsylvania on March 24, 1860. After completing studies in the public schools he attended Bucknell University where he received his B.A. in 1881, Harvard University and Illinois Wesleyan University where he received his Ph.D. in 1883. Upon completion of his university studies Dr. Frear entered the government service under Chief Chemist, Dr. H.W. Wiley. In 1885 he became a Professor of Agricultural Chemistry at the Pennsylvania State College (now the Pennsylvania State University), a position he held until his death in 1922. While a professor at Penn State Dr. Frear took on a number of extra-curricular duties to help the interests of both the consumers and producers of agricultural products. His positions included the following: chemist for the Pennsylvania State Board of Agriculture, 1889-1909; Chemist, Pennsylvania Bureau of Foods, 1895-1922; President, Association of Official Agricultural Chemists, 1897; Editor, *Agricultural Science*, 1892-1894; Vice-President of the American Association of Agricultural Colleges and Experiment Stations and Chairman of the Executive Committee of the National Pure Food and Drug Congress at various times; Vice-Director of the Pennsylvania Agricultural Experiment Station, 1887-1922; President, Society for the Promotion of Agricultural Sciences, 1904-1905; Chairman of the National Food Standards Commission, 1893-1897; Chairman, Joint Committee on Definitions and Standards, 1914-1922; chemist to the Pennsylvania Fertilizer Control Board, 1889-1916; and Chemist, Cattle Food Control Board 1902-1904. Dr. Frear’s most important work is considered to be in the field of food chemistry. His work on the federal-state Joint Committee on Definitions and Standards in Food and Drugs is especially noted as is his leadership in promoting pure food legislation. Pennsylvania’s model Food Laws came largely from Frear’s pen, and he was a central figure in the drafting of the federal Food and Drugs Act of 1906. In the field of the chemistry of soils and fertilizers Dr. Frear is well noted for his role in reviving the use of lime as a fertilizer in Pennsylvania after 1900 and his work in revolutionizing the tobacco industry in Clinton and Lancaster Counties, Pennsylvania. – Penn State Univ. Libraries [Frear papers archive].

§ Angelo Comolli, *Bibliografia storico-critica dell’architettura civile ed arti subalterne*, Milano Labor riproduzioni e documentazioni 1964, t. iii, p. 43; Riccardi, col. 495. “Raro.”



Beet Sugar

50. **CHAPTAL, Jean Antoine** (1756-1832). *"Mémoire sur le sucre de betterave. Lu à la séance de la première classe de l'Institut Royal de France, le 23 octobre 1815."* Paris: Chez Firmin Didot, 1818. ¶ In: *Memoires de l'Academie Royale des Sciences de l'Institute de France*. Année 1816, Tome 1er. 264 x 203 mm. 4to. 347-388 pp. [Entire volume included: xii, clxiv, 388 pp.] Light water-stain (sometimes mold) along bottom margin. Quarter calf, boards, spine replaced with dark kozo, simple paper spine label; worn. Bookplate of the Bibliothèque de Liancourt. Good. SS2493

\$ 75

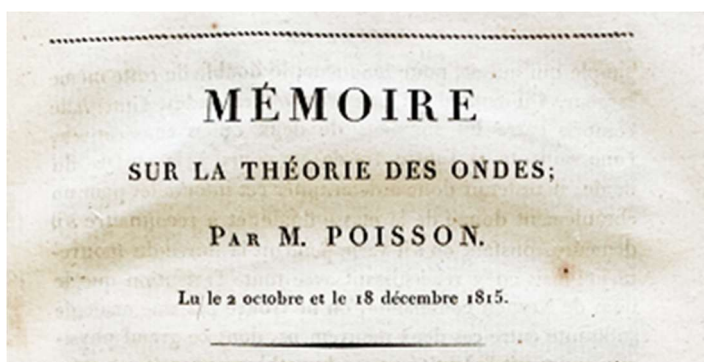
A treatise on beet sugar. French chemist Jean-Antoine Chaptal played a pivotal role in establishing the beet-root sugar industry in France during the early 19th century. As Minister of the Interior under Napoleon, he helped secure royal support, land allocation, and processing infrastructure for sugar beet cultivation to counter British blockades. He made few original contributions to pure chemistry, but Chaptal was one of the greatest chemical manufacturers of his age.

Chaptal was a constant advocate of France's self-sufficiency and an early enthusiast of the possibility of replacing cane sugar with beet sugar. "In 1811 he was a member of a committee appointed by the First Class of the Institute to examine the possible production of beet sugar. It was not until 1815, when the end of the

war permitted the resumption of trade with the West Indies and threatened the ruin of the sugar beet industry, that Chaptal presented a memoir on the subject to the Institute. He was anxious to show that the industry, if efficiently run, could justify itself economically. It was largely due to his efforts, with the later support of Thenard, that this industry continued to function in France.” – *DSB*, III, p. 202.

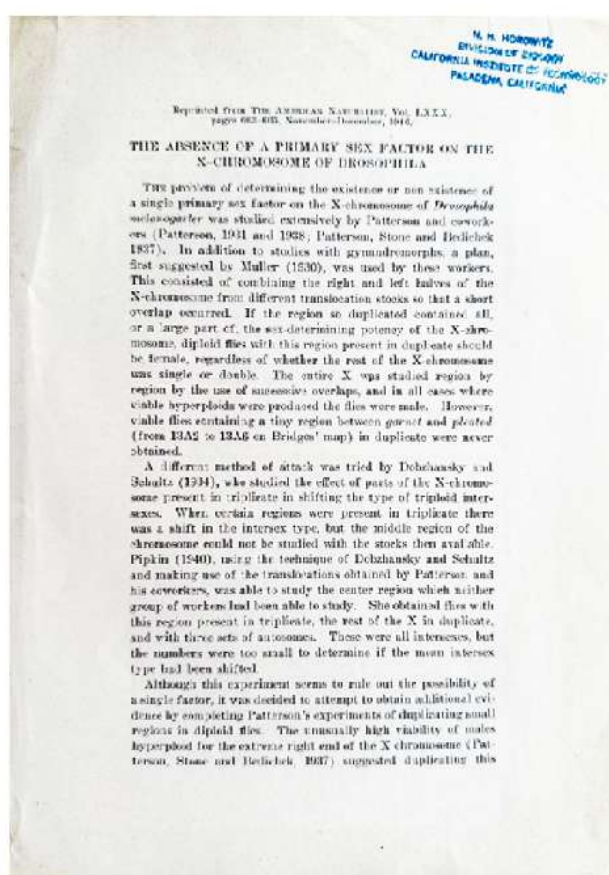
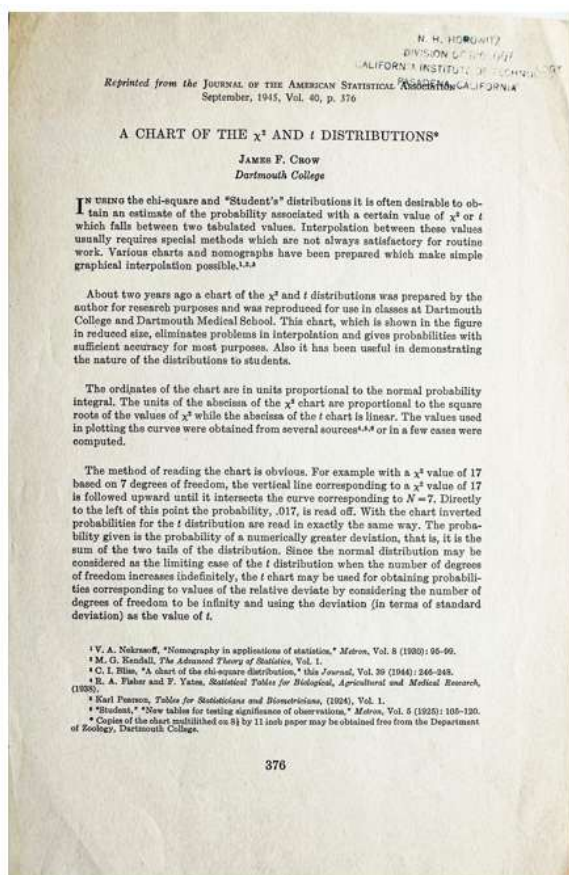
Chaptal is known for his leadership in the field of applied chemistry. In 1780 Chaptal was appointed to a specially created chair of chemistry at Montpellier. He came to Paris in 1798 and on November 6, 1800 he became minister of the interior. “For four crucial years in the reconstruction of post-revolutionary France Chaptal held the key post in the government. As minister of the interior he was responsible, through the system of prefects, for the general administration of the whole of France. In particular he was responsible for education, religion, public works, customs and excise, theaters, state factories, palaces and museums, hospitals, and prisons.” – *DSB*, III, p. 199.

Included in this volume of the *Memoires* is an essay by Jean-Baptiste Biot on the laws of the polarization of light, two essays by Pierre-Simon Girard on hydraulic engineering, and summary articles on the past year’s developments in physics by Georges Cuvier and mathematics by Jean Baptiste Joseph Delambre.



Thesis on Wave Theory

OTHER SELECTED PAPERS: Delambre, Jean Baptiste Joseph (1749-1822), *Notice sur la vie et les ouvrages de M. L'Evêque*; Georges Cuvier, *Analyse des Travaux de l'Académie Royale des Sciences*, pendant l'année 1816; Simeon-Denis Poisson (1781-1840), *Mémoire Sur la variation des constants arbitraires, dans les questions de mécanique.*; Simeon-Denis Poisson, *Mémoire sur la Théorie des Ondes*; Pierre-Simon Girard, *Mémoire Sur l'écoulement linéaire de diverses substances liquides par des tubes capillaires de verre*; Jean-Baptiste Biot (1774-1862), *Mémoire Sur l'utilité des lois de la polarisation de la lumière, pour reconnaître l'état de cristallisation et de combinaison. . . .*

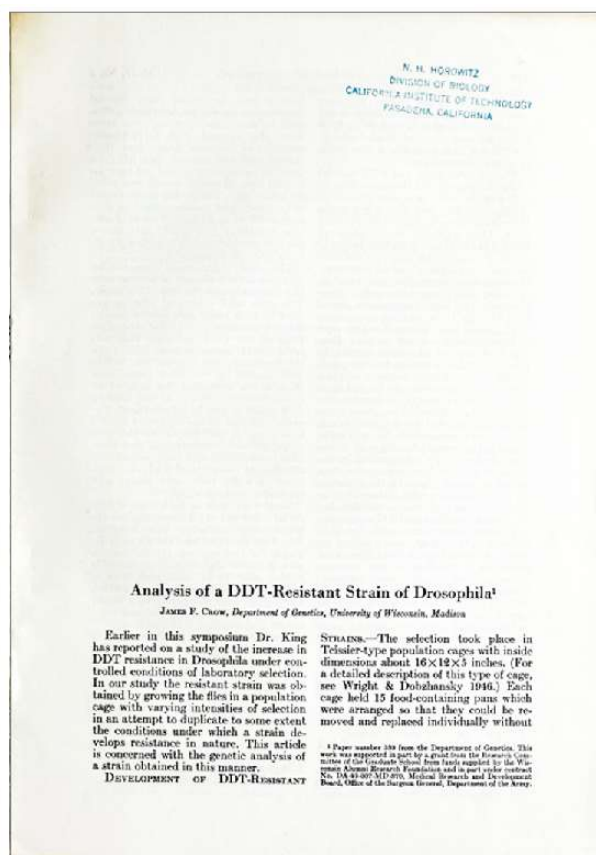
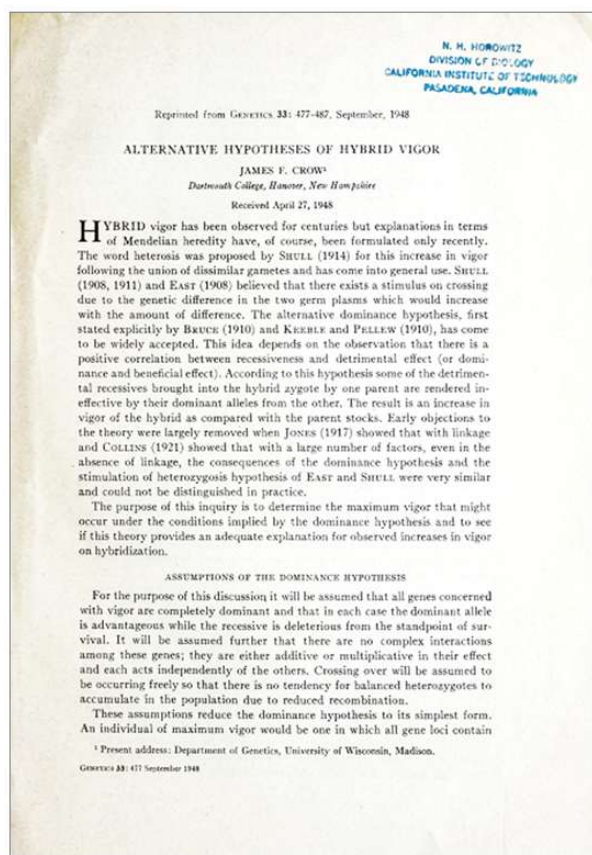


30 papers relating to Genetics

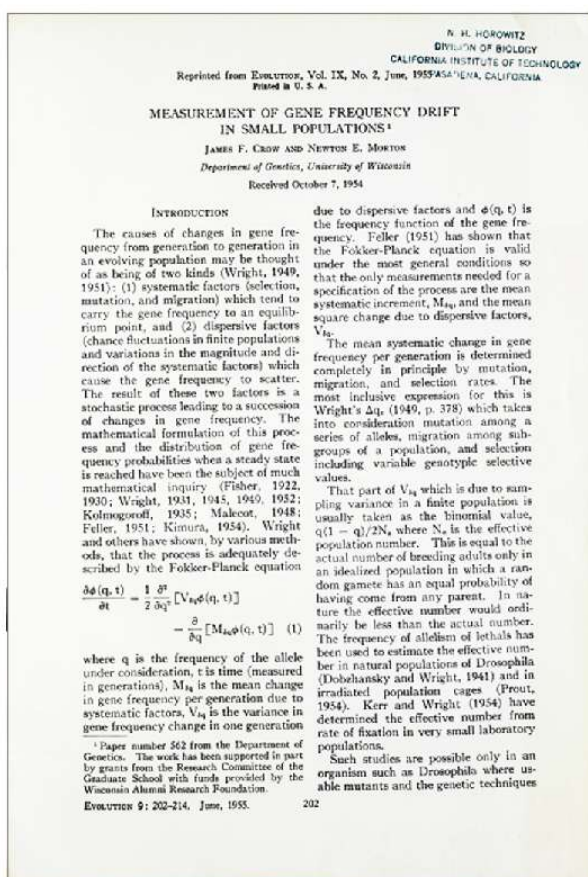
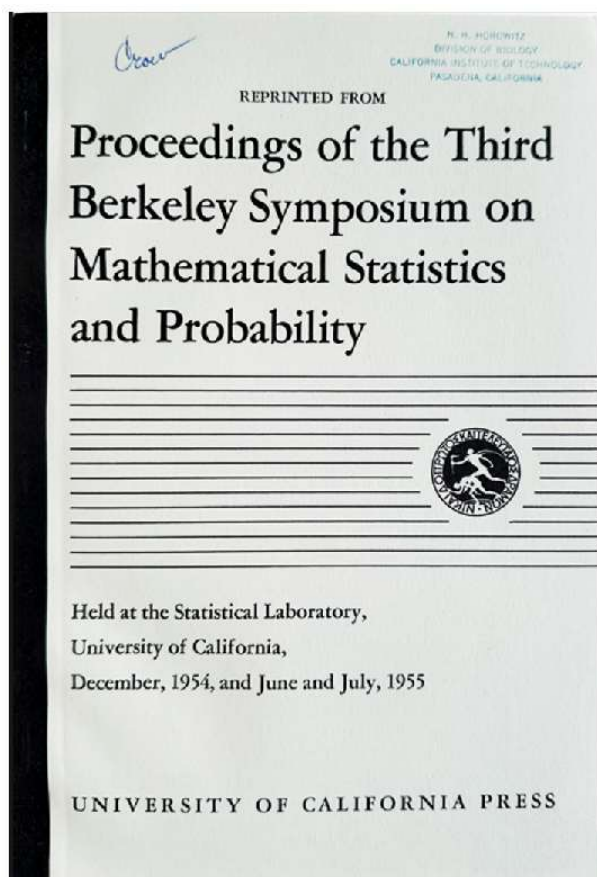
51. **CROW, James F.** Group of 30 papers. Includes: **CROW**. "A Chart of the χ^2 and t Distributions." Offprint from: *Journal of the American Statistical Association*, vol. 40. No place: American Statistical Association, 1945. 8vo. p. 376. Folding chart. 2 leaves. Ownership rubber stamp of Norman Horowitz. FINE. S8510 \$ 600

Crow is the author of several books on genetics (including an influential introductory textbook) and was Professor Emeritus at the Dept. of Genetics, University of Wisconsin. Most of the papers bear the rubber stamp or signature of pioneer Caltech geneticist Norman Horowitz.

- 1) **CROW**. "A Chart of the χ^2 and t Distributions." Offprint from: *Journal of the American Statistical Association*, vol. 40. No place: American Statistical Association, 1945.
- 2) WITH: **CROW**. "The Absence of a Primary Sex factor on the X-Chromosome of *Drosophila*." Offprint from: *American Naturalist*, vol. LXXX, 1946. 8vo. 663-665 pp. Self wraps.



- 3) **CROW**. "Alternative Hypotheses of Hybrid Vigor." Offprint from: *Genetics*, vol. 33, 1948. 8vo. 477-487 pp. Self wraps.
- 4) **CROW**, & **Richard WEINER**. "The Resistance of DDT-resistant *Drosophila* to other Insects." Offprint from: *Science*, vol. 113, no. 2937, 1951. 8vo. 403-404 pp. Self wraps.
- 5) **CROW**. "Random Mating with Linkage in Polysomics." Offprint from: *American Naturalist*, vol. LXXXVIII, no. 843, 1954. 8vo. 431-434 pp. Self wraps.
- 6) **CROW**. "Analysis of a DDT-Resistant Strain of *Drosophila*." Offprint from: *Journal of Economic Entomology*, vol. 47, no. 3, 1954. 8vo. 393-398 pp. Self wraps.
- 7) **CROW**. "General Theory of Population Genetics: Synthesis." Offprint from: *Cold Spring Harbor Symposia*, vol. XX, 1955. 8vo. 54-59 pp. Self wraps.



8) **CROW, & Motoo KIMURA** (1924-1994). "Some Genetic Problems in Natural Populations." Offprint from: *Proceedings of the Third Berkeley Symposium on Mathematical Statistics and Probability*, (Berkeley: University of California Press, 1955). 8vo. 22 pp. Figs. Printed wrappers.

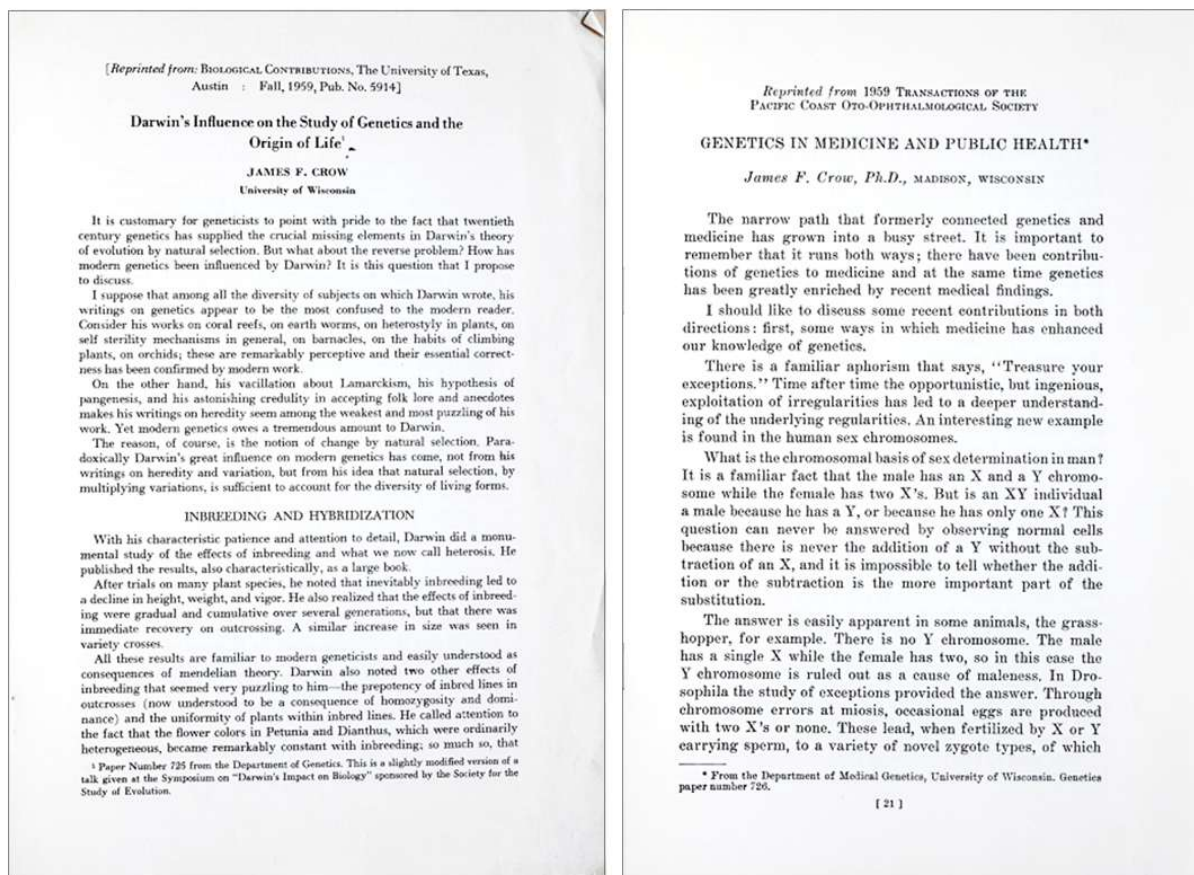
Motoo Kimura was a Japanese biologist best known for introducing the neutral theory of molecular evolution in 1968. He became one of the most influential theoretical population geneticists.

9) **CROW, & Newton E. MORTON** (1929-2018). "Measurement of Gene Frequency Drift in Small Populations." Offprint from: *Evolution*, vol. IX, no. 2, June 1955. 8vo. 202-214 pp. Self wraps.

Newton Ennis Morton was an American population geneticist and one of the founders of the field of genetic epidemiology.

10) **CROW**. "A Comparison of Fetal and Infant Death Rates in the Progeny of Radiologists and Pathologists." Offprint from: *American Journal of Roentgenology and Radium Therapy*, vol. LXXIII, no. 3, 1955. 8vo. 467-471 pp. Self wraps.

- 11) **CROW.** "Genetics of DDT Resistance in *Drosophila*." Offprint from: *Cytologia*, 1956. 8vo. 408-409 pp. Printed wrappers.
- 12) **CROW.** "The Estimation of Spontaneous and Radiation Induced Mutation Rates in man." Offprint from: *Eugenics Quarterly*, vol. 3, no. 4, 1956. 8vo. 201-208 pp. Self wraps.
- 13) **CROW.** "The Effect of Exposure to the Atomic Bombs on Pregnancy Termination in Hiroshima and Nagasaki." Offprint from: *American Journal of Human Genetics*, vol. 9, no. 3, 1957. 8vo. 224-226 pp. Self wraps.
- 14) **CROW.** "Possible Consequences of an Increased Mutation rate." Offprint from: *Eugenics Quarterly*, vol. 4, no. 2, 1957. 8vo. 67-80 pp. Self wraps.
- 15) **CROW.** "Genetic Considerations in Establishing Maximum Radiation Doses." Offprint from: *Radiology*, vol. 69, no. 1, 1957. 8vo. 18-22 pp. Self wraps.
- 16) **CROW.** "Some Possibilities for measuring Selection Intensities in Man." Offprint from: *Human Biology*, vol. 30, no. 1, 1958. 8vo. 13 pp. Self wraps.



17) **CROW**. "Darwin's Influence on the Study of Genetics and the Origin of Life." Offprint from: *Biological Contributions*, no. 5914, 1959. 8vo. 49-55 pp. Self wraps.

18) **CROW**. "Genetics in Medicine and Public Health." Offprint from: *Transactions of the Pacific Coast Oto-Ophthalmological Society*, 1959. 8vo. 21-32 pp. Self wraps.

19) **CROW, & MORTON, Newton**. "The Genetic Load Due to Mother-Child Incompatibility." Offprint from: *American Naturalist*, vol. XCIV, no. 879, 1960. 8vo. 413-419 pp. Self wraps.

20) **CROW**. "Genetics of Insecticide Resistance: General Considerations." Offprint from: *Misc. Publications of the Entomological Soc. of America*, vol. 2, no. 1, 1960. 8vo. 69-74 pp. Self wraps.

21) **CROW, & Rayla GREENBERG**. "A Comparison of the Effect of Lethal and Detrimental Chromosomes from *Drosophila* Populations." Offprint from: *Genetics*, vol. 45, no. 8, 1960. 8vo. 1153-1168 pp. Self wraps.

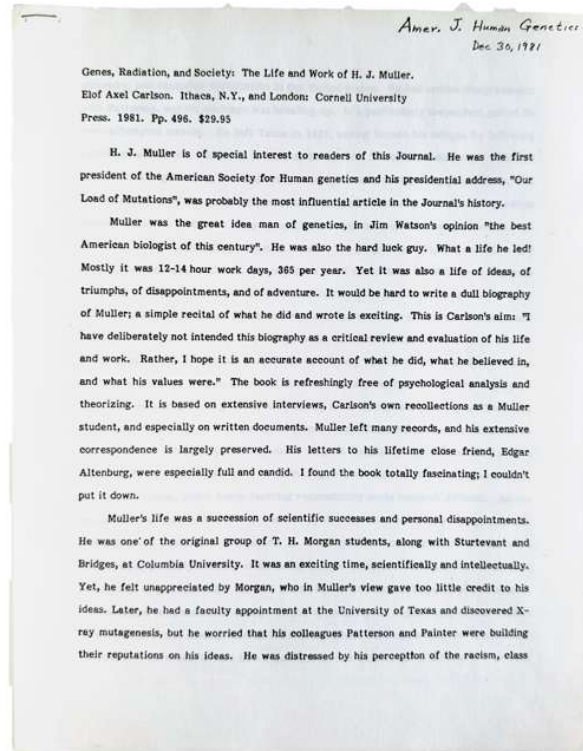
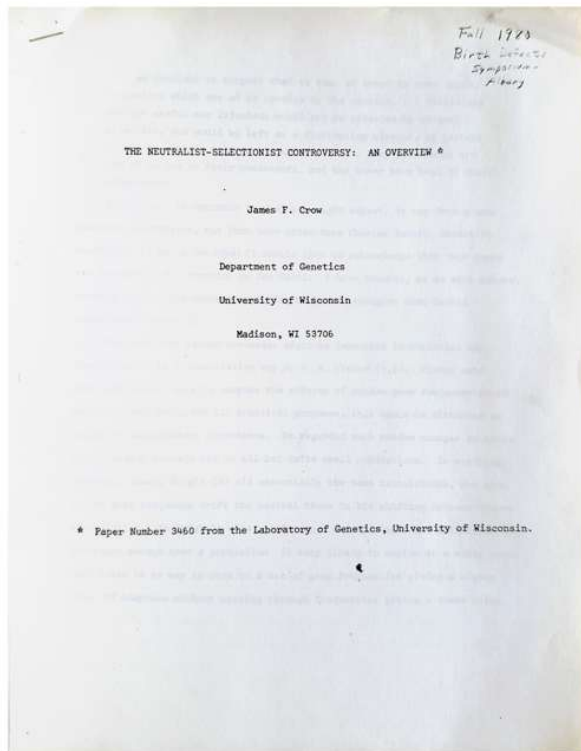
22) **CROW, & Yuichiro HIRAIZUMI** (1927-2003). "Heterozygous Effects on Viability, fertility, Rate of Development, and Longevity of *Drosophila* Chromosomes that are Lethal when Homozygous." Offprint from: *Genetics*, vol. 45, no. 8, 1960. 8vo. 1071-1083 pp. Self wraps.

Dr. Yuichiro Hiraizumi (often cited as Y. Hiraizumi) was a prominent Japanese-American population geneticist and evolutionary biologist known for his groundbreaking work on meiotic drive and segregation distortion.

23) **CROW**. Book review of: "Radiation, Genes, and Man by Bruce Wallace & Th. Dobzhansky." Offprint from: *American Journal of Human Genetics*, vol. 12, no. 3, 1960. 8vo. 374-377 pp. Self wraps.

24) **CROW**. "Molecular Genetics and Population Genetics." Offprint from: *Proc. XII Intern. Congr. Genetics*, vol. 3, 1969. 8vo. 105-113 pp. Self wraps.

25) **CROW**. "Darwinian and Non-Darwinian Evolution." Offprint from: *Proceedings of the Sixth Berkeley Symposium on Mathematical Statistics and Probability*, (Berkeley: University of California Press, 1971). 8vo. 22 pp. Printed wrappers.



26) **CROW**. "The Neutralist-Selectionist Controversy: An Overview." Typed sheets from: *Birth Defects Symposium, Albany*, 1980. 4to. 21 pp. Stapled sheets.

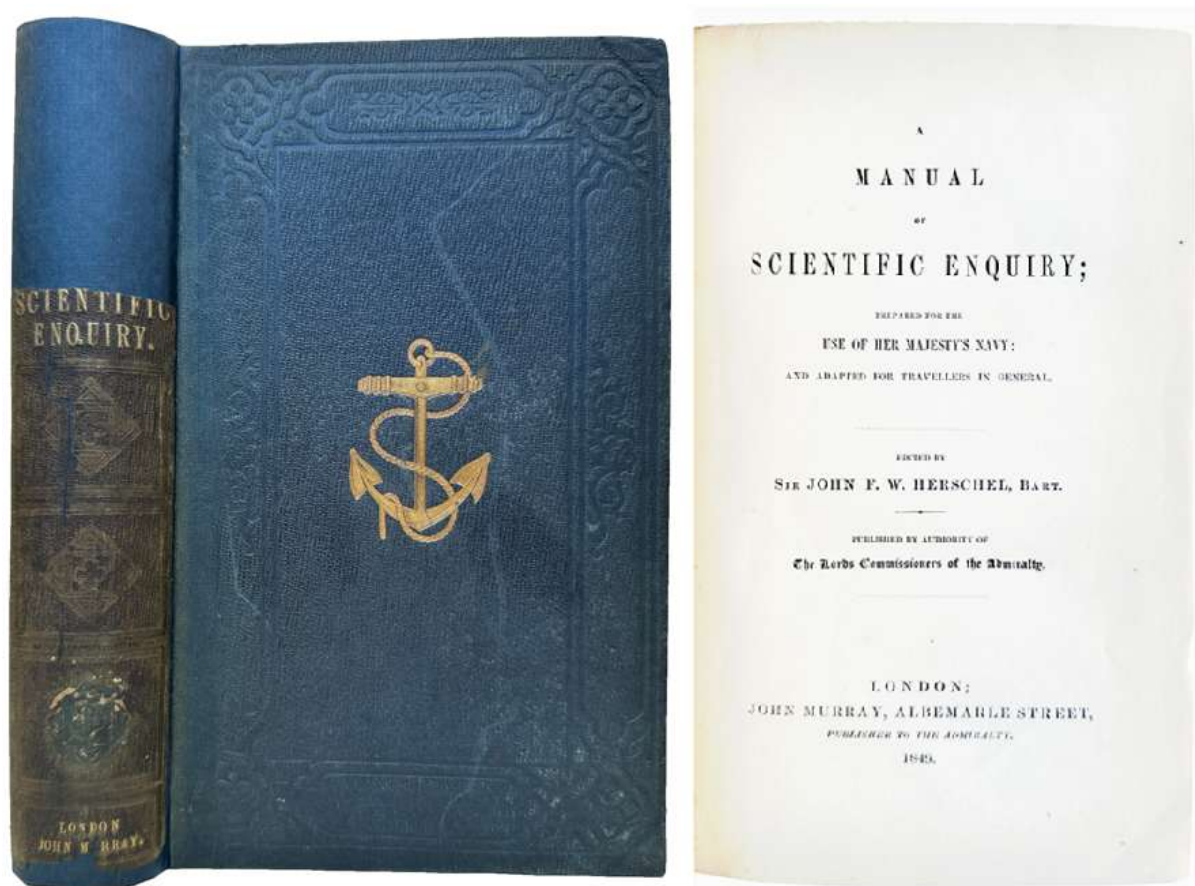
27) **CROW**. Book review of: "Genes, Radiation, and Society: The Life and Work of H. J. Muller. By Elof Axel Carlson." Typed sheets from: *Amer. J. Human genetics*, 1981. 4to. 8 pp. Stapled sheets.

28) **CROW**. "The Neutrality-Selection Controversy in the History of Evolution and Population Genetics." Offprint from: *Population Genetics and Molecular Evolution*, (Tokyo: Springer, 1985). 8vo. 18 pp. Figs. Self wraps.

29) **CROW**. "J. B. S. Haldane – an Appreciation." Offprint from: *Journal of Genetics*, vol. 64, no. 1, 1985. 8vo. 3-5 pp. Printed wrappers.

30): **CROW**. "Muller, Dobzhansky, and Overdominance." Typed sheets from: *Journal of the History of Biology*, 1986. 8vo. 20 pp. Stapled sheets.

See: Hartl, Daniel L., "James F. Crow (1916–2012) A Remarkable Geneticist, a Remarkable Man." *Genetics*. 2012 Mar; 190(3):1149–1150.

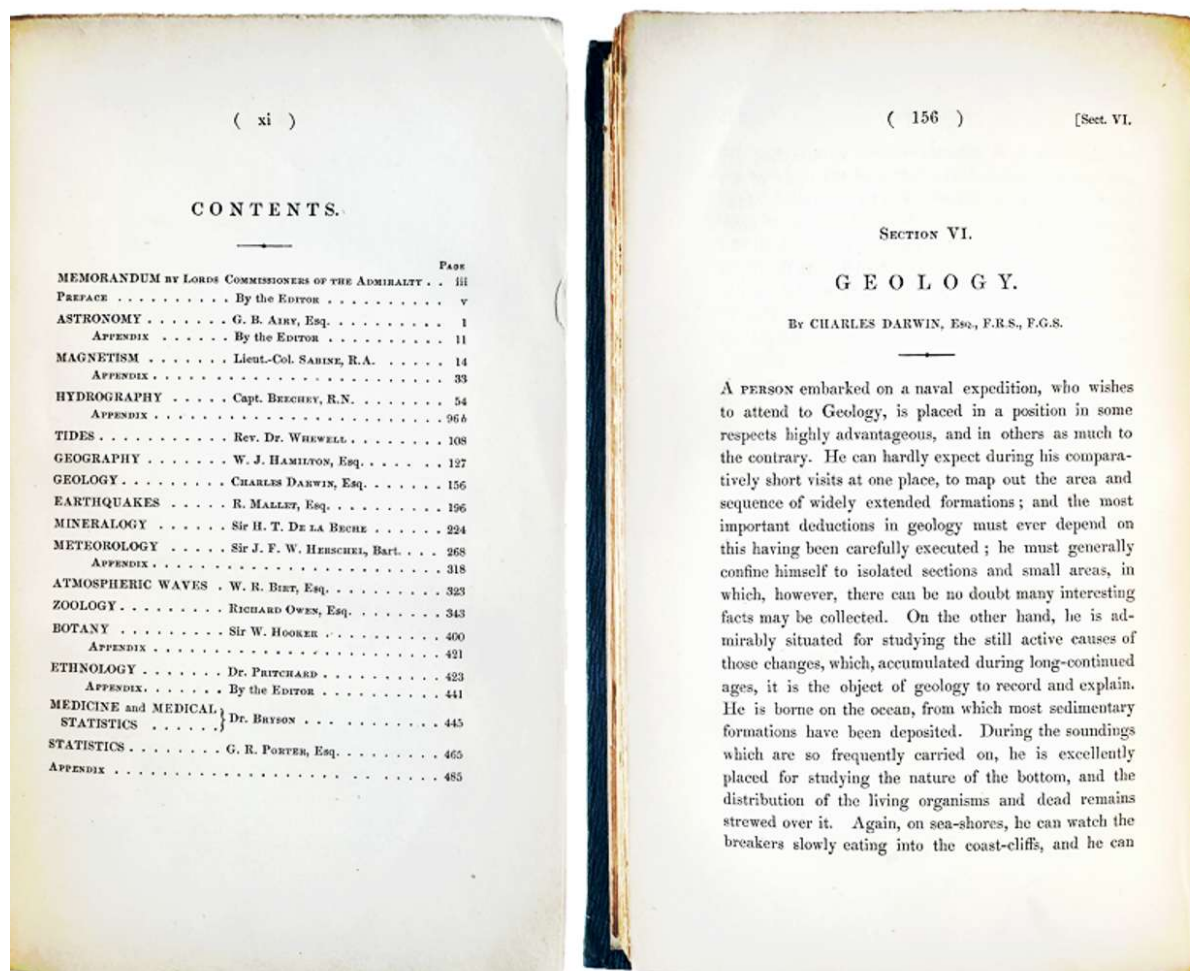


Includes Darwin's "Geology"

52. **DARWIN, Charles** (1809-1882). "Geology." In: **HERSCHEL, Sir John F.W.** (1792-1871) (editor). *A Manual of Scientific Enquiry; prepared for the use of Her Majesty's Navy: and adapted for travellers in general. Published by authority of the Lords Commissioners of the Admiralty.* London: John Murray . . . publisher to the admiralty, 1849. ¶ 8vo. xi, [1], 488 pp. Large folding oceanographic map showing the Approximate Limits of the Great Currents and Drifts of the Ocean, scattered figures, 1 engraved plate (Hydrographic delineation), appendices; final leaf reinforced at gutter. Original full dark green embossed cloth with gilt anchor device on upper cover, in blind on the back cover (Freeman notes that "in some copies, but not all, the anchor on the top board is gilt" [as is with this copy], no pocket in rear bottom board (as per this issue); spine replaced, preserving a remnant of the original spine, corners and joints reinforced. Bookplate of Charles F. Cox, New York; embossed stamp of the Carnegie Institution, Solar Observatory [under George Ellery Hale, being from his library, donated to the Mount Wilson Observatory]. Very good+. Rare.

\$ 1,000

FIRST EDITION, second issue, with pp.171-90 cancelled, containing the corrected sheets including part of Darwin's article. Freeman notes that most copies of the first issue (including Darwin's own) were published with a separate 20-page cancellans inserted into a pocket inside the back cover. Freeman further states that some copies may have been issued without the cancellans, as here. This collection of scientific articles on subjects relating to naval training was used as a textbook for cadets at the Royal Naval College. Darwin contributed the section on "Geology," which contained serious transpositions of the text which were cancelled and replaced with corrected sheets.

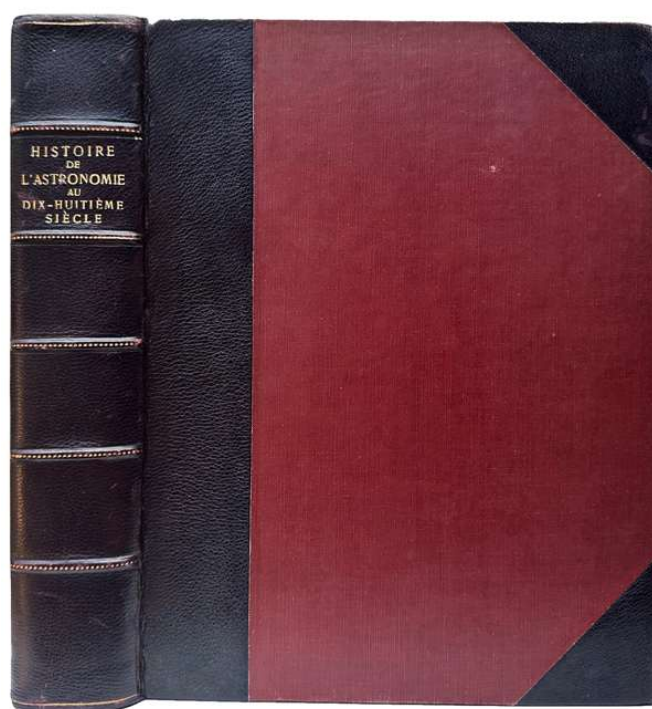


"Sir John Frederick William Herschel (1792-1871) – astronomer, mathematician, chemist - was one of the most important British scientists of the nineteenth century. Son of the famous astronomer William Herschel, he was persuaded by his father to pursue the astronomical investigations William could no longer undertake; John's subsequent career resulted in a knighthood and a lifetime of accolades. This 1849 publication was commissioned by the Admiralty to encourage and assist naval officers to undertake scientific research while abroad. The work provides instructions in making and recording observations in a wide range of disciplines -

astronomy; magnetism; hydrography; tides; geography; geology; earthquakes; mineralogy; meteorology; atmospheric waves; zoology; botany; ethnology; medicine; statistics - written by experts in these fields, including G.B. Airy, Capt. Beechey, Leut. Col. Sabine, R. Mallet, Sir H.T. de la Beche, W. R. Birt, Richard Owen, W.J. Hamilton, Rev. Dr. Whewell, Charles Darwin, Dr. Pritchard, G.R. Porter, Dr. Bryson, Sir William Jackson Hooker and Herschel himself. It was hoped that the instructions could also be used by other travellers to advance scientific knowledge, and the work remained in print for over fifty years.”

PROVENANCE [3]: [1] Charles Finney Cox (1846-1912), New York. He worked as an American railroad manager, holding roles including Assistant Treasurer of the Canada Southern Railway Company, Vice-President of the Richmond & Alleghany Railroad Company, and President of the Carthage & Adirondack Railway Company. He became Treasurer and President of the New York Academy of Sciences. In 1896 Cox was appealing for financial assistance to fund a suitable building for the Scientific Alliance of New York, including creating a 100,000 volume library, etc. Cox was an active member of scientific groups like the New York Microscopical Society and the Royal Microscopical Society. He assembled a notable collection of Darwiniana, which was later acquired by the New York Botanical Garden in 1912 as a permanent memorial; [2] embossed stamp of the Carnegie Institution, Solar Observatory [under [3] George Ellery Hale (1868-1938), being from his library, donated to the Mount Wilson Observatory.

§ Freeman (1977) 326; Norman 1057.



Dr. John Williams Streeter's copy

53. **DELAMBRE, Jean-Baptiste Joseph** (1749-1822). *Histoire de l'astronomie au dix-huitième siècle. Publiée par M Mathieu*. Paris: Bachelier (successeur de Mille v: Courcier), 1827. ¶ One of six volumes (complete in itself for the 18th century). 257 x 201 mm. 4to. lii, 796 pp. Frontis. port. of Delambre drawn and engraved by E. Desmoulins, tables, 3 folding plates. Quarter maroon morocco corners, raised bands, gilt spine; lightly rubbed. Ownership signature of John Williams Streeter, and, in later ownership: VCO May 1949. Very good.

\$ 200

FIRST EDITION. This is the volume devoted to the history of astronomy in the eighteenth century. It is complete on its own. This is a pioneering resource for eighteenth century scientific figures, including astronomers, instrument makers and mathematicians.

Delambre's *Histoire de l'astronomie* is a work without parallel in any of the sciences. It is a technical work, written - as he said - "mainly for astronomers, and mathematicians in general." Delambre's work provides no synthesis, no generalization, no display of insight into the causes for progress or decline; the reader is provided rather with the contents of the works treated by Delambre, a critical estimate of its worth, and then he compares and contrasts several works by the same author. Delambre is especially good on astronomical tables and on methods of observation and calculation. A great virtue is the wealth of information on minor figures, for whom no other account may be available. Above all, Delambre spices his presentation with acerbic and delightful comments. "Unquestionably the six-volume *Histoire* is the greatest full-scale technical history of any branch of science ever written by a single individual. It sets a standard very few historians of science may ever achieve." *DSB*, IV, pp. 14-18.

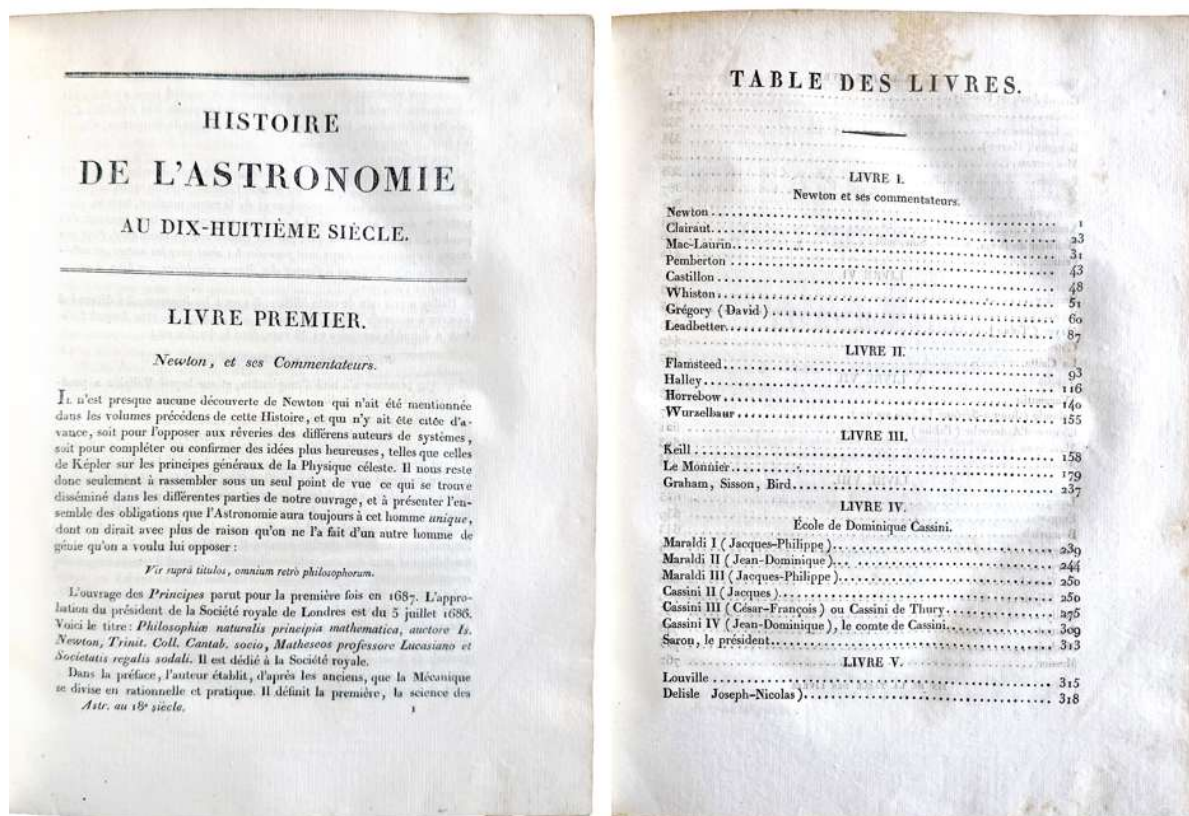
LIVRE I : Isaac Newton, Alexis Claude Clairaut, Colin Mac-Laurin [MacLaurin], Henry Pemberton, Jean de Castillon, William Whiston, David Grégory, Charles Leadbetter.

LIVRE II : John Flamsteed, Edmund Halley, Herrebow [Peder Horrebow], Johann Philipp von Wurzelbauer.

LIVRE III : John Keill, Pierre Charles Le Monnier, George Graham, Jonathan Sisson, John Bird.

LIVRE IV : Ecole de Dominique Cassini.

Jacques-Philippe Maraldi I, Jean-Dominique Maraldi II, Jacques-Philippe Maraldi III, Jacques Cassini II, César-François Cassini III, Jean-Dominique Cassini IV, Saron, le président.



LIVRE V : Louville, Joseph-Nicolas Delisle, Grand Jean de Fouchs, Godin, La Condamine, Pierre Bouguer, Maupertuis, Pezenas, Manfredi, Marinoni, Ximenes, Melchoir de Briga, Kgler, Simonelli, Frisi.

LIVRE VI: Bradley, Biss, Tobie Mayer, Cotes, La Caille.

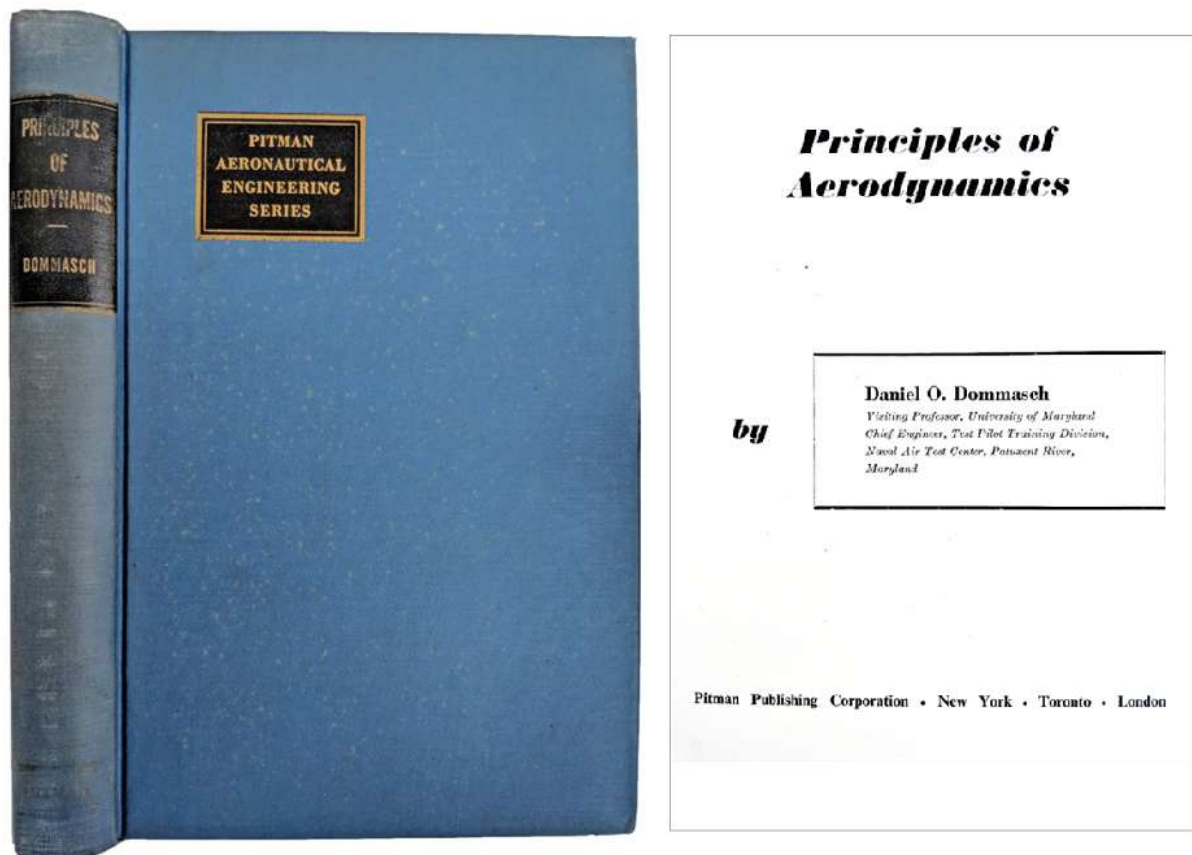
LIVRE VII : Wargentint, Joseph Jérôme Lefrançais de Lalande, l'abbé Chappe d'Auteroche, Maskelvine, Mason.

LIVRE VIII: Long, James Ferguson, Roger Joseph Boscovich, Alexandre Guy Pingré, Gabriel de Bory, Guillaume Le Gentil, Achille-Pierre Dionis du Séjour, Jean Sylvain Bailly, Edme-Sébastien Jeaurat, Pierre Méchain, Charles Messier.

PROVENANCE: [1] Dr. John Williams Streeter (1841-1905) "studied medicine at the University of Michigan and the Hahnemann Medical College, and was graduated from the latter in 1868. He began the practice of his profession, as a

Homeopath, in Chicago. He was a professor in the Chicago Homeopathic College from 1877 to the time of his death. For ten years he was the president of the Homeopathic staff in Cook County Hospital. In 1888 he established the Streeter Hospital on Calumet Ave in Chicago and continued to maintain it. He was Lieutenant Colonel and Assistant Surgeon General of the IL National Guard.”

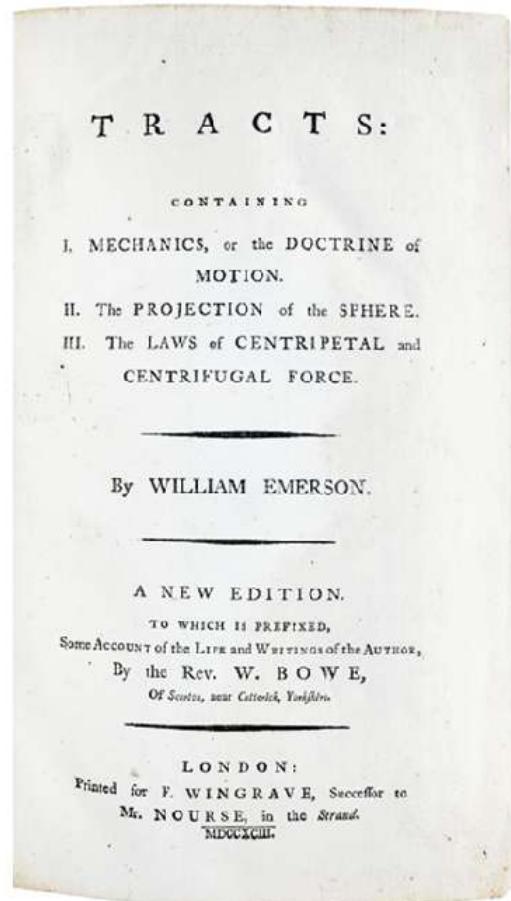
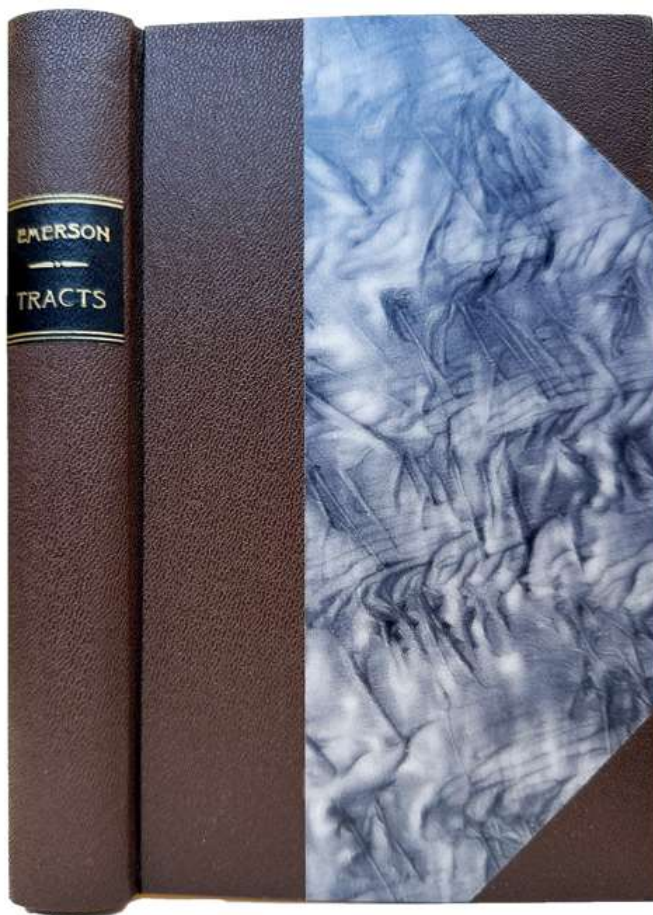
[2] VCO 1949. Could be the Victoria Centre Observatory, British Columbia, Canada.



54. **DOMMASCH, Daniel Otto** (b. 1921). *Principals of Aerodynamics*. New York: Pitman, 1953. ¶ Series: *Pitman Aeronautical Engineering Series*. First edition. 8vo. xvii, [1], 389, [1] pp. Figs., tables, index. Blue black and gilt-stamped cloth; rubbed. Very good. RARE. RW1048

\$ 20

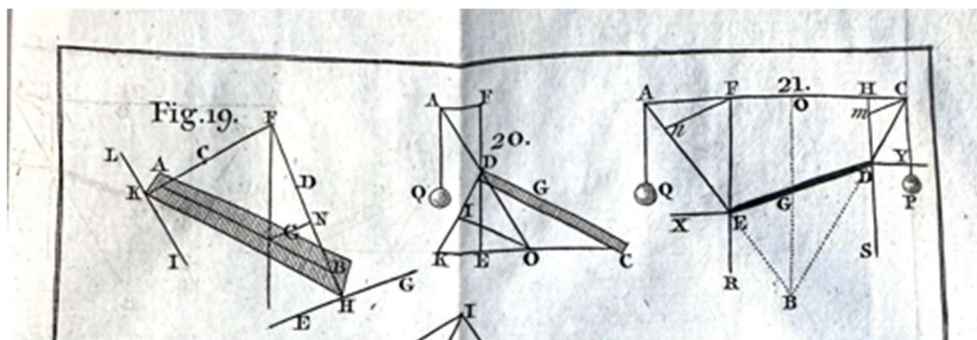
Daniel O. Dommasch is a prominent American aeronautical engineer, educator, and author. He is highly recognized in the aviation community for writing seminal, foundational textbooks on aerodynamics and flight testing that trained generations of aerospace engineers and pilots.



55. **EMERSON, William** (1701-1782). *Tracts: Containing I, Mechanics, or the Doctrine of Motion. II. The Projection of the Sphere. III. The Laws of Centripetal and Centrifugal Force. A new edition.* London: Printed for F. Wingrave, 1793. ¶ 8vo. [2], xxii, [3]-302, [2] pp. 9 + 12 + 6 folding plates, figs.; some waterstains. Modern half brown cloth, marbled boards, gilt-stamped spine label. Ownership inscription of Geo. Couper, 1815. Very good+.

\$ 225

Three parts in one volume. Emerson was an eccentric English mathematician best known for his textbooks.



*The MECHANIC POWERS; the Strength
and Stress of Timber.*

PROP. XLIII.

The balance is a straight inflexible rod or 25. beam, turning about a fixed point or axle in the middle of it; to be loaded at each end with weights suspended there.

Let AB be the beam of lever, C the middle point or center of motion; D, E the weights hanging at the ends A and B. Then let the beam and the weights, or the whole machine, be suspended at C. And suppose the beam and the weights be turned about upon the center C; then the points A, B being equidistant from C will describe equal arches, and therefore the velocities will be equal, and if the bodies D and E be equal, then the motion of D will be equal to the motion of E, as their quantities of matter and velocities are equal; and consequently, if the beam and weights are set at rest, neither of them can move the other, but they will remain in equilibrio.

Cor. If one weight be greater than the other; that weight and scale will descend, and raise the other.

SCHOLIUM.

The use of the balance, or a common pair of scales, is to compare the weights of different bodies :

SECT. I.

The Orthographic Projection of the
SPHERE.

PROP. I.

IF a right line AB is projected upon a plane, it is projected into a right line; and its length will be to the length of the projection, as radius to the cosine of its inclination above that plane. Fig. 3.

For let fall the perpendiculars Aa , Bb upon the plane of projection; then ab will be the line it is projected into; but by trigonometry AB is to Aa or $ab ::$ as radius : to the sine of B or cosine of ϕAB .

Cor 1. If a right line is projected upon a plane, parallel thereto, it is projected into a right line parallel and equal to itself.

Cor. 2. If an angle be projected upon a plane which is parallel to the two lines forming the angle; it is projected into an angle equal to itself.

COR. 3. Any plane figure projected upon a plane parallel to itself, is projected into a figure similar and equal to itself.

COR. 4. Hence also the area of any plane figure, is to the area of its projection :: as radius, to the cosine of its elevation or inclination.

PROP. II.

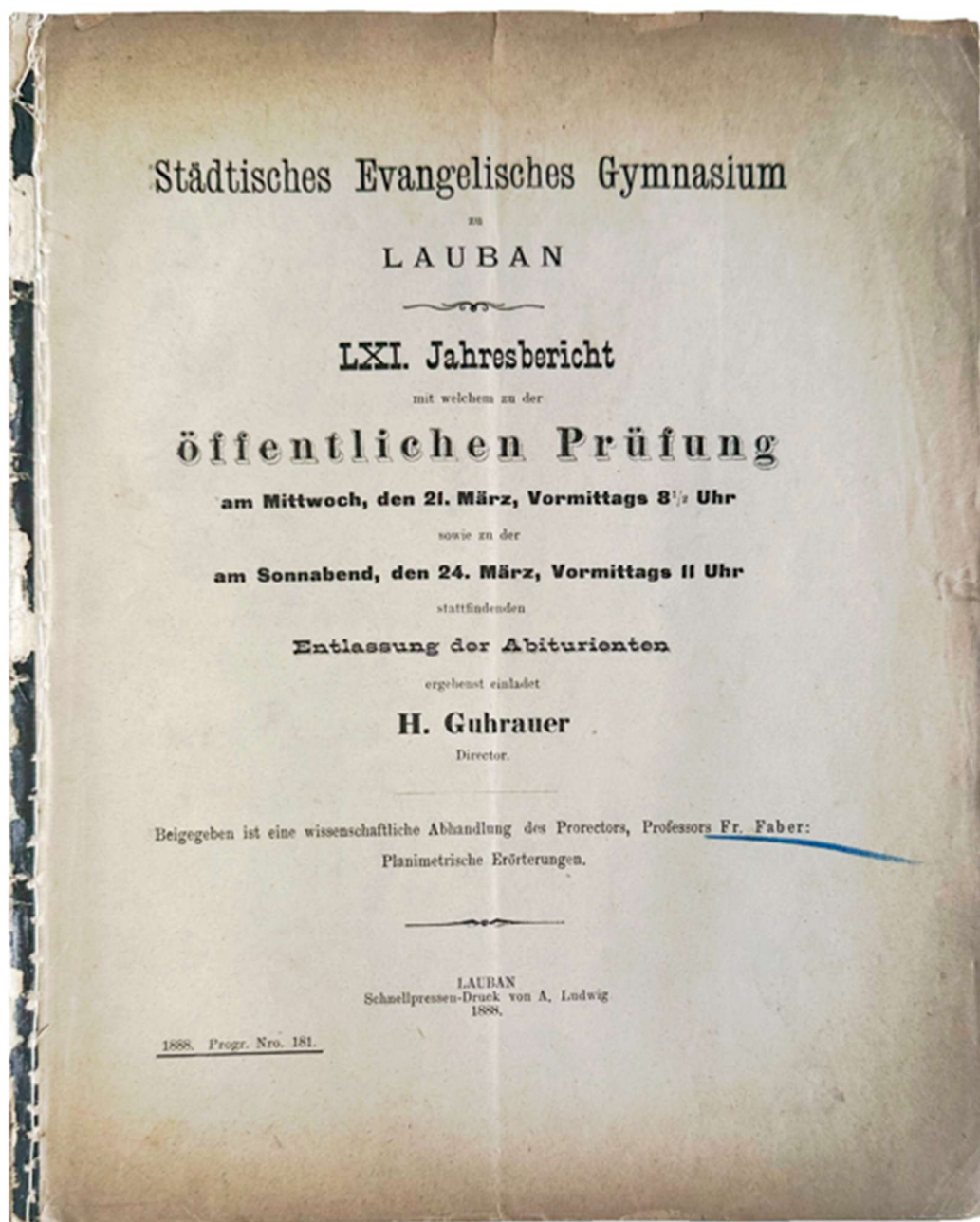
A circle perpendicular to the plane of projection, is projected into a right line equal to its diameter.

For projecting lines drawn through all the points of the circle fall in the common section of the planes of

The three parts: I: Mechanics; or, the doctrine of motion. . . II: The Projection of the Sphere, orthographic, stereographic, and gnomonical. III: The Laws of Centripetal and Centrifugal Force. . . The text contains a wide range of practical applications to mechanics: the pendulum, planes, curved surfaces, beams of timber, strength of materials, stress, power of engines, hydrostatics, pneumatics, gravity, friction, wheel carriages, hand mill, watches, etc. Emerson was a mathematician and taught the subject. He was a prolific author, with his *Principles of Mechanics*, being first issued in 1754 and re-issued in subsequent editions.

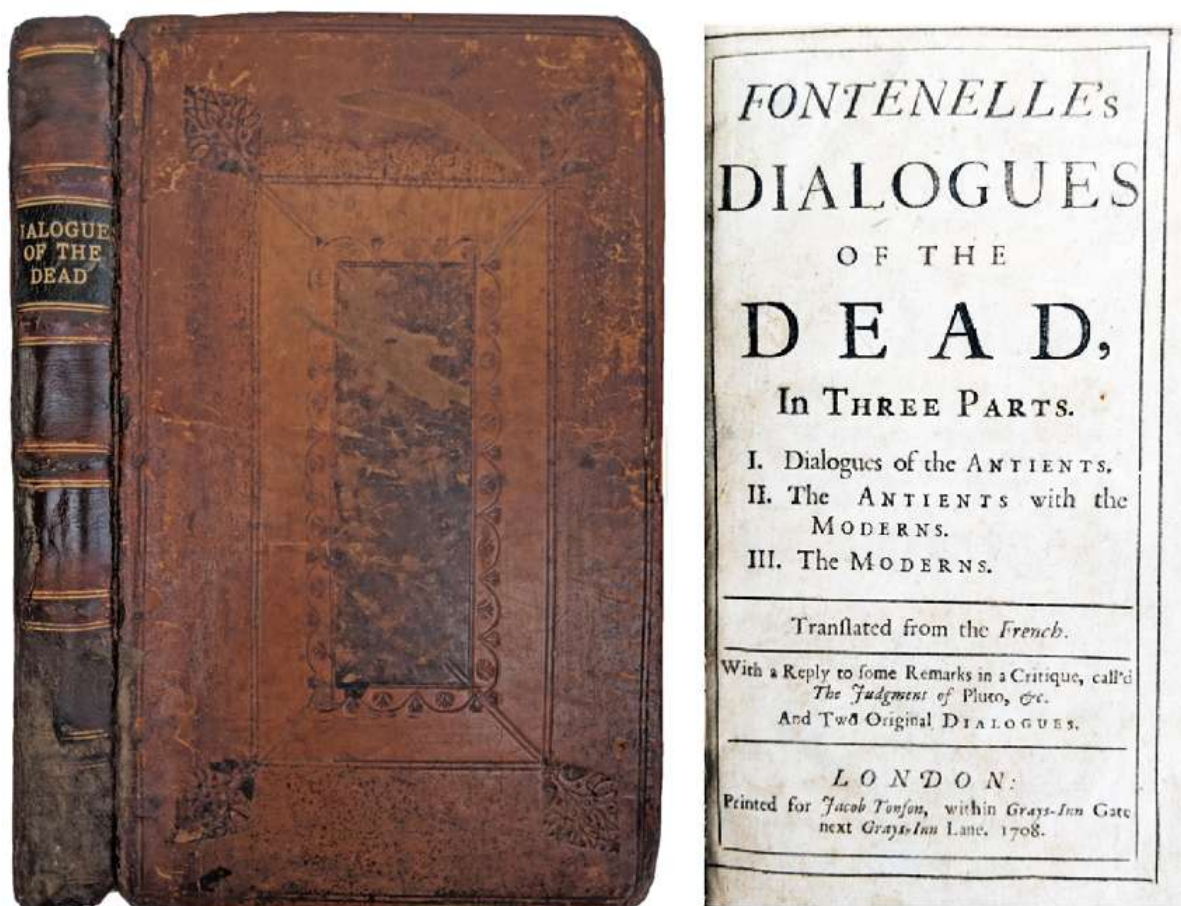
PROVENANCE: George Couper (1788-1861), Heugh Street, South Shields [county of Durham, U.K.], June 10th 1815, was a colonel in the British army, and made a baronet in 1841.

Geo. Couper,
Heugh Street,
South Shields.
June 10th 1845



Planimetric Surveys

56. **FABER, Friedrich.** *Planimetrische Erörterungen.* Lauban: A. Ludwig, 1888. ¶
253 x 205 mm. 4to. 26 pp. [Entire publication: [ii], 26, 10 pp.] 21 figs. on 1
double-page lithographic plate. Dis-bound, browned. Very good. S3329
\$ 20



57. **FONTENELLE, Bernard Le Bovier** (1657-1757). *Fontenelle's Dialogues of the Dead, In Three Parts. I Dialogues of the Antients. II. The Antients with the Moderns. III. The Moderns. Translated from the French. With a Reply to Some Remarks in a Critique, call'd The Judgment of Pluto, &c. And Two Original Dialogues.* London: Jacob Tonson, 1708. ¶ Sm. 8vo. [ii], l, [2], 209, [1] pp. Original blind- and gilt-stamped calf, later gilt-stamped black leather spine label, raised bands; rebacked, preserving original spine, inner joints reinforced with brown cloth tape, covers splitting at pp. 62-63, upper cover scratched. Embossed ownership stamps of S. G. Morten [heraldic bearing: crowned eagle, wings raised]. Good. RW1077

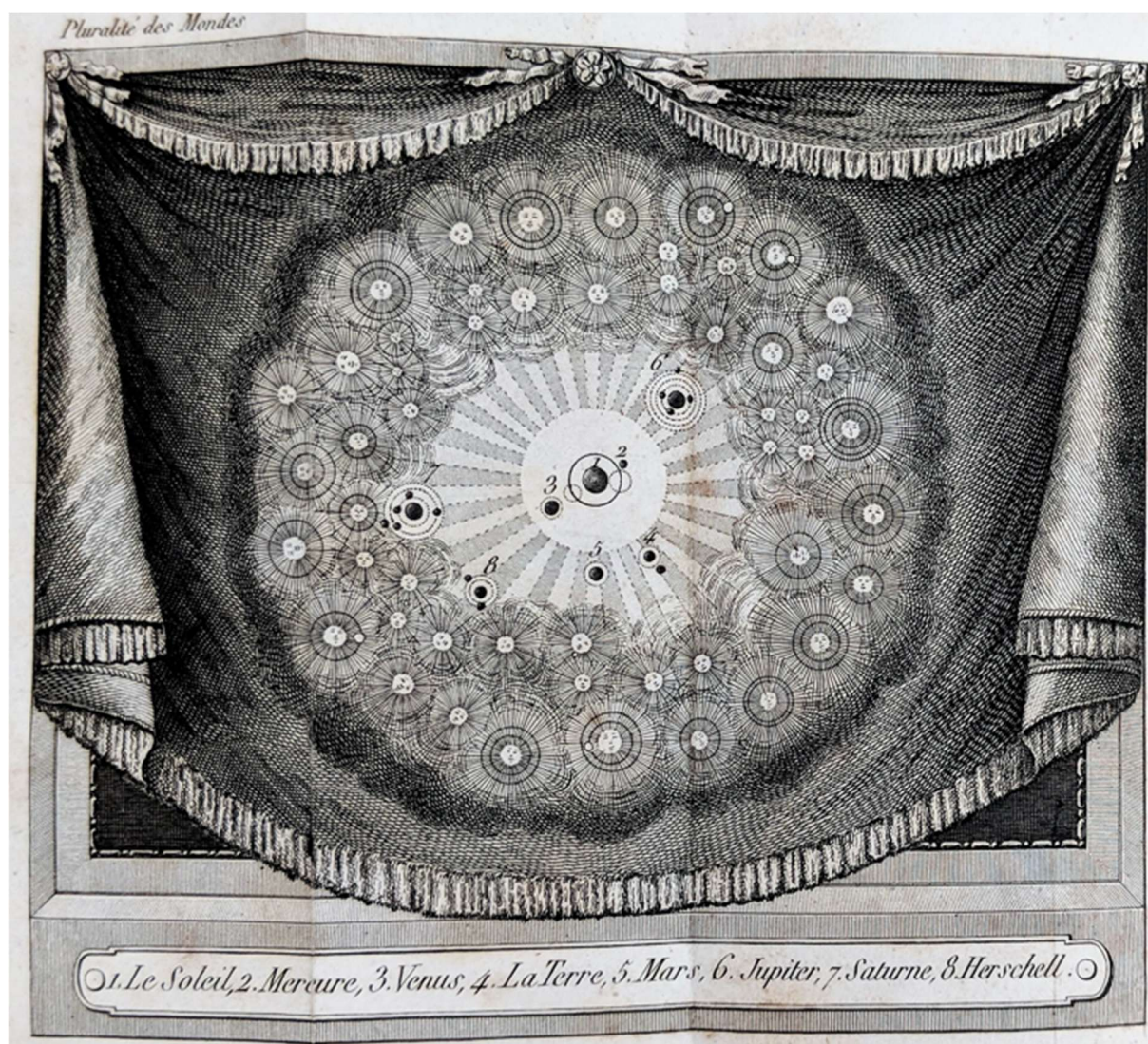
\$ 200

Early edition in English, of the author's *Nouveaux dialogues des morts*. Fontenelle was one of the earliest authors of "popular science" texts. While not much of a researcher himself, he found great success expounding the discoveries of his contemporaries in such a way that a broad audience could make sense of them. In

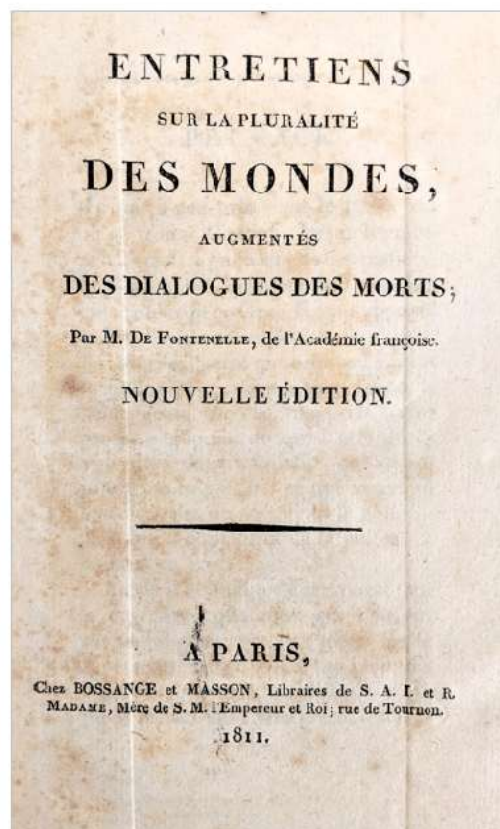
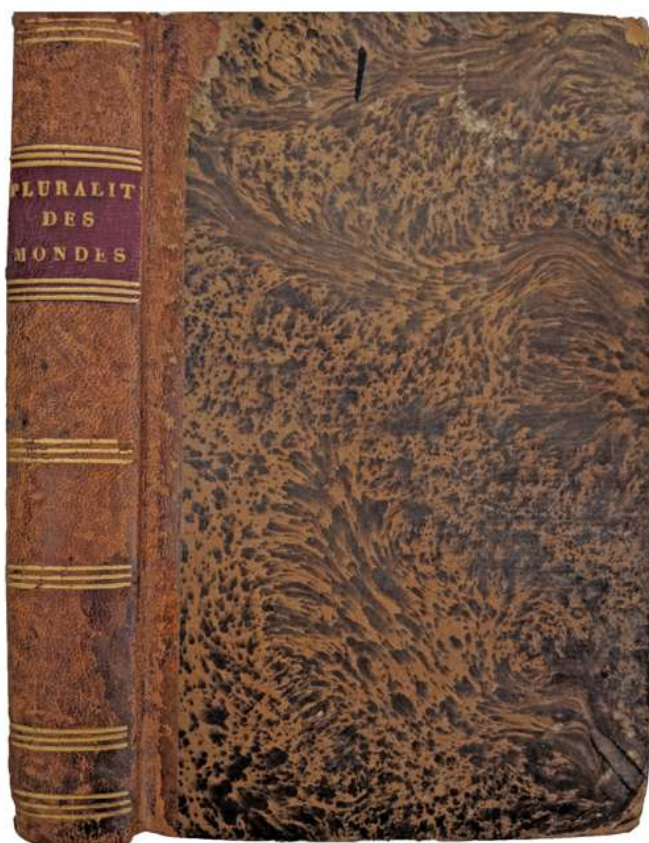
his own time his popularity as an author among educated French society was second only to Voltaire, and he was in fact “described by Voltaire as having the most universal mind produced by the era of Louis XIV” – *Britannica*.

Fontenelle’s *Dialogues of the Dead* was very popular at the time of its publication, and the basic conceit of the book is still employed by authors today. In the work, Fontenelle imagines dialogues between great minds of various eras, such as the philosophers Socrates and Montaigne or the physicians Erasistratus and William Harvey. This allows the imagined speakers to present their views in a naturalistic way, making them much more palatable to lay readers who might have difficulty sloughing through more scholarly works like *On the Motion of the Heart and Blood in Animals*.

§ ESTC T139460.

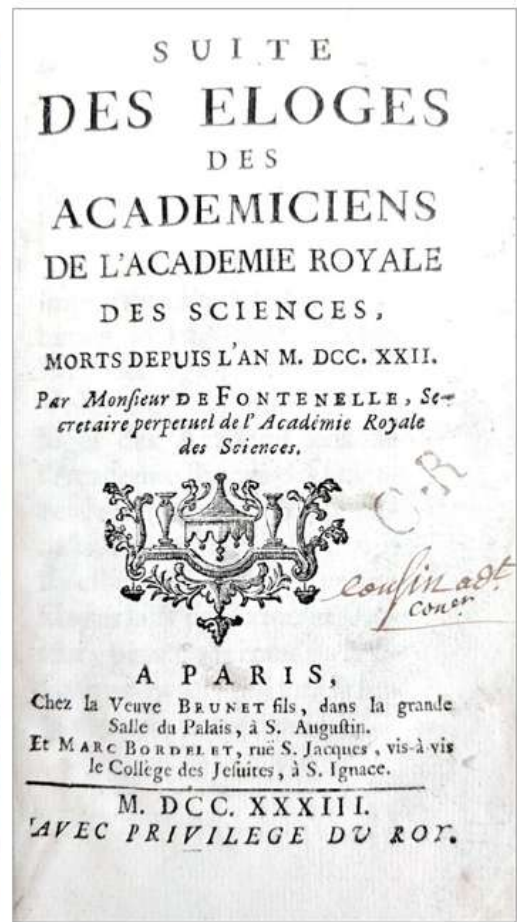
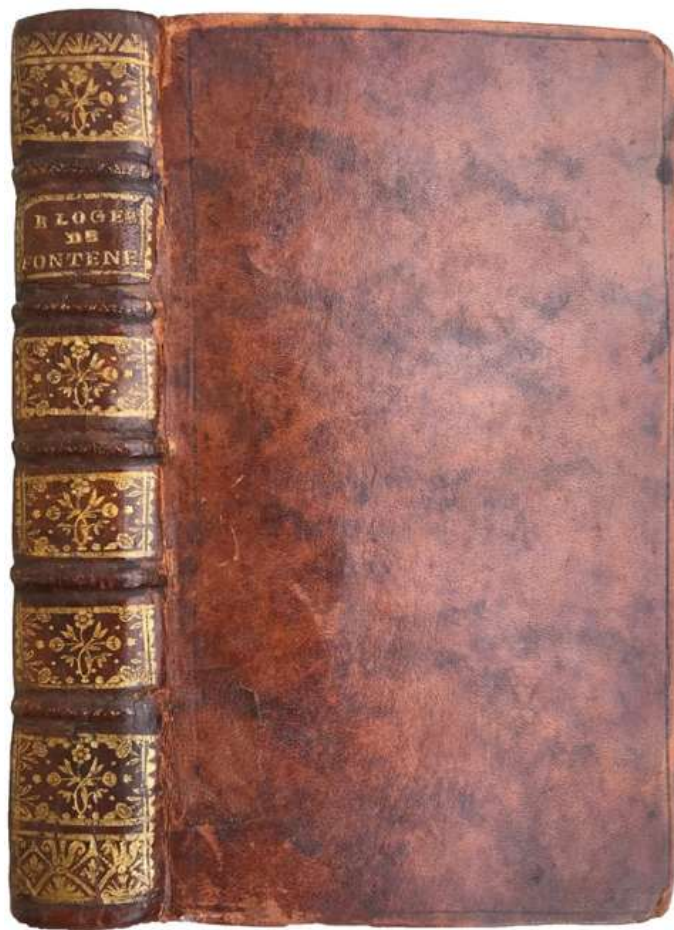


[58] FONTENELLE 1811



58. **FONTENELLE, Bernard Le Bovier** (1657-1757). *Entretiens sur la Pluralité des Mondes, Augmentés des Dialogues des Morts. Nouvelle Edition*. Paris: Bossange et Masson, 1811. ¶ Small 8vo. xiv, 392 pp. Fold-out engraved frontis. with a decorative design of the solar system including the planet “Herschell” (a.k.a. Uranus), half-title; light foxing. Original quarter tan calf, marbled boards, burgundy gilt-stamped spine label; spine head worn, corners showing. Else very good. RW1078 \$ 65





59. **FONTENELLE, Bernard Le Bovier** (1657-1757). *Suite des Eloges des Academiciens de L'Academie Royale des Sciences, morts depuis l'an M.DCC.XXII.* Paris: Chez la Veuve Brunet fils, . . . et Marc Bordelet 1733. ¶ 12mo. [viii], 422 [misnumbered "322"], [2] pp. Frontis. engraved portrait. (of Fontenelle – is trimmed, folded at the upper and lower edges), by “[Cre]py rue St. Jacques au lion d’Argent”, title woodcut vignette. Original gilt-stamped calf, gilt-stamped spine label, raised bands. Inscription on title: “O.R., lousin aet coner”[?]. Very good copy with a handsome binding. RW1080

\$ 200

“Extra-illustrated” with an added engraved bound-in folding frontispiece. This edition of the author’s eulogies includes fourteen members of the Academie des Sciences who died between 1725 and 1730. There were two issues of this work printed in 1733: one showing “Brunet fils and Marc Bordelet, the other issue showing only Marc Bordelet’s name as publisher. They also feature a resetting of the type (at least for the title-page) and a different title woodcut vignette. There was an earlier 1731 Dutch edition of the *Eloges* printed by Isaac van der Kloot, but I have been unable to determine if the biographies contained therein are the same. A note indicates this was also re-issued as miscellany works, *Oeuvres diverses*, of Fontenelle in 1736 [see pt. 4].

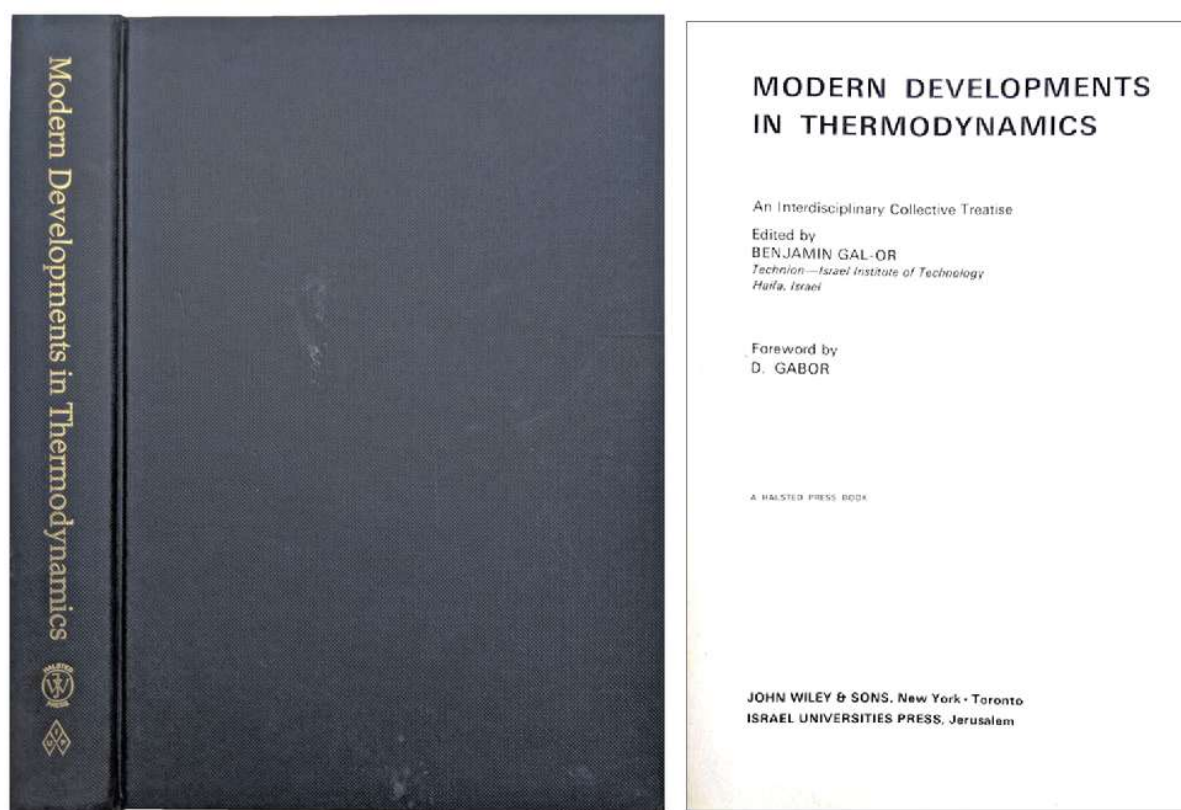
Fontenelle was a prolific biographer of notable persons, publishing also a series of *Dialogues* with famous (past) historical figures. His *Eloges* commenced with a 1699 work on Claude Bourdelin. He also issued collective editions starting in 1708. This is the first 'separate' edition of the "Suite" containing biographies of 14 scientific notables.

"It was Bernard Bovier de Fontenelle (1657-1757) who by his eulogies of scientists first bridged the gap between the scientific communities and the world at large [...] the eloges of the old Academy of Sciences acquainted laymen with a discipline that was at once esoteric by its novelty and forbidding by its terminology and methodology. Hence the eloges, aside from the other functions they performed in the service of science, also served as a public relations organ in the same manner as journals, textbooks, public lectures, literary dialogues, scientific expositions, and *cabinets de physique* and *d'histoire naturelle*" – Charles Bennett Paul, *Science and immortality: the Eloges of the Paris Academy of Sciences (1699-1791)*, Berkeley: University of California Press, 1980. (pages 1-2).

	T A B L E.
T A B L E D U C O N T E N U E N C E V O L U M E.	Carme. 254. Eloge de M. Bianchini. 278. Eloge de M. Maraldi. 316. Eloge de M. de Valincourt. 329. Eloge de M. le Comte Marfigli. 344. Eloge de M. du Verney. 374. Discours de M. de Fontenelle à l'Academie Françoisé en y recevant M. l'Evêque de Lu- çon. 398.
E Loge du Czar Pierre I. page 1. Eloge de M. Littre. 64. Eloge de M. Hartsoëker. 84. Eloge de M. Delisle. 129. Eloge de M. de Malézien. 157. Eloge de M. Neuton. 174. Eloge du Pere Reyneau. 232. Eloge de M. le Maréchal de Tallard. 243. Eloge du Pere Sebastien Truchet	

Contents: eloges du Czar Pierre I - Alexis Littre (1658-1726) – Nicolas Hartsoeker (1656-1725)- Guillaume Delisle (1675-1726) - Nicolas de Malezieu (1650-1727) – Isaac Newton [published 1727, 1728] - Charles-Rene Reyneau (1656-1728) - Marechal de Tallard (1652-1728) - Sebastien Truchet (1656-1729) – Francois Bianchini (1662-1720) – Jacques-Philippe [also known as: Giacomo Filippo. . .] Maraldi (1665-1729) - Jean-Baptiste-Henri de Valincourt (1653-1730) – Count Luigi Ferdinando Marsigli (1658-1730) – Du Verney (1648-1730) – et le discours de Fontenelle a l'Académie française recevant l'évêque de Luçon.

See: Suzanne Delorme, "Contribution a la bibliographie de Fontenelle." (p. 305). *Revue d'histoire des sciences*, Année 1957, vol. 10-4, pp. 300-309.



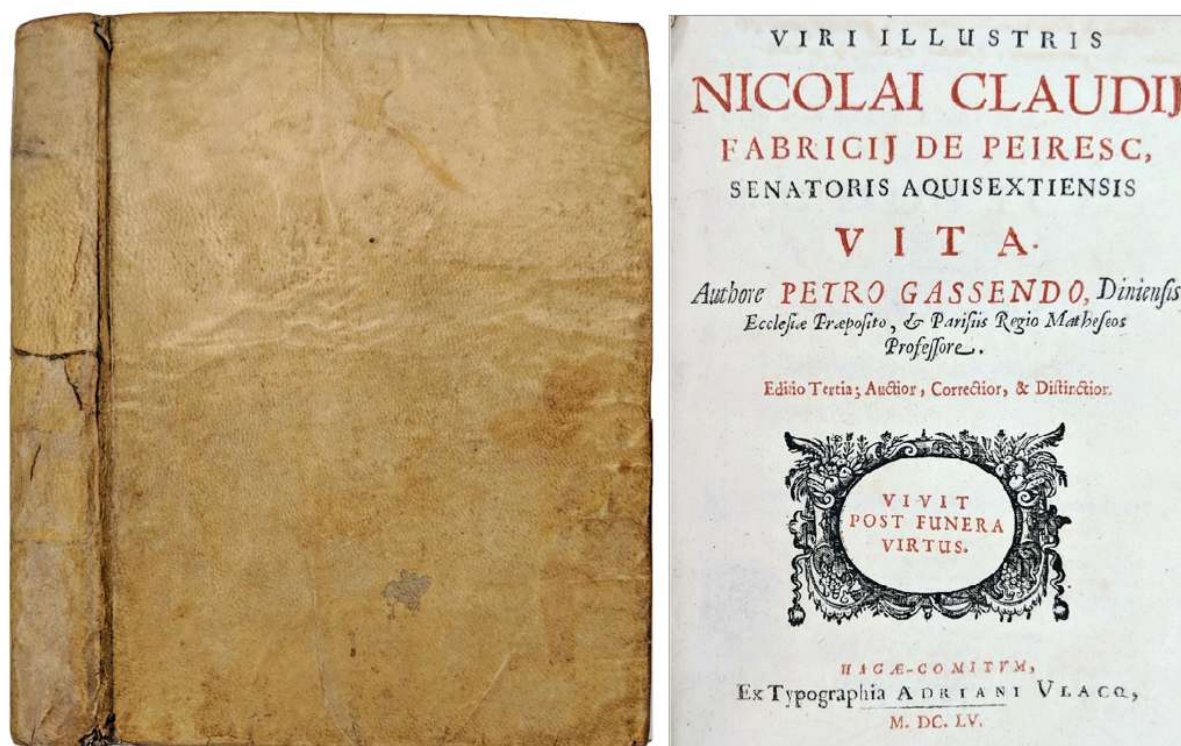
60. **GAL-OR, Benjamin** [ed.] (b. 1933). *Modern Developments in Thermodynamics; an interdisciplinary collective treatise*. New York: John Wiley, 1974. ¶ Printed in Israel. 8vo. xxvii, [1], 458 pp. Frontis. portrait, figs., index. Black gilt-stamped cloth. Very good. RW1085

\$ 20

Arranged in six parts: I: Largest to medium-scale irreversibilities: the new astrophysical school of unified thermodynamics; II: Smallest-scale irreversibility: T-violations and microscopic irreversibility in elementary particles; III: Continuum and canonical thermodynamics; IV: Classical and relativistic Thermodynamics; V:

Micro-instability and statistical mechanics; VI: Philosophical problems in thermodynamics and the theory of time.

Benjamin Gal-Or is emeritus professor in Israel's Technion Faculty of Aerospace Engineering he published several articles on thermodynamics, cosmology.

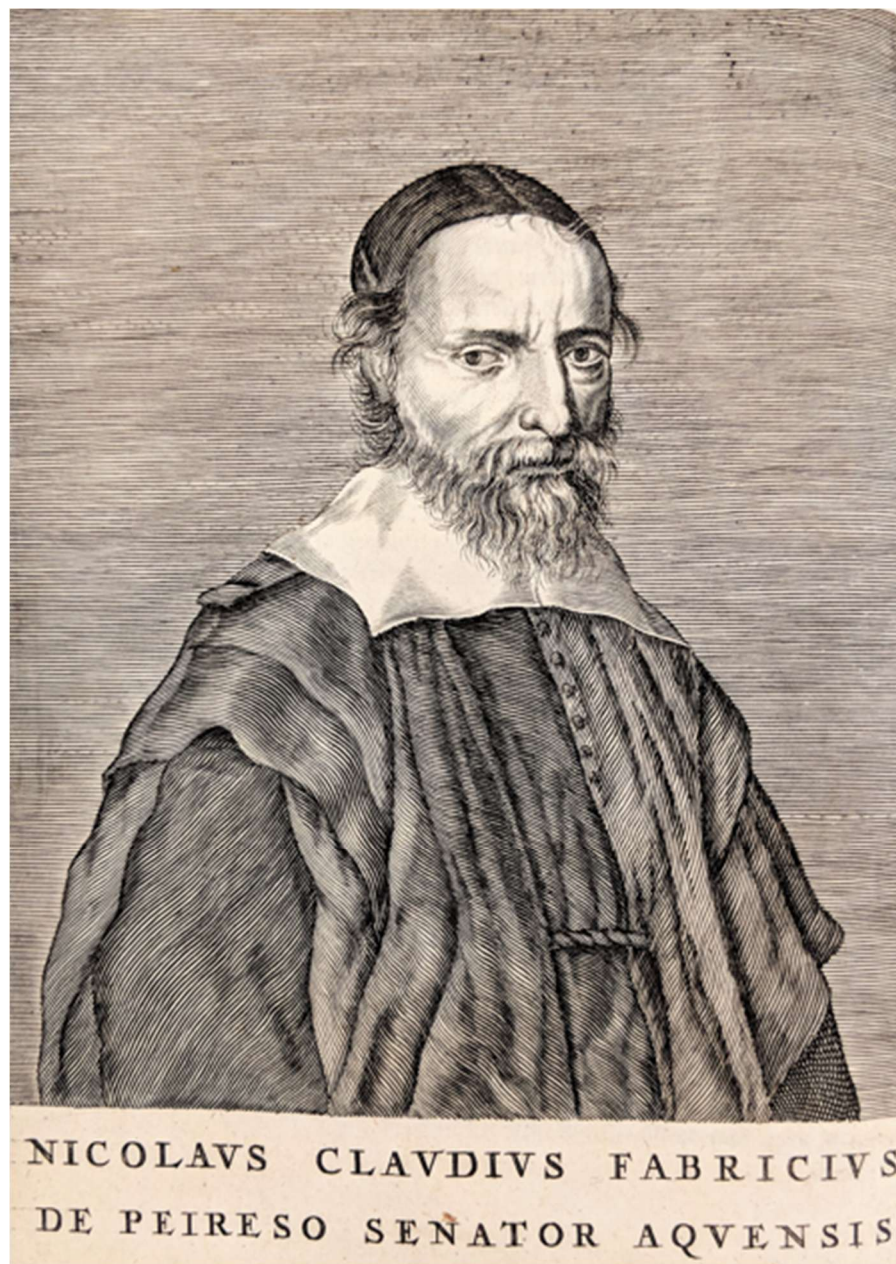


61. **GASSENDI, Pierre (Petro Gassendo)** (1592-1655). *Nicolai Claudij Fabricij de Peiresc, Senatoris Aquisextiensis Vita. . . Editio Tertia; Auctior, Correctior, & Distinctior.* The Hague: Adrian Vlacq, 1655. ¶ Sm. 4to. [viii], 300, [16] pp. Engraved frontis. portrait (facing p.1), index. Title printed in red and black. Original vellum. Early two-line ink inscription facing title, “in an old hand”, so-to-speak. Minor pencil marginalia throughout. Very good. RW1087 \$ 700

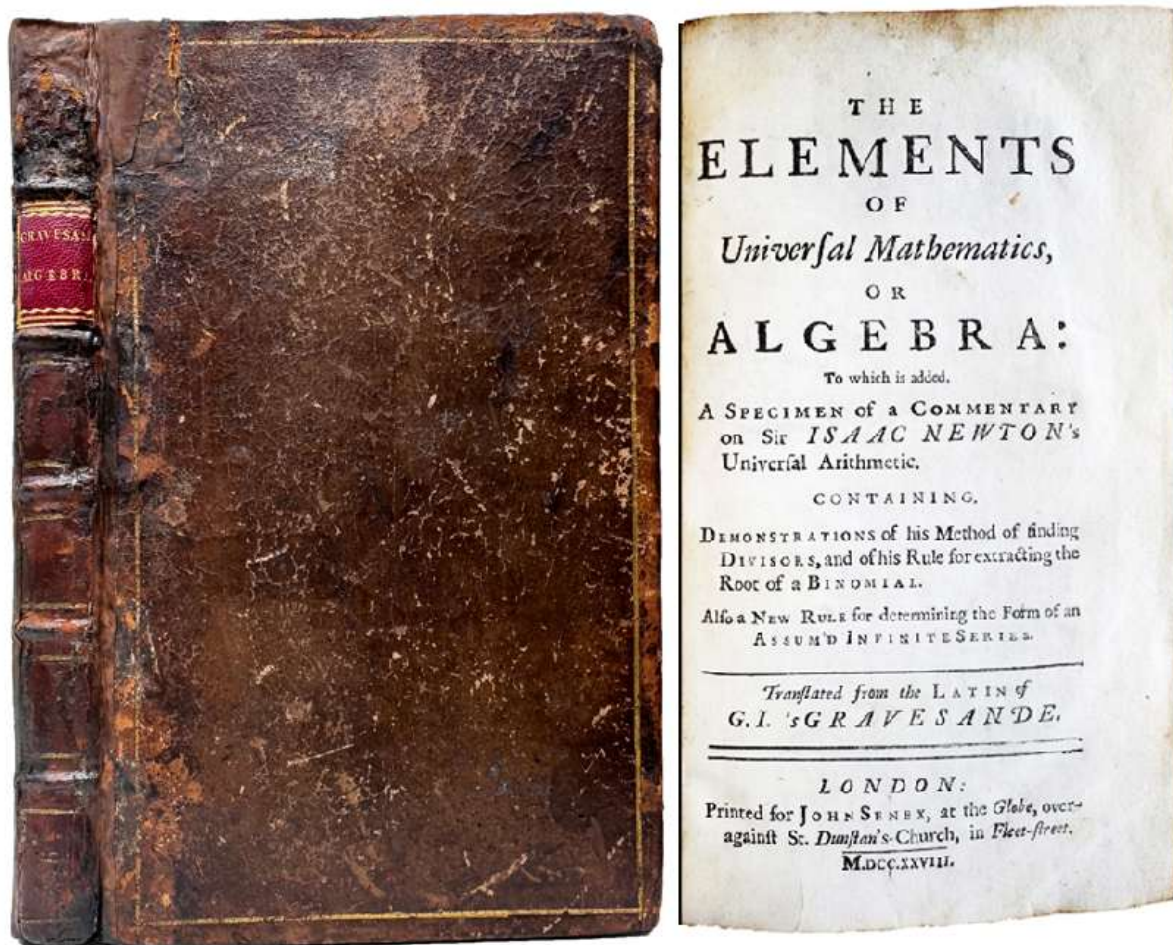
Third and most complete edition. Nicolas-Claude Fabri de Peiresc, often known simply as Peiresc, or by the Latin form of his name, Peirescius, was a French astronomer, antiquary and savant, who maintained a wide correspondence with scientists, and was a successful organizer of scientific inquiry.

A tremendously important biography of Nicolas-Claude Fabri de Peiresc by the Astronomer and biographer Pierre Gassendi, who Peiresc supported financially from 1634-1637. Peiresc was an accomplished astronomer himself, scientist politician and a brilliant collector, corresponded with Galileo and Tommaso Campanella, both of whom he defended when they were arrested by the

inquisition. “Through this book Peiresc and his work came to be known to many who had neither visited his collections and library . . . nor exchanged letters with him” – *DSB*.



An English translation, titled *The Mirrour of True Nobility and Gentility: Being the Life of the Renowned Nicolaus Claudius Fabricius, Lord of Pieresk, Senator of the Parliament at Aix*, was released in 1657. Gassendi, apart from his significant researches in the field of astronomy, wrote a number of biographies and philosophical texts, and was a frequent opponent of Descartes, with whom he disagreed on the possibility of certain knowledge.

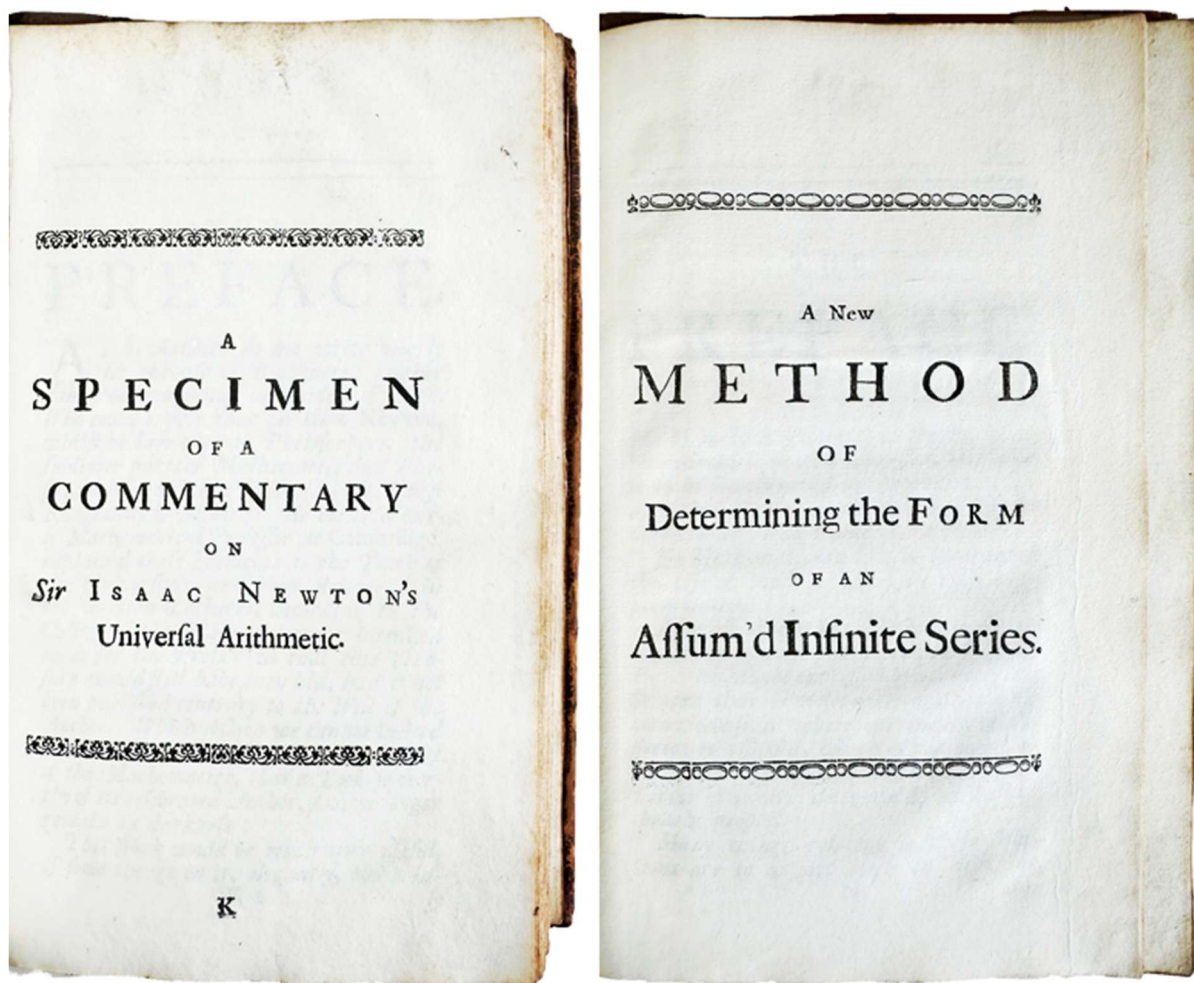


62. 's GRAVESANDE, William-James [Willem Jacob] (1688-1742). *The Elements of Universal Mathematics, or Algebra: to which is added, a specimen of a commentary on Sir Isaac Newton's Useful Arithmetic*. London: John Senex, 1728. ¶ 8vo. iv, 187, [1] pp. 4 folding plates, decorative headpieces. Original gilt-stamped calf, modern red leather gilt-stamped spine label, raised bands; spine mended, rubbed. Ownership stamp of "P.G." Very good. RARE.

\$ 750

First edition in English; first printed in Leiden in 1727, as *Matheseos universalis elementa*. The text seeks to systematically clarify Newton.

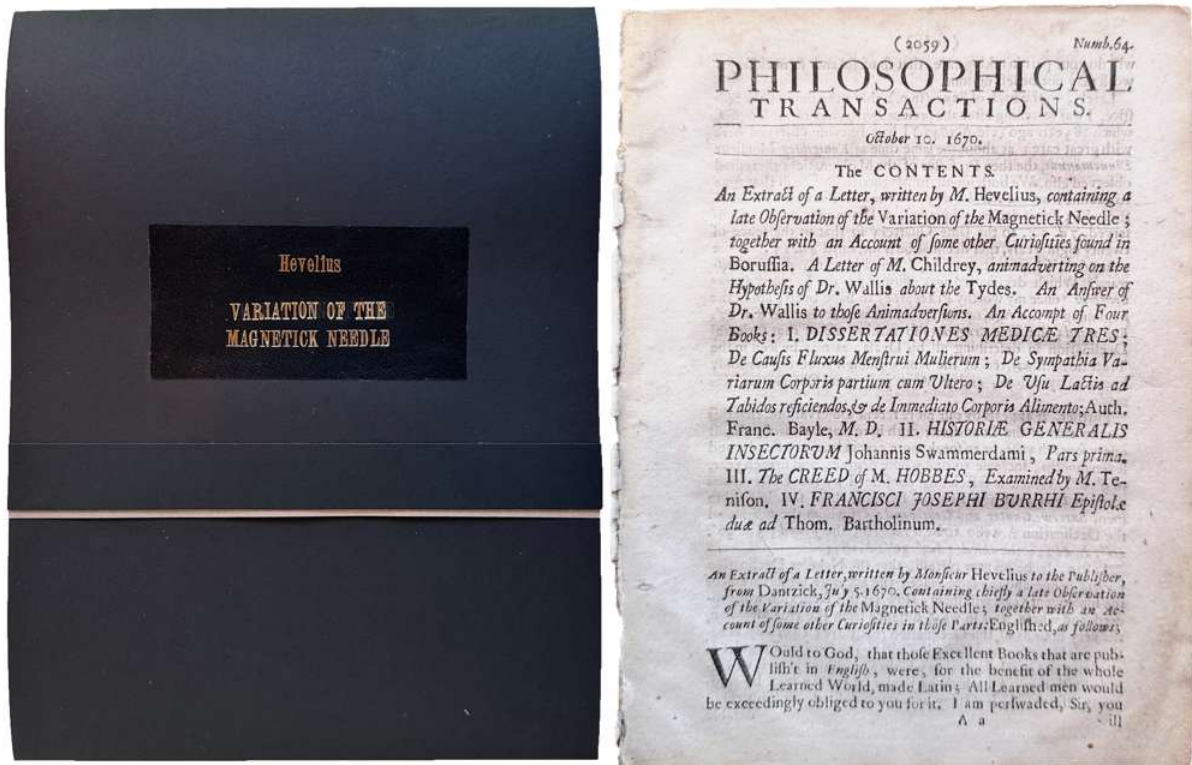
"This work, translated into Dutch (1728) and English (1752 [sic]), is of didactic rather than original merit, but it was significant for its invitation to mathematicians to elucidate systematically Newton's *Universal Arithmetick*, which 's Gravesande exemplified by his own explanation of two passages from Newton's book. 's Gravesande found the lighthearted treatment of infinitesimals and the infinite in Bernard de Fontenelle's *Elemens de la geometrie de l'infini* (Paris, 1727) unacceptable, and he maintained his objections in the *Journal litteraire* against Fontenelle's rejoinder (1730)." – *DSB* V, p. 510.



[62] 's Gravesande

Jip van Besouw, has argued that it is widely believed that 's Gravesande had met Newton, resulting in an appointment for the same at Leiden University. Rather, says van Besouw, "... 's Gravesande's appointment resulted from a very carefully built up reputation in scholarly circles rather than from accidental meetings and patronage. 's Gravesande had written several innovative papers and was in contact with both leading mathematicians and local political and patrician figures already before 1715." – The impeccable credentials of an untrained philosopher: Willem Jacob 's Gravesande's career before his Leiden professorship, 1688–1717. *Notes Rec.* (2016) 70 (3): 231–249.

§ ESTC no.: T187811; not in Babson.

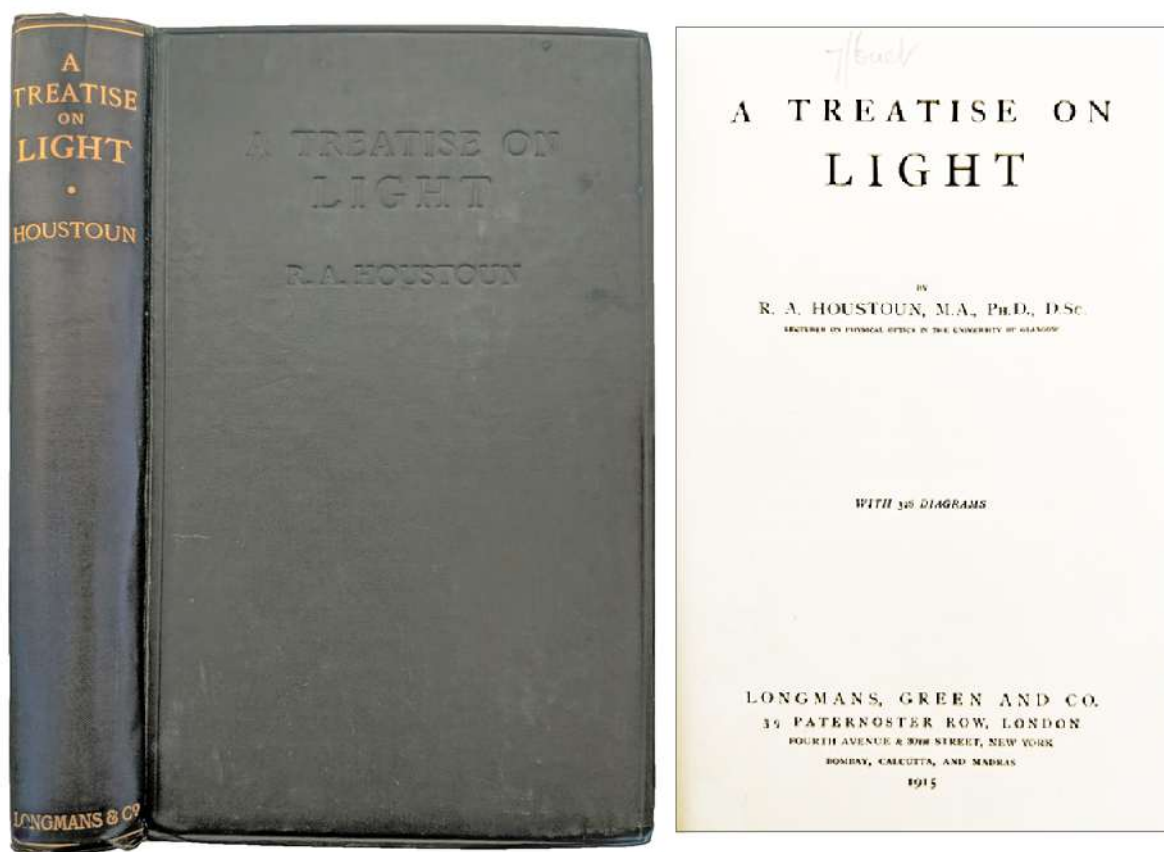


Magnetick Needle

63. **HEVELIUS, Johannes** (1611-1687). *An Extract of a Letter, written by M. Hevelius, containing a late Observation of the Variation of the Magnetick Needle; together with an Account of some other Borussia.* London: Philosophical Transactions, October 10, 1670. ¶ Series: *Philosophical Transactions*, numb. 64 [Royal Society]. Small 4to. pp. 2059-2082. Extracted. Laid within a modern folding chemise of stiff black paper stock, cover title and magnetic tab. Very good.

\$ 125

Full title: An Extract of a Letter, written by M. Hevelius, containing a late Observation of the Variation of the Magnetick Needle; together with an Account of some other Borussia. A Letter of M. Childrey, animadverting on the Hypothesis of Dr. Wallis about the Tydes. An Answer of Dr. Wallis to those Animadversions. An Account Books: I. DISSERTATIONES MEDICAE TRES: De Causis Fluxus Menstrui Mulierum; De Variorum Corporis partium cum Ultero; De Ufu Latin ad Tabidos reficiendos, & de Immediato Corporis Alimento; Auth. Franc. Bayle, M. D. II. HISTORIC INSECTORVM Johannis Swjmfnerdami, Pars prima. III. The CREED of M. HOBBS, Examined by M. Tenifon. IV. FRANCISCI JOSEPHI BVRRHI Epistolae duae Thom. Bartholinum.



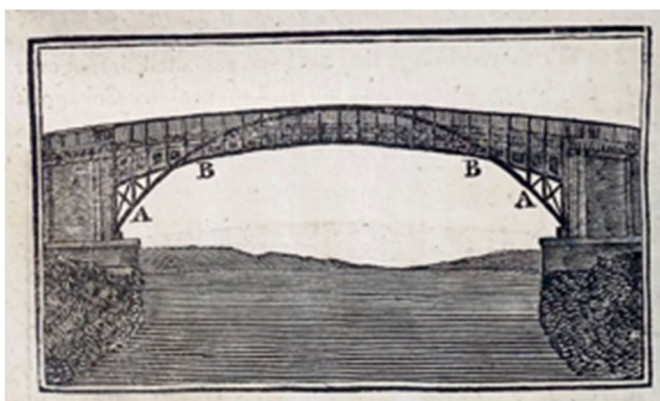
64. **HOUSTOUN, R. A. [Robert Alexander].** *A Treatise on Light*. London: Longmans, Green, 1915. ¶ 8vo. xi, [1], 478, [2] pp. 328 figs., index. Original dark green cloth, blind-stamped cover title, gilt-stamped spine title. Ownership signature of James Muir[!], 1915. Very good +. RW1485

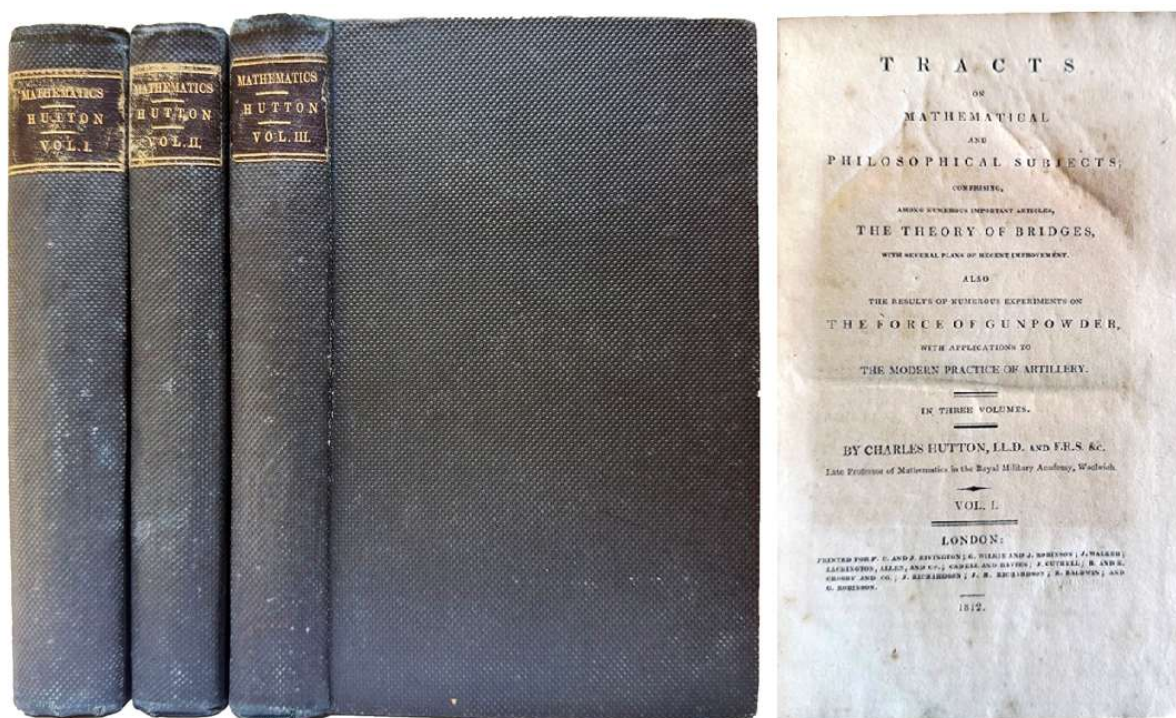
\$ 20

The author was a lecturer on physical optics at the University of Glasgow.

See: Stephen G. Brush, "How ideas became knowledge: The light-quantum hypothesis 1905–1935," *Historical Studies in the Physical and Biological Sciences*, Vol. 37, No. 2 (March 2007), pp. 205-246 (42 pages).

[65] HUTTON



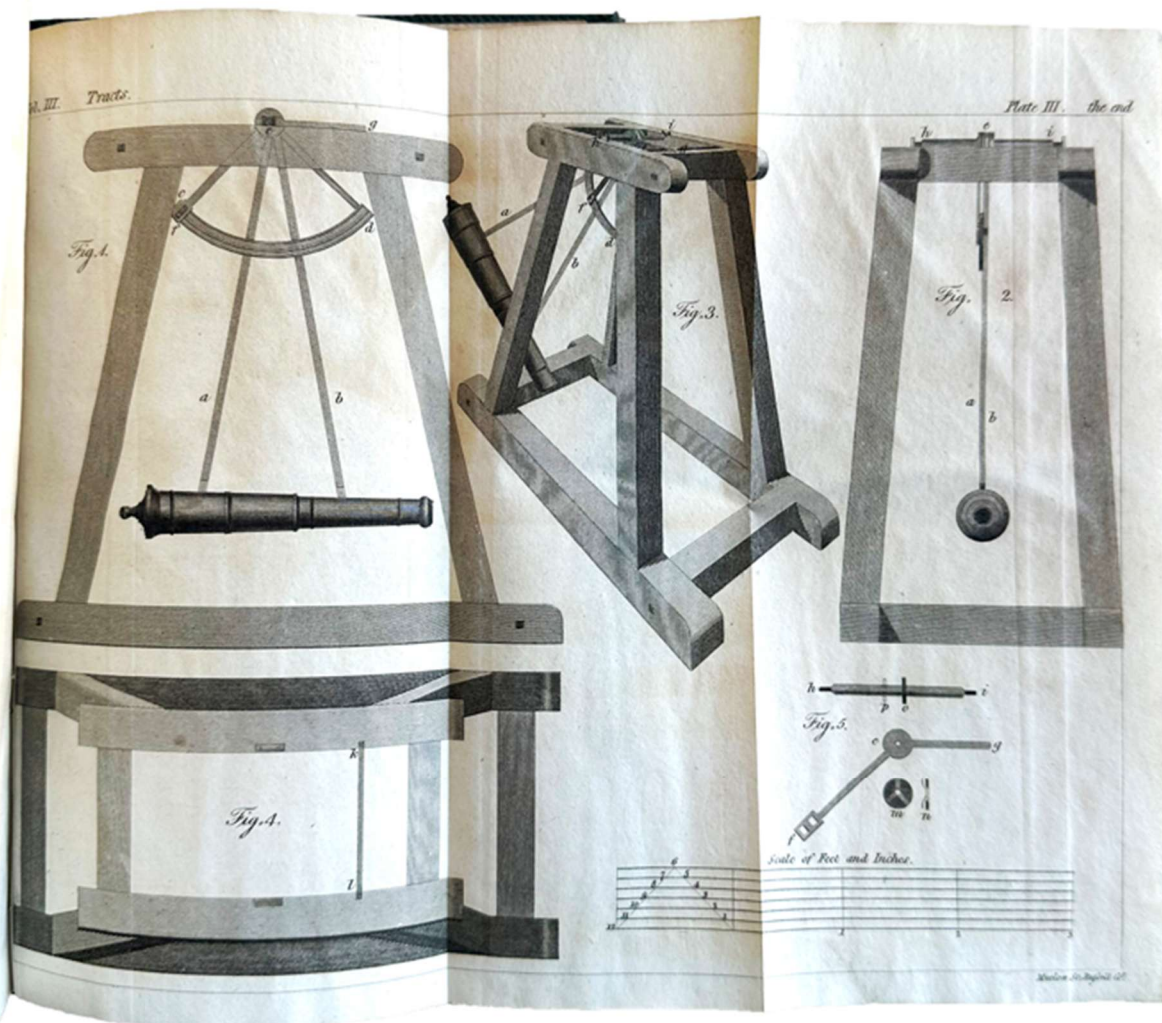


65. **HUTTON, Charles** (1737-1823). *Tracts on Mathematical and Philosophical Subjects; Comprising, among numerous important articles, the Theory of Bridges, with Several Plans of Recent Improvement. Also the Results of Numerous Experiments on the Force of Gunpowder, with Applications to the Modern Practice of Artillery.* [3 volumes]. London: F. C. and J. Rivington, 1812. ¶ 3 volumes. 8vo. x, [2], 485, [1]; [iv], 384; [iv], 383, [1] pp. 9 plates, figs., tables. Original dark green publisher's cloth, leather gilt-stamped spine labels; spine labels slightly chipped, sporadic foxing, WATERSTAINED THROUGHOUT. Ownership inscriptions of "Robert Lloyd Tilghman, Monday 24th October 1864, Easton Md." Good. RW1127

\$ 140

First edition. These volumes collect many of the writings of English mathematician and surveyor Charles Hutton, who was a prolific writer of scientific articles on a variety of subjects, mostly relating to applied mathematics.

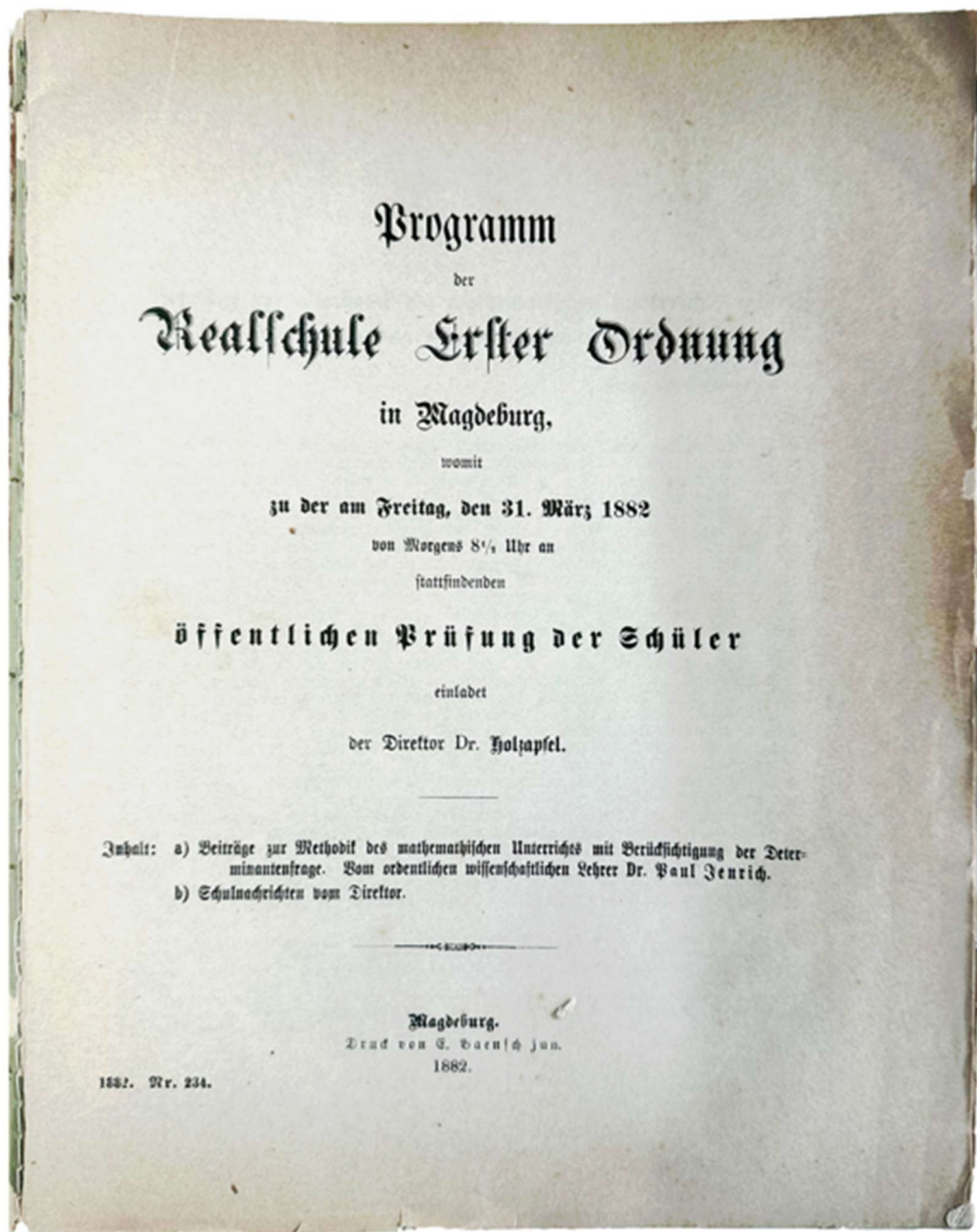
"Hutton was an indefatigable worker and his mathematical contributions, if unoriginal, were useful and practical. Throughout his life, he contributed assiduously to scientific periodicals through notes, problems, criticism, and commentary. He wrote textbooks for his pupils in Newcastle and the cadets at Woolwich; edited a great many almanacs, including the *Ladies' Diary* (1773-1818); and compiled several volumes of mathematical tables." – *DSB*.



Tracts include “The Principles of Bridges,” “Queries concerning London-bridge, proposed in the year 1746, by the Magistrates of the City,” “On the Common Sections of the Sphere and Cone,” “Determination of the Air’s Resistance to Bodies in motion, as determined by the Whirling Machine,” “On the Theory and Practice of Gunnery, as dependent on the Resistance of the Air,” “History of Algebra in all Nations,” “Calculations to ascertain the Density of the Earth.”

Robert Lloyd Tilghman
Monday 24th October 1864
Easton, Md.

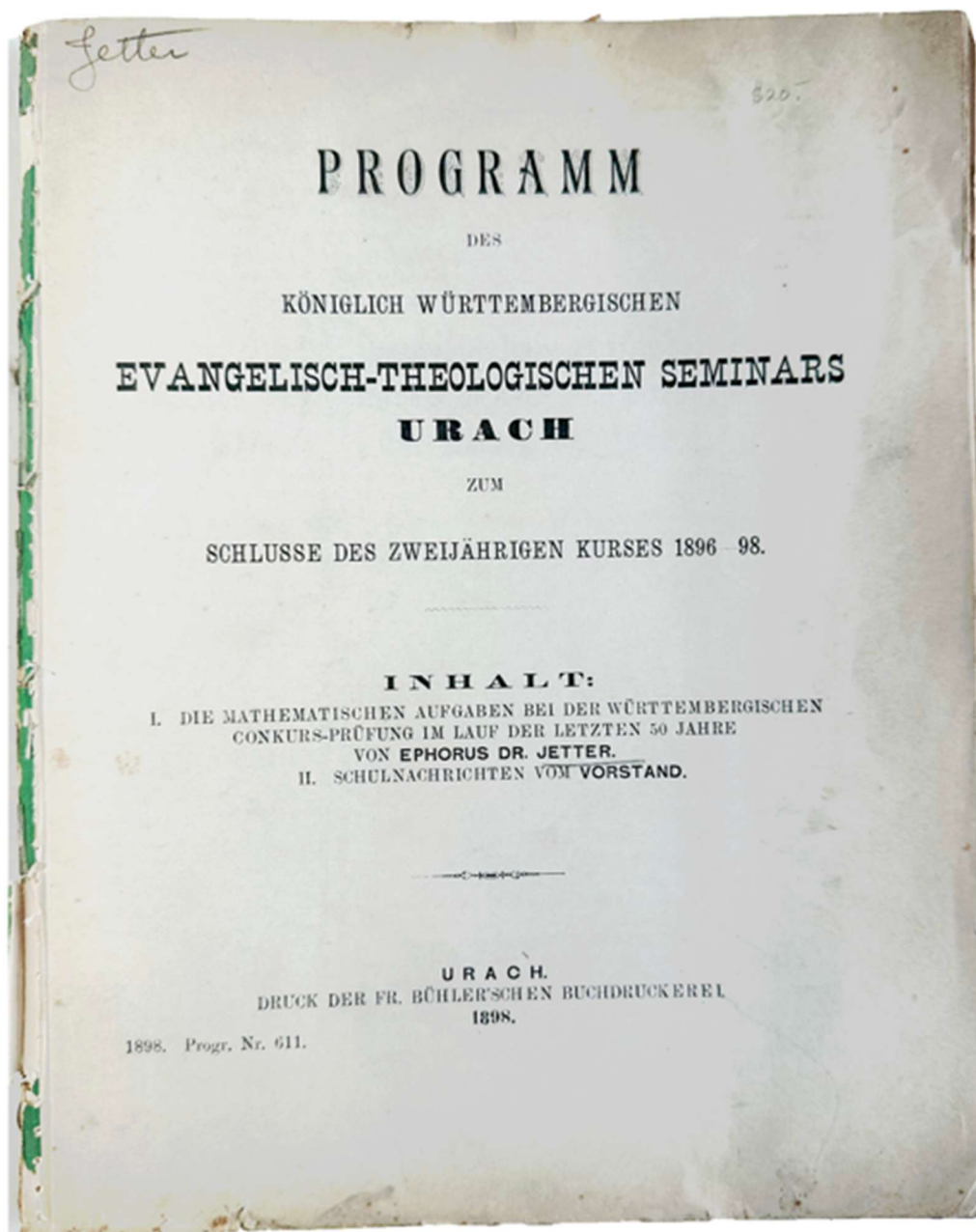
PROVENANCE: Robert Lloyd Tilghman [Jr.], was born to a very wealthy family who owned Hope House, a mansion in Talbot County, Maryland, near Easton, Md. Another part of the family-owned Ellenborough Estate which they built in 1860.



66. **JENRICH, Paul.** *Beiträge zur Methodik des mathematischen Unterrichtes mit Berücksichtigung der Determinantenfrage. with: Schulnachrichten* . . . Magdeburg: G. Baensch, 1882. ¶ 258 x 208 mm. 4to. [ii], 41, [1, blank], 14 pp. 1 fig. Original printed wrappers; top cover off. Very good. S3388

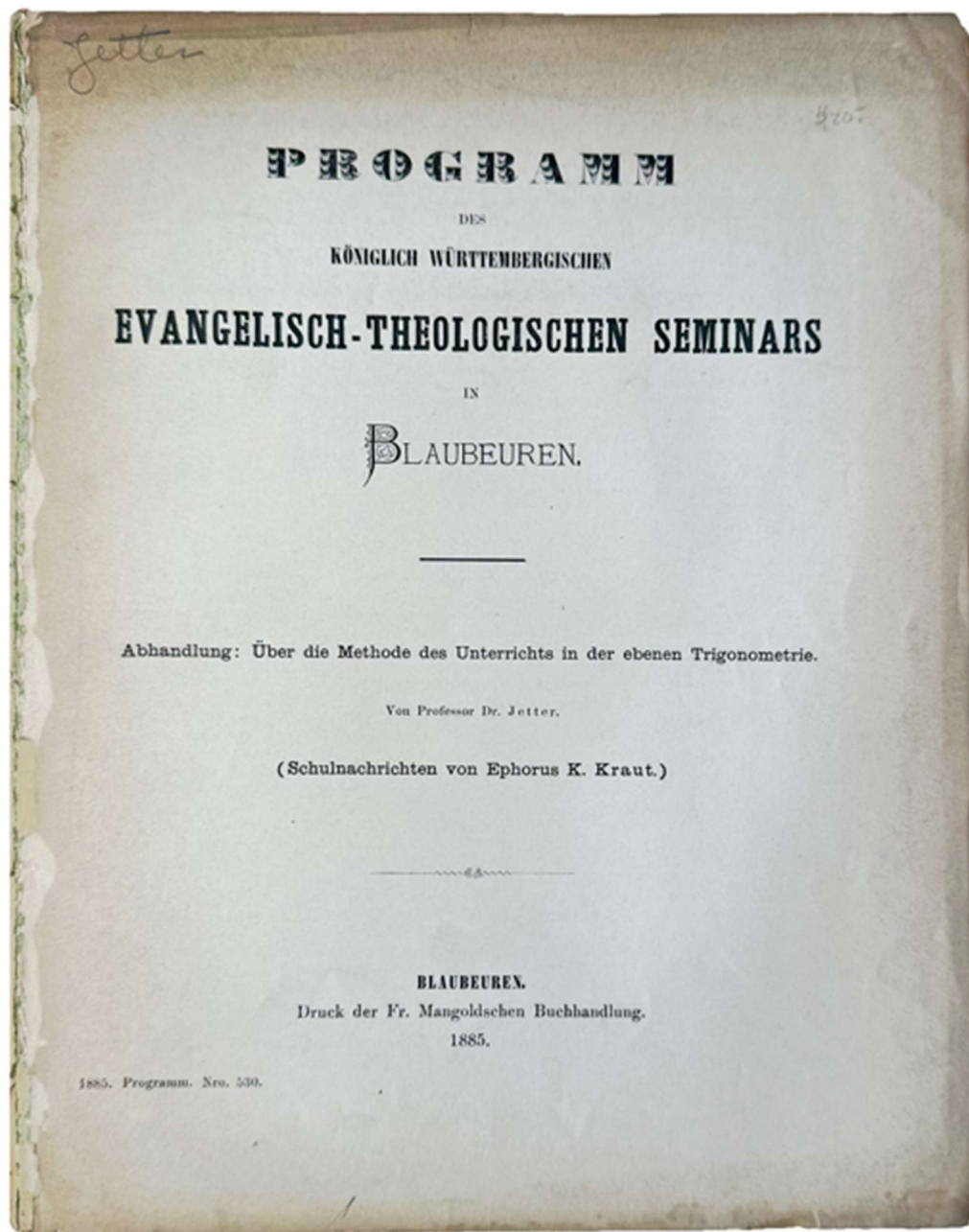
\$ 22

“Contributions to the Methodology of Mathematics Instruction with Regard to the Determinant Problem.”



67. **JETTER, Karl.** *Die mathematischen Aufgaben bei der Württembergischen Konkurs-Prüfung im Lauf der letzten 50 Jahre.* Urach: Fr. Buhler, 1898. ¶ 256 x 203 mm. 4to. [ii], 38 pp. Paper lightly toned. Self-wraps; dis-bound. Very good. S3390 \$ 20

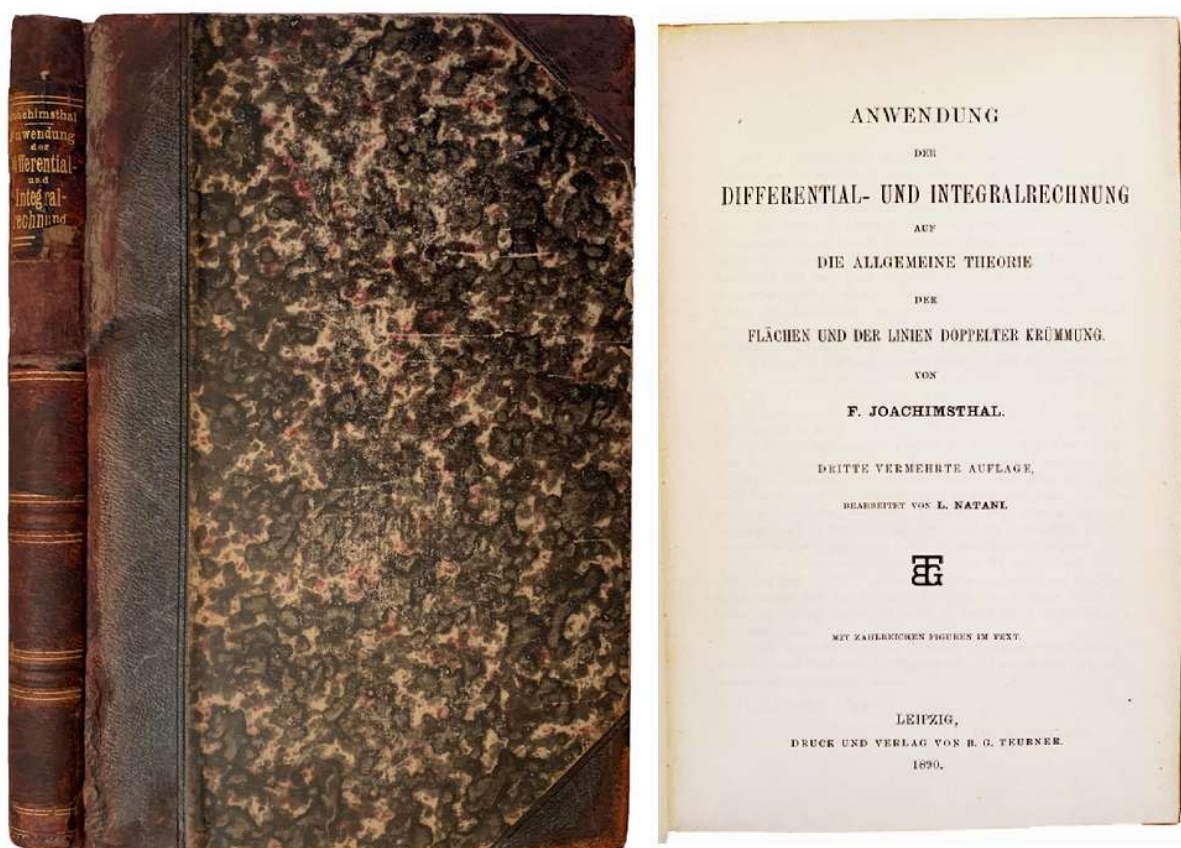
“The Math Problems on the Württemberg Entrance Exam Over the Past 50 Years.”



68. **JETTER, Karl.** *Über die Methode des Unterrichts in der ebenen Trigonometrie.*
Blaubeuren: Fr. Mangold, 1885. ¶ 257 x 202 mm. 4to. [ii], 20 pp. Self-wraps;
dis-bound. Very good. S3389

\$ 20

“On the Method of Teaching Plane Trigonometry.”



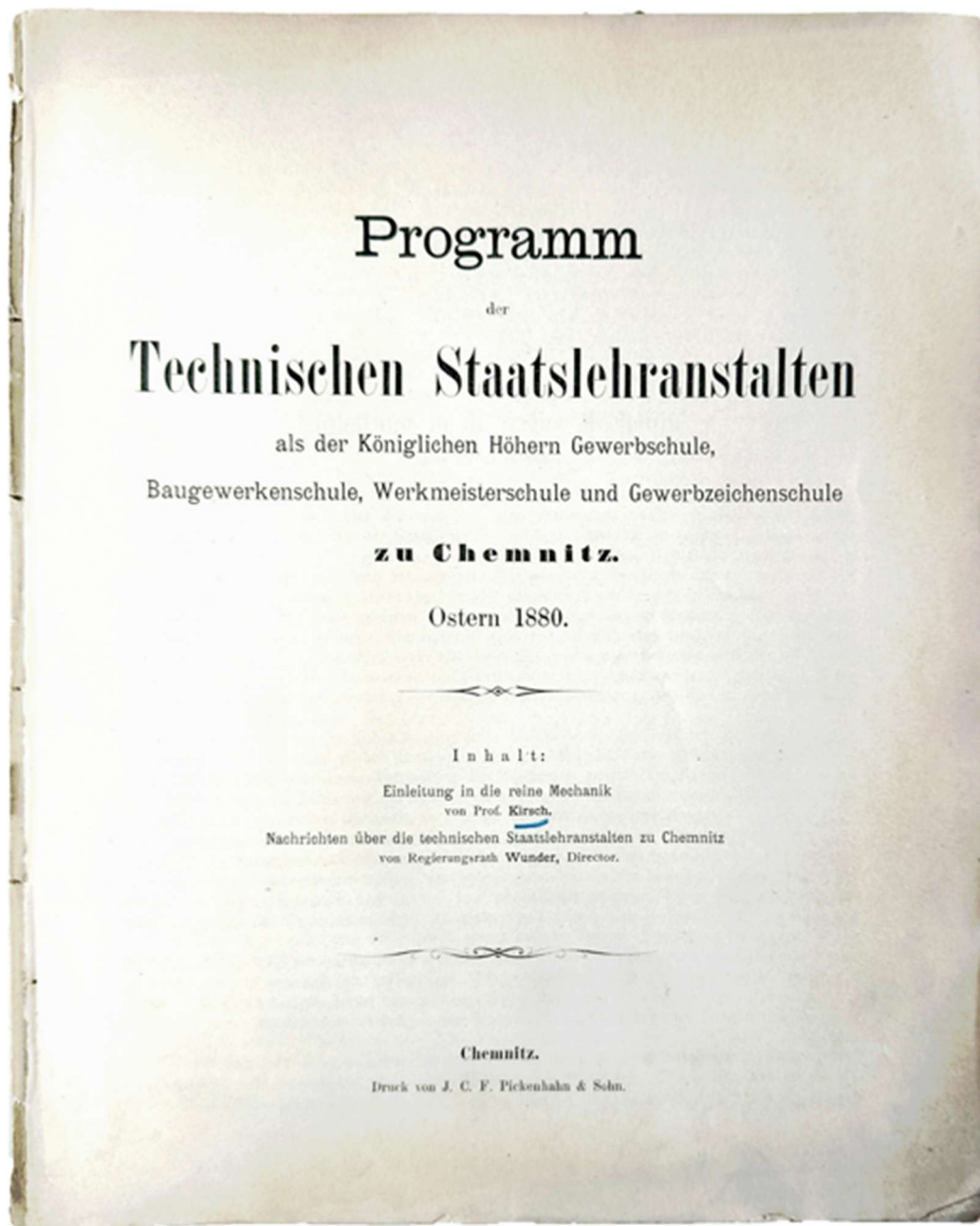
Differential and Integral Calculus

69. **JOACHIMSTHAL, Ferdinand** (1818-1861). *Anwendung der Differential- und Integralrechnung auf die Allgemeine Theorie der Flächen und der Linien doppelter Krümmung*. Leipzig: B. G. Teubner, 1890. ¶ Third edition. 8vo. x, 308 pp. Figs. Original half morocco over marbled boards, gilt-ruled spine, gilt-stamped title; spine label detached, part of spine missing, worn extremities. Previous owner's signature on front flyleaf [H.C. Mo----?]. S9021

\$ 25

The application of differential and integral calculus to the general theory of surfaces and lines of double curvature.

Joachimsthal, German mathematician, known for his work in conic sections, he was professor of mathematics at Halle (1856), and at Breslau (1858).

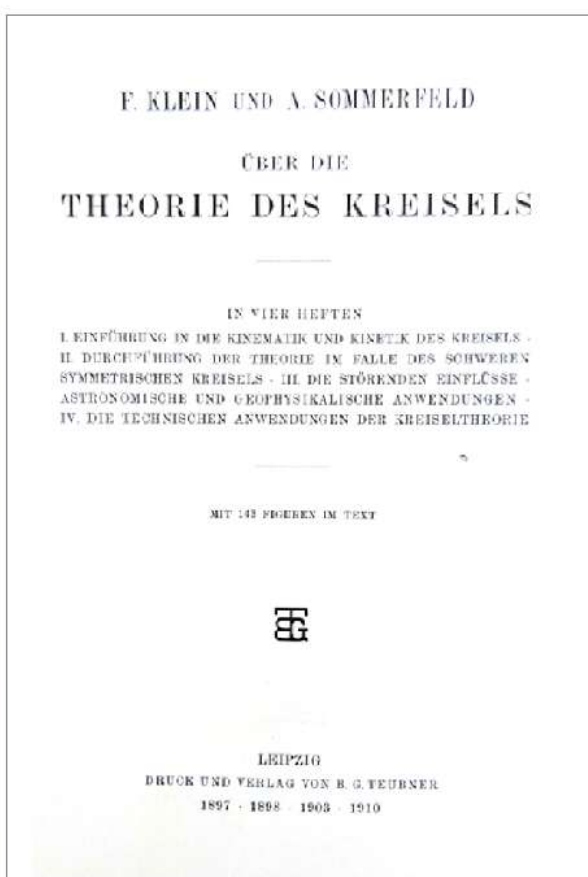
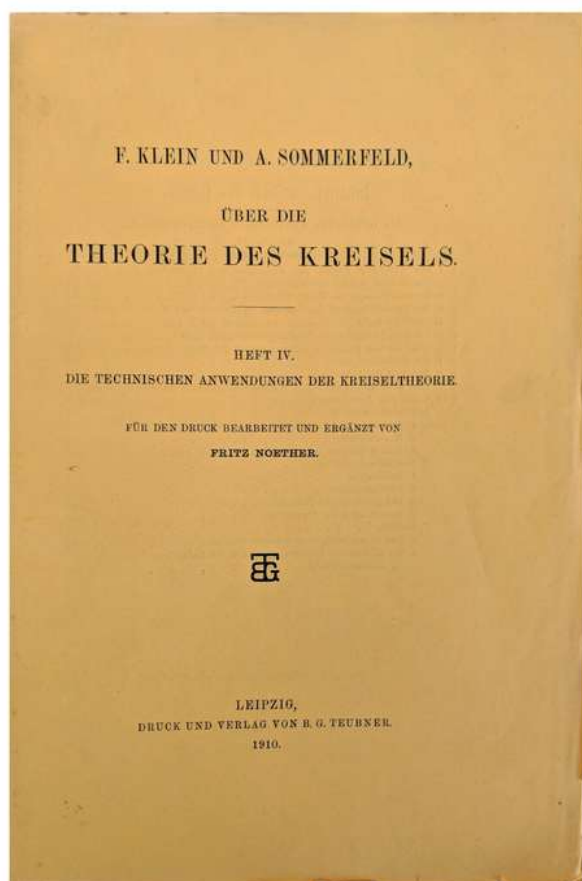


70. **KIRSCH, Ernst Gustav** (1841-1901). *Einleitung in die reine Mechanik*. Chemnitz, Germany: J. C. F. Pickenhahn & Sohn, [1880]. ¶ 4to. 69 pp. Printed wrappers (front cover off, edges very brittle). Rare. S9859

\$ 10

Introduction to Pure Mechanics.

Ernst Gustav Kirsch was a German engineer. Kirsch was educated at Sorbonne, in Zürich and in Berlin. He was a professor from 1874 at the Chemnitz University of Technology in Chemnitz, Germany.



71. **KLEIN, Felix** (1849-1925); **SOMMERFELD, Arnold** (1868-1951). *Über die Theorie des Kreisels. Heft IV. Die Technischen Anwendungen der Kreiseltheorie. Für den Druck bearbeitet und Ergänzt von Fritz Noether.* Leipzig: B. G. Teubner, 1910. ¶ 8vo. VIII, [4], [761]-966, [6] pp. 31 figs., index. Original yellow printed wrappers. Near fine. RW1145

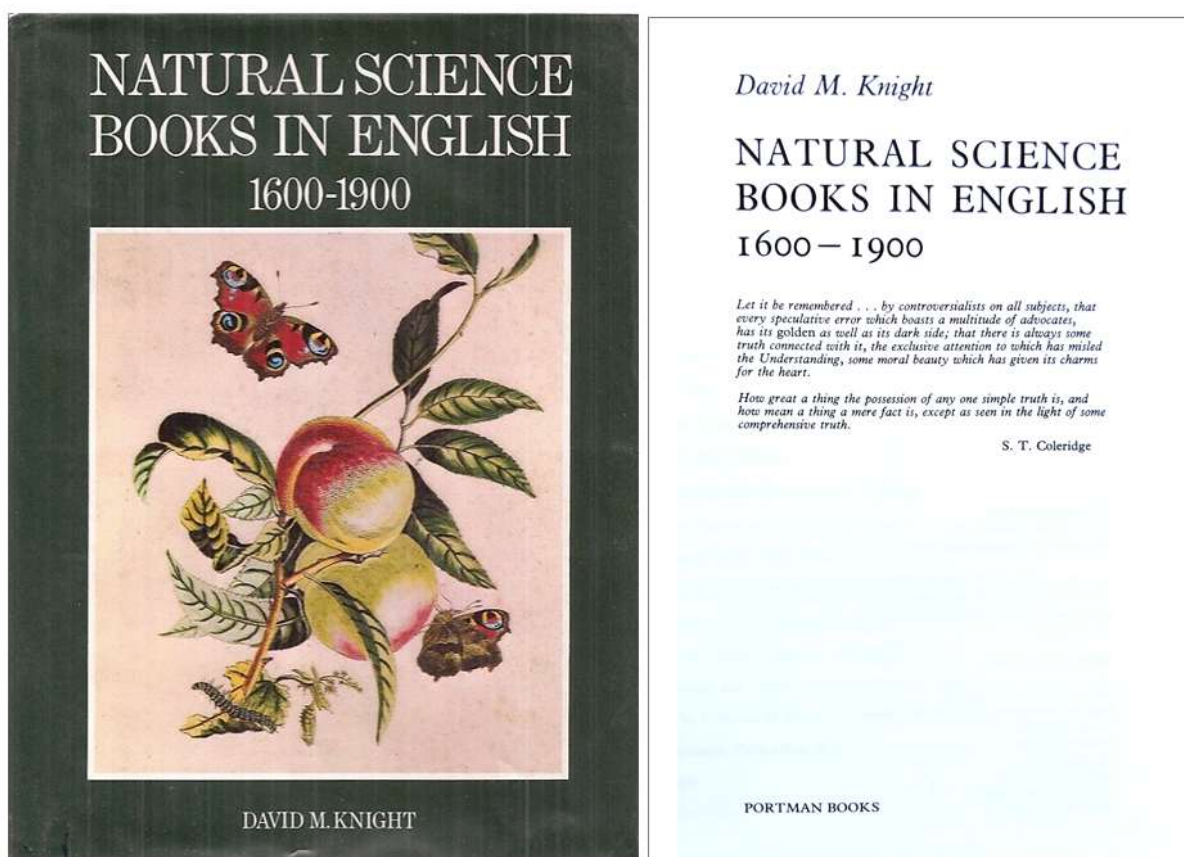
\$ 35

“On the Theory of the [gyroscopic] Top. Volume IV. Technical Applications of Top Theory.”

Klein and Sommerfeld, two of the most eminent mathematicians and physicists of their time, collaborated on this seminal work of gyroscopic theory. The fourth and final part of the complete work issued 1897-1910.

This is the first issue in original printed wrappers. It was also issued in cloth, issued separately and repaginated to 205 pages.

Felix Christian Klein was a German mathematician and mathematics educator known for uniting geometry and group theory.



72. **KNIGHT, David M.** (1936-2018). *Natural Science Books in English 1600-1900*. Essex: Portman Books, 1972. ¶ Tall 8vo. x, 262 pp. 4 color & 96 b&w illustrations, index. Green gilt-stamped cloth, dust jacket; jacket extremities slightly worn. Very good. RW1509

\$ 10

David Marcus Knight was Professor of the History and Philosophy of Science at Durham University.

See: William H Brock, "David Marcus Knight (1936-2018): An Appreciation," *Ambix*. 2019 May-Aug;66(2-3): pp.246-263.



Optics – Microscopes – Telescopes – Vision – Perspective

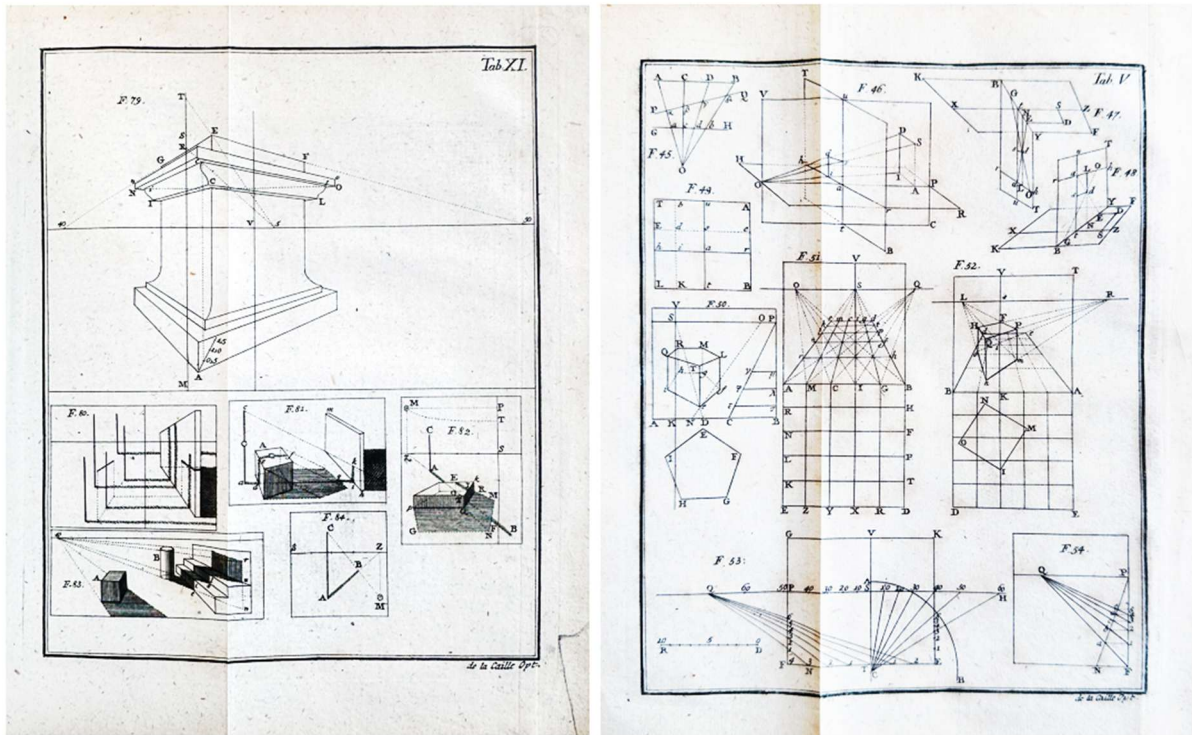
73. **LA CAILLE, Abbe Nicolas-Louis de (1713-1762); BOSCOVICH, Roger Joseph (1711-1787).** *Clarissimi viri D. De La Caille; Lectiones elementares opticae : ex editione Parisina anni MDCCLVI in latinum traductae / a C.S. e S.J. ; quibus auctarii loco accessit Brevis theoria micrometri objectivi a R.P. Rogerio Josepho Boscovich, e S.J.* Vienna: Joannis Thomae nob. de Trattnern, 1766. ¶ 4to. [viii], 150 pp. 13 folding engraved plates; title darkened, worn. Original [Viennese?] brown elaborately blind-stamped calf, all edges gilt; extremities worn, inner joints reinforced with recent white cloth. Signature of Georg Joseph Keller of Wurzburg, his manuscript notes at rear (2 ff.). Good.
RW1148

\$ 200

Second edition, translated from the French. When this copy was first bound the binder applied all gilt edges – a deluxe effort for a book of science.

“*Elementary lessons in optics* (1750), was a short but very popular textbook that was reprinted ten times, sometimes in other languages, until 1810, and is a fairly uncomplicated treatment of optics as then known, especially as applied to lenses, mirrors, eye glasses, telescopes and microscopes. Once again La Caille revealed himself to be a good Newtonian, even if classical corpuscles are no longer the whole story today.

‘Light is composed of a prodigious quantity of particles of matter or of corpuscles distinguished from each other, of infinitely small size, very elastic but with an extreme velocity so that when they arrive at the organ of our sight they hit with a force proportional to the density of corpuscles, which in virtue of the intimate union of our body with our soul, occasions in our spirit different ideas on the presence of objects from where the corpuscles or luminous atoms departed.’ – I.S. Glass, *Nicolas-Louis De La Caille, Astronomer and Geodesist*.

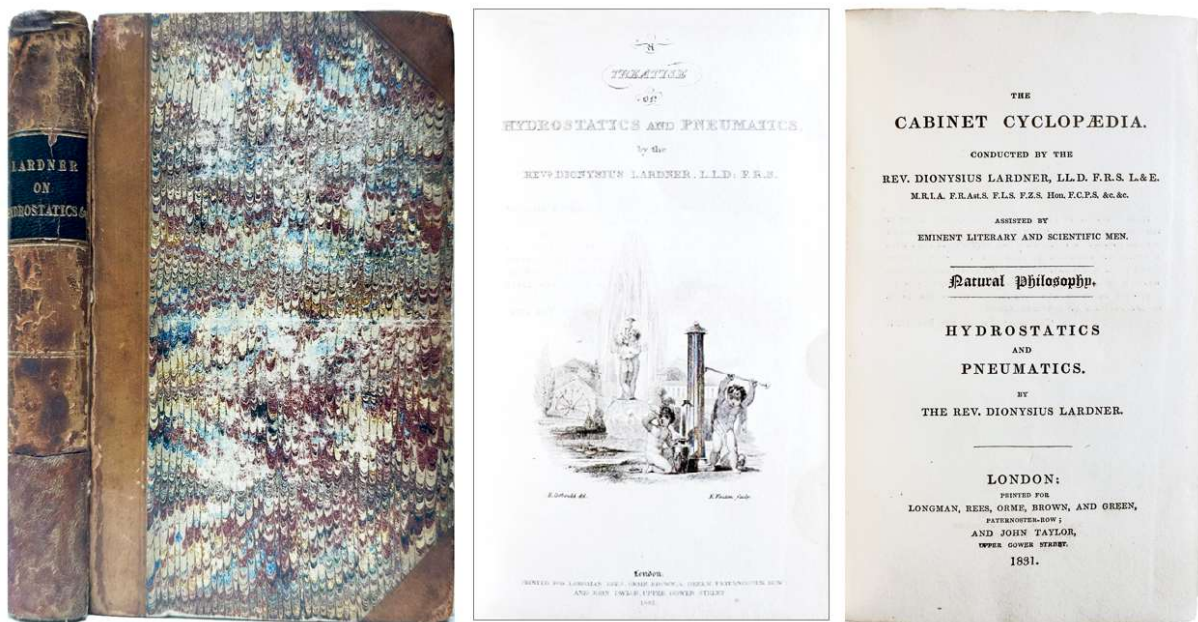


“The Abbe Lacaille was an immensely industrious observational astronomer whose career was climaxed by a scientific expedition to the Cape of Good Hope; his studies there made him “the father of southern astronomy,” and his names for fourteen southern constellations remain as his most enduring monument.” – *Dictionary of Scientific Biography*, volume VII, p. 542.

Georg Joseph Keller

PROVENANCE: Signature of Georg Joseph Keller of Wurzburg.

§ Barchas 1193, Joseph Marie Querard, VI, 639.



With 130 figures

74. **LARDNER, Dionysius** (1793-1859). *Treatise on Hydrostatics and Pneumatics*. London: Longman, Rees, Orme, Brown, and Green, 1831. ¶ Series: *Cabinet Cyclopaedia*. 2 works in 1. Sm. 8vo. viii, 353, [1] pp. Engraved title, 82 + 48 figs., index. Original gilt-stamped half calf with black calf spine label, marbled boards; front joints worn, spine section replaced. Armorial bookplate of the Earl of Harrowby. Good.

\$ 15

Lardner was an Irish scientist and economist, best known for his 133-volume *Cabinet Cyclopaedia*. Whilst he edited the complete set, he was also the author of the works on arithmetic, geometry, heat, hydrostatics and pneumatics (this work), mechanics (with Henry Kater), and electricity (with C.V. Walker). He is also remembered for his ill-conceived public arguments with Isambard Kingdom Brunel (1806-1859). The respect he garnered for his work earned him acclaim, he is even referenced in Marx's *Das Kapital*.

Phil. Trans. V. 56, for 1766, 1767

XVI. *Proposal of a Method for measuring Degrees of Longitude upon Parallels of the Æquator*, by J. Michell, B. D. F. R. S.

Read May 8, 1766. **T**HERE have been already several attempts made towards discovering the figure of the earth, by measuring the length of a degree of the meridian in different latitudes: now if these measures had been sufficiently accurate and numerous, and we could also depend upon the uniformity of the earth's surface, we might then immediately discover from them the form sought; but these measures, not agreeing exactly to any certain rule, leave us still in some degree at a loss. It is therefore much to be wished, that more measurements of degrees upon the meridian were to be made, in order to determine with greater accuracy a question of this importance.

But what would tend yet more to determine this matter, would be the measurement of degrees of longitude, as well as those of latitude. Astronomers have indeed expressed their wishes that this might be done; and though no attempt has been hitherto made towards it, yet as it is probable, that such measurements may some time or other take place, it will not be amiss to suggest a method, which will admit of more exactness than any I have seen proposed for this purpose, all of which, depending upon an observation of the time, are therefore liable to an error of fifteen seconds of a degree for every second of time; but the method, I mean to recommend, stands upon the same foundation with the

75. **MICHELL, John** (1724-1793). *Proposal of a Method for measuring Degrees of Longitude upon Parallels of the Æquator*. [with] **LIMBOURG, Joannes Philippus de**. *Observationes de Ascaridibus & Cucurbitinis, & potissimum de Taenia, tam humana quam leporina*. [London: Phil. Trans., 1766-7]. ¶ Series: *Philosophical Transactions of the Royal Society*, Vol. 56, for 1766, 1767. 4to. pp. 119-132. One folding plate. Disbound. Fine. S9052

\$ 400

FIRST EDITION. John Michell was an English natural philosopher and geologist, whose work spanned a wide range of subjects, from astronomy to geology, optics, and gravitation.

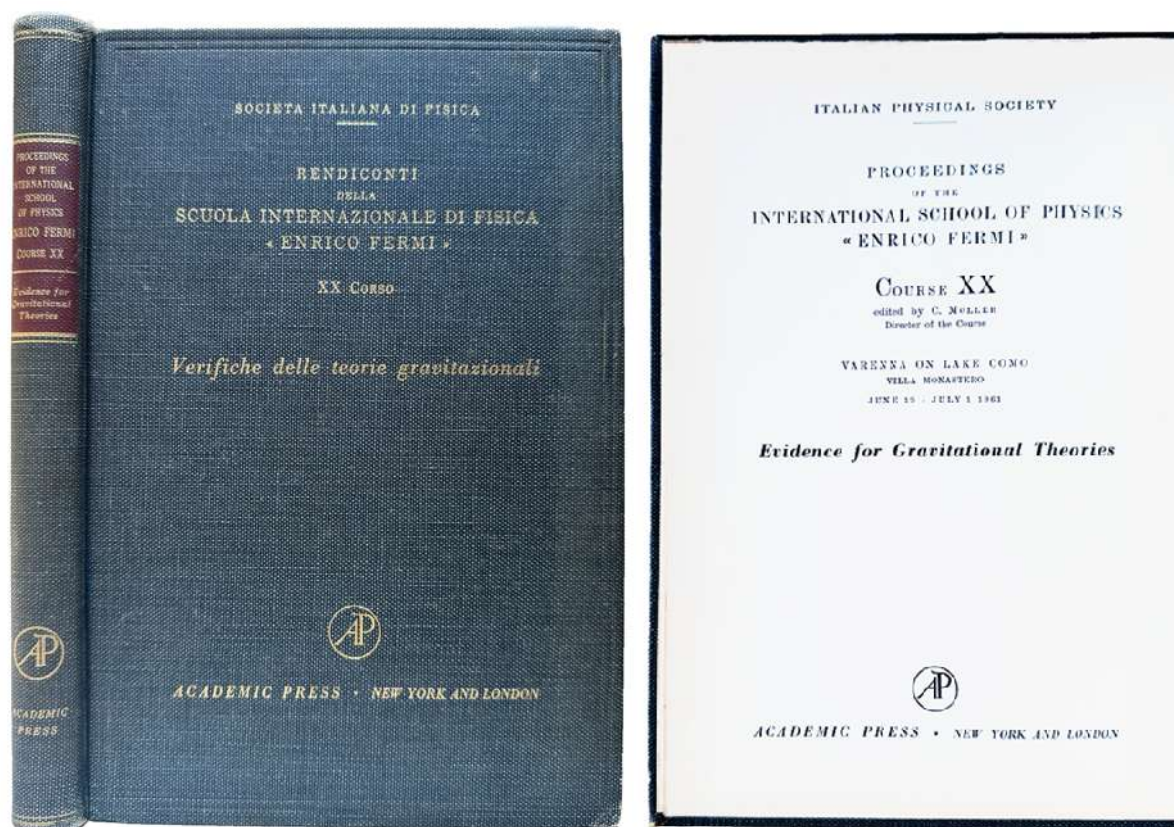
“Michell earned a permanent place in the history of stellar astronomy for two signal accomplishments: he was the first to make a realistic estimate of the distance to the stars, and he discovered the existence of physical double stars. . . Michell’s published scientific work, which earned him election to the Royal Society in 1760, covered many subjects, including the cause of earthquakes (1760), observations of the comet of January 1760, a method for measuring degrees of longitude ‘upon parallels of the Equator’ (1766), and an independent discovery with Coulomb of the torsion balance (1784).” – *DSB*.

The American Physical Society (APS) described Michell as being “so far ahead of his scientific contemporaries that his ideas languished in obscurity, until they were re-invented more than a century later”. The Society stated that while “he was one of the most brilliant and original scientists of his time, Michell remains virtually unknown today, in part because he did little to develop and promote his own path-breaking ideas”. [“This Month in Physics History: November 27, 1783: John Michell anticipates black holes”. APS Physics].

§ BM Readex Vol. 17, p. 464; *DNB* Vol. XIII, pp. 333-4; *DSB* Vol. IX, pp. 370-1.



[76] MOLLER

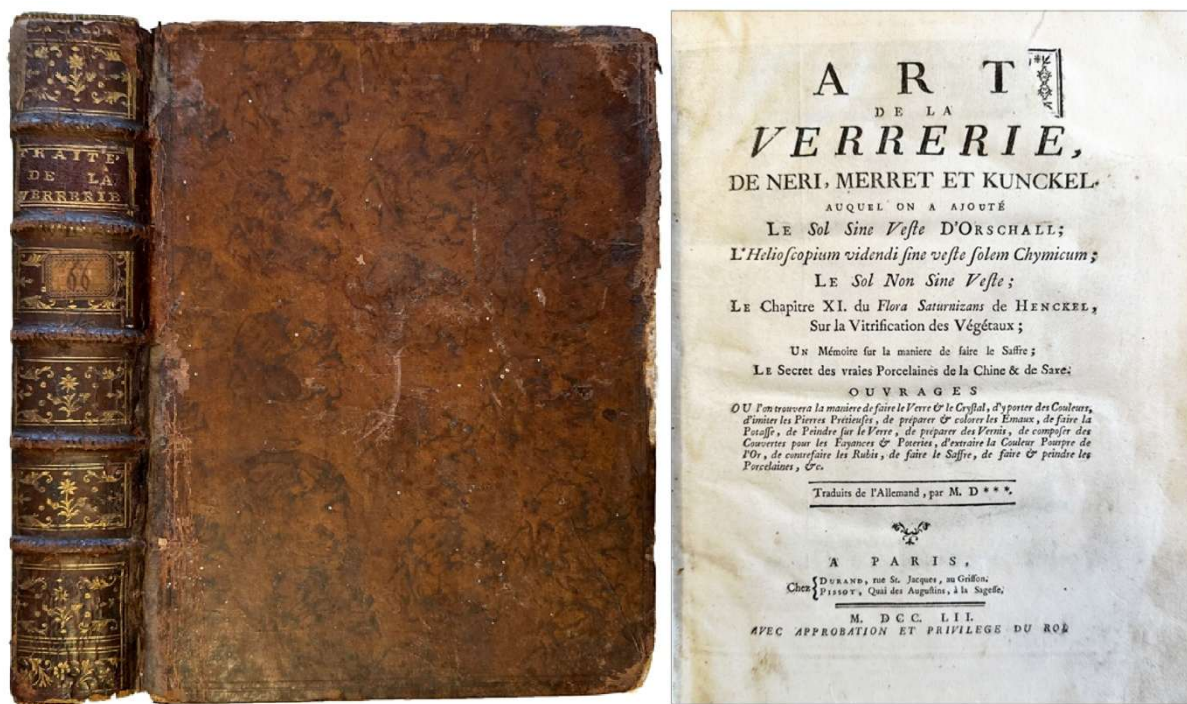


76. **MØLLER, Christian** (1904-1980) [ed.]. *Evidence for Gravitational Theories*. New York & London: Academic Press, 1962. ¶ Series: *Proceedings of the International School of Physics Enrico Fermi*, Course XX. Tall 8vo. [vi], 264 pp. Frontis. portrait, Gray blind- and gilt-stamped cloth; slightly faded. Small ownership label of Richard A. Weiss. Near fine. RW1182

\$ 30

Held at Varenna on Lake Como, Villa Monastero, June 19-July 1, 1961. Contents include: "Mach's principle and equivalence" by Robert H. Dicke (1916-1997); "Cosmological tests of gravitational theories" by Fred Hoyle (1915-2001); "Gravitational waves" by Hermann Bondi (1919-2005); "On color perception" by Hüseyin Yilmaz (1924-2013); "Tetrad fields and conservation Laws in general relativity" by Christian Møller, and others.

Christian Møller was a Danish chemist and physicist who made fundamental contributions to the theory of relativity, theory of gravitation and quantum chemistry. He is known for Møller-Plesset perturbation theory and Møller scattering.



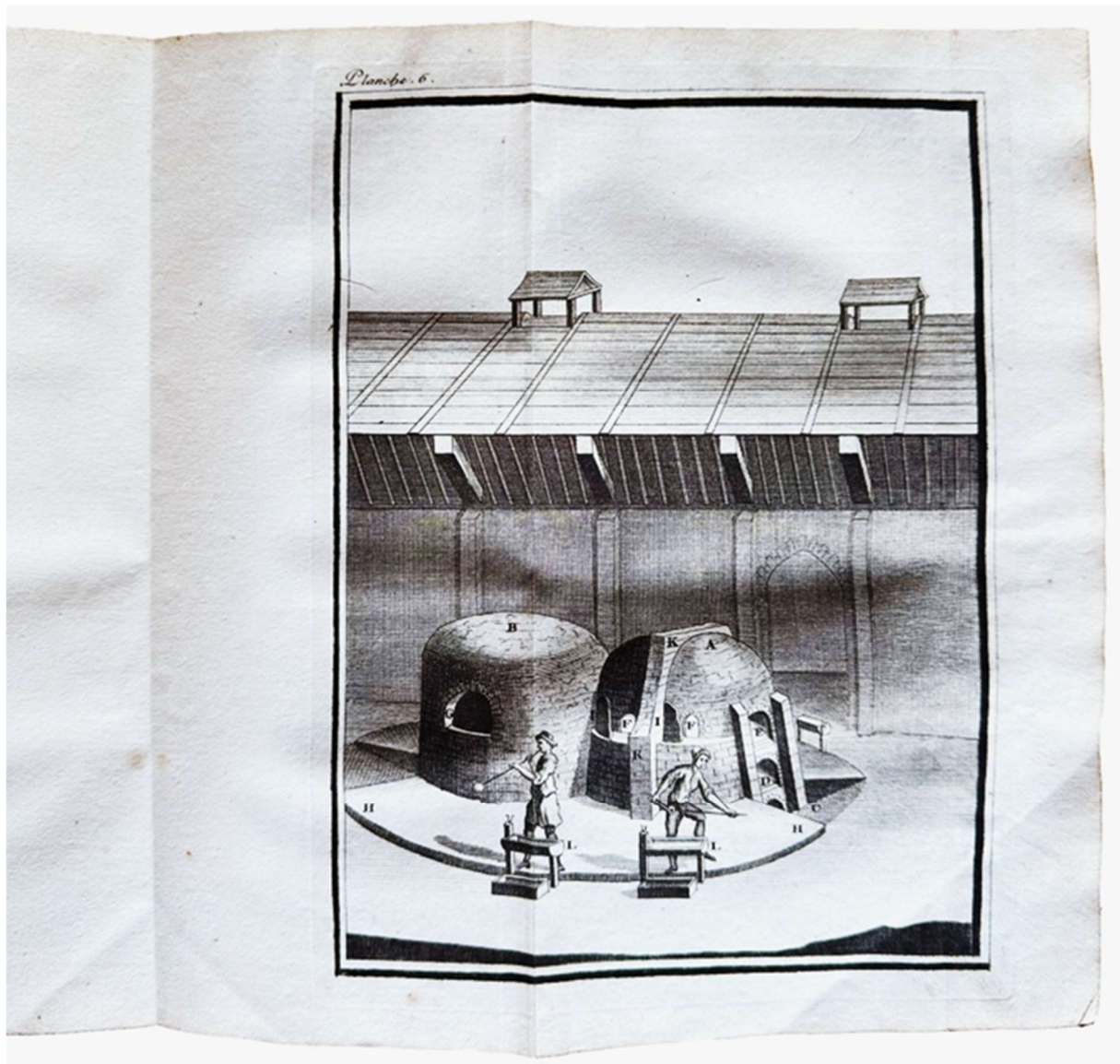
Encyclopedic Collection of Chemical Secrets of Glassmaking & Related Manufacturing

77. **NERI, Antonio** (1576-1614); **Johannes KUNCKEL**; **Johann Friedrich HENCKEL** (1678-1744); **Johann Christian ORSCHALL**. *Art de la Verrerie de Neri, Merret et Kunckel, auquel on a ajouté le 'Sol sine veste' D'Orschall; L'Helioscopium videndi sine veste solem Chymicum'; Le 'Sol Non Sine Veste'; Le Chapitre XI. du Flora Saturnizans de Henckel, Sur la Vittrification des Végétaux; Un Mémoire sur la manière de faire le Saffre; Le Secret des vraies Porcelaines de la Chine & de Saxe. Ouvrages où l'on trouvera la manière de faire le Verre et le Crystal, d'y porter des Couleurs, d'imiter les Pierres Précieuses, de préparer & colorer les Émanx, de faire la Potasse, de Peindre sur le Verre, de préparer des Vernis, de composer des Couvertes pour les Fayances & Poteries, d'extraire la Couleur Pourpre de l'Or, de contrefaire les Rubis, de faire le Saffre, de faire et peindre les Porcelaines, etc. Traduits de l'Allemand ...* Paris: Durand & Pissot, 1752. ¶ 4to. [iv], lv, 629, [3] pp. 16 engraved plates (most folding); title-page upper corner torn away (no loss of type but it is close!), several small burn marks throughout (presumed either cigarette or other source). Original mottled calf; joints very worn, extremities show considerable wear. Bookplate of Henri Mommersteeg. Good. [S14041]

\$ 300

COLLECTED WORKS, each translated from the (mostly) German or Latin, and attributed to Paul Heinrich Dietrich, Baron d'Holbach (1723-1789). The text includes five contributors to the "secrets" relating to the science of glassmaking, porcelain, crystal and the use and application of gold and colors. Kunckel

discovered a process of making Ruby glass, explained within this work (p.433+)
“and studied putrefaction, fermentation, the nature of salts, and the preparation of pure metals.” – *Encyclopaedia Britannica*.



Christopher Merret, FRS, FRCP (1614/15-1695) contributed a preface essay, he was the first Harveian librarian, also was interested in glassmaking, etc., and thus became a translator of Neri's work. Glassmaking is vital to the wine industry. Merret is credited with having recorded the earliest known use of sugar and molasses in making sparkling wines and thus champagne.

The work opens with the classic treatise by Neri (1612), a Florentine priest, who showed for first time how to make colored glass, crystal glass, etc. Merret's additions are included here (see: NERI & MERRET pp. 1-276). [Contained in 7 books, 133 chapters].



Johann von Löwenstern-Kunckel [Jean Kunckel] (ca.1630/38-1703), a German chemist, is here present with *Additions a l'Art des la Verrerie*, (pp. 277-323). After one finds Kunckel's work, *Art de la Verrerie*, in 3 parts, (pp. 325-404; 405-431; 433-470) who was an authority on glassmaking in Brandenburg, later hired by the Swedish crown, giving him a laboratory to work. He was known for making artificial ruby red glass, using Purple of Cassius. This tract is found in the *Sol Sine Veste ... pour*

tirer ;a couleur pourpre de l'or ... dans la plus grande perfection de faux Rubis ou du Verre rouge (pp. 471-525).

Johann Christian Orschall's *Ouvrages auxquels le Sol sine Veste d'Orschall a donné lieu*, (pp. 527-542). Orschall is interested in the "purple of Cassius" and gold-based glass and enamel colors. Orschall says the ruby color is only derived from magnesium and potassium nitrate. His dates are not known, but he was a German metallurgist, alchemist and mine director in the Landgraviate of Hesse-Kassel and Frankenberg (Eder). He "formulated a recipe for the production of ruby glass (golden purple). Almost at the same time, Johannes Kunckel had also carried out experiments on this subject, but Orschall published them first." [Wikip.]

Sol non sine Veste ou l'Invincibilité de l'or ... de s'en servir pour contre-faire les Rubis, en tirer la couleur pourpre, &c., Ouvrage ou l'on prouve par des expériences certaines & fondées sur la vérité, que cette couleur n'est produite que par la seule Magnésie développée par le moyen du Nitre, by Christophe Grummet [or Brummet]. (pp. 543-556).

Johann Friedrich Henckel's contribution investigates the chemical similarities between plants and minerals. [*"De la Vitrification des Vegetaux"*] (pp. 557-588). The secrets of glass blowing are explained (p.429), for china and British porcelain. There are many recipes relating to the art of glassmaking, including how to make cobalt blue (p.589, by Carl Friedrich Zimmermann (1713-1747)). The use of metals is applied to brown iron, copper, and silver. (pp. 589-600).

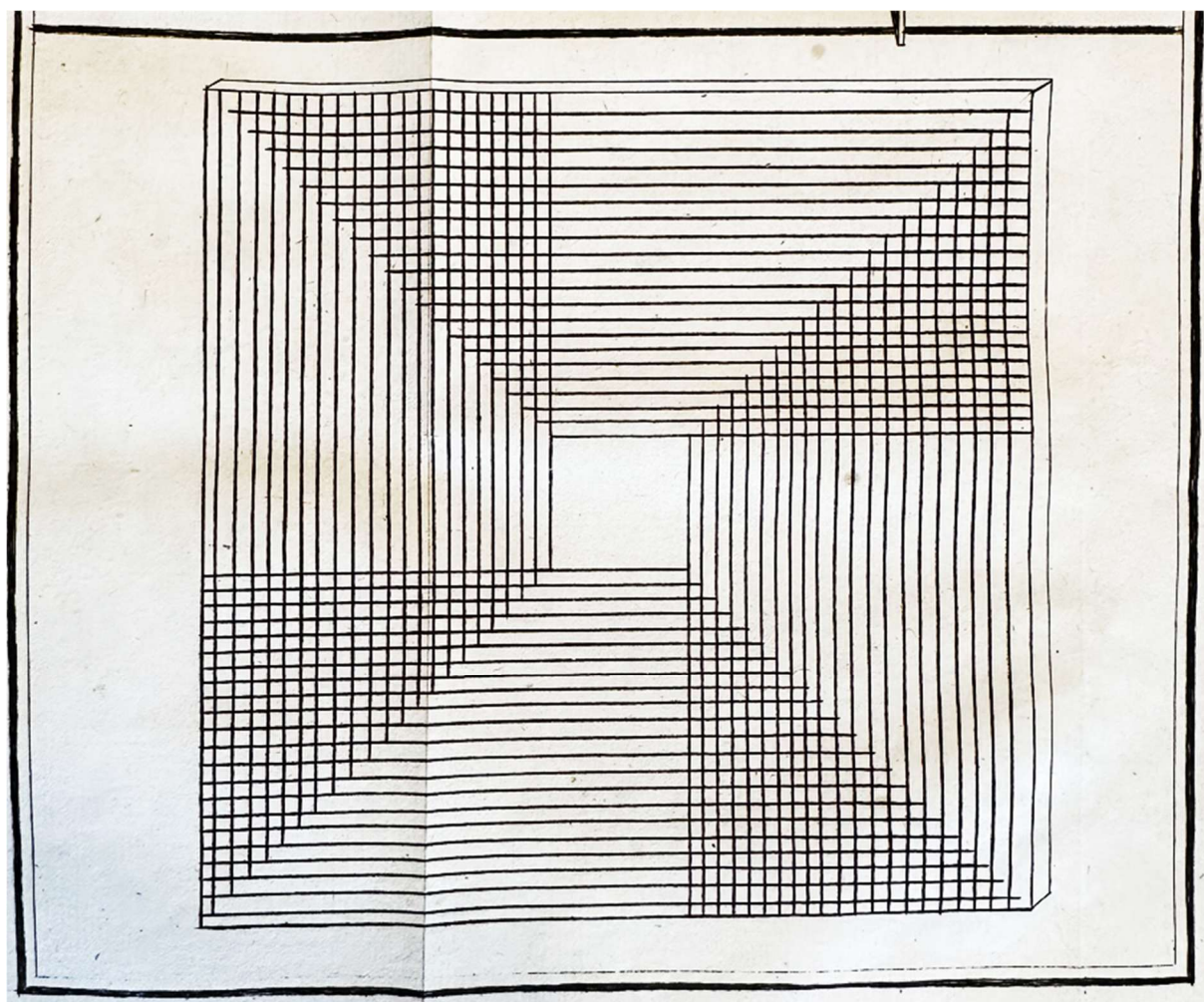
The volume ends with, « *Le Secret des vraies Porcelaines de la Chine & de Saxe.* » [The Secret of authentic Chinese & Saxon Porcelains], translated from the German into French. (pp. 601-616).

Paul Heinrich Dietrich, Baron d'Holbach (1723-1789) was a French-German encyclopedist and philosopher. He was wealthy and generous with supporting a salon fully equipped with books and wine, attracting a coterie of friends. Among these friends was Diderot and both had interests in an encyclopedia for the sciences.

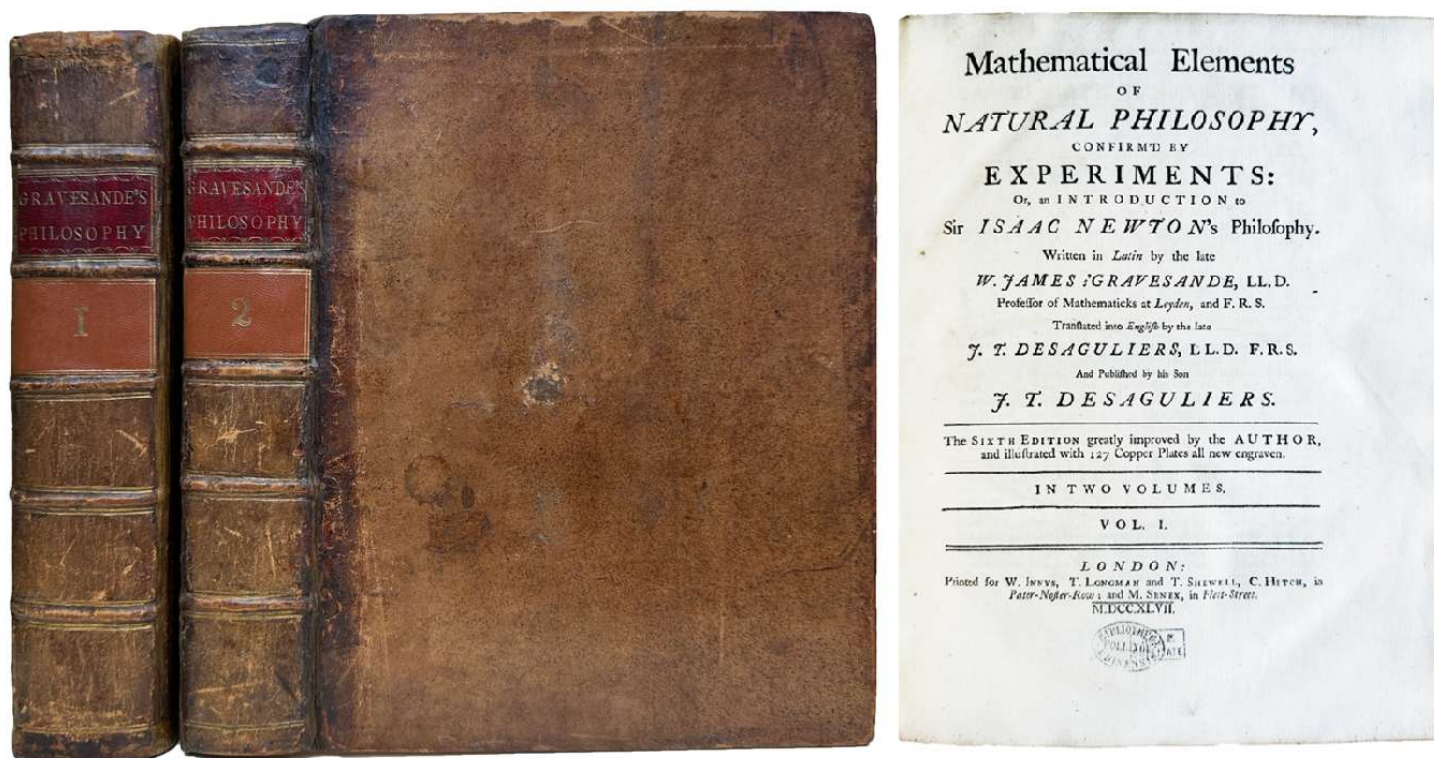


PROVENANCE: Henri Mommersteeg (1898-1969) was a noted Dutch seed manufacturer and supplier for agriculture and horticulture.

See also: William A. Cole, *Chemical literature, 1700-1860: a bibliography with annotations*, 1988; Duveen 427; L.B. Hunt, *The True Story of Purple of Cassius. The birth of gold-based glass and enamel colors*, pp. 134-139; Partington, *History of Chemistry*, 1961-70; Wellcome Library IV, p.221.



[77] NERI

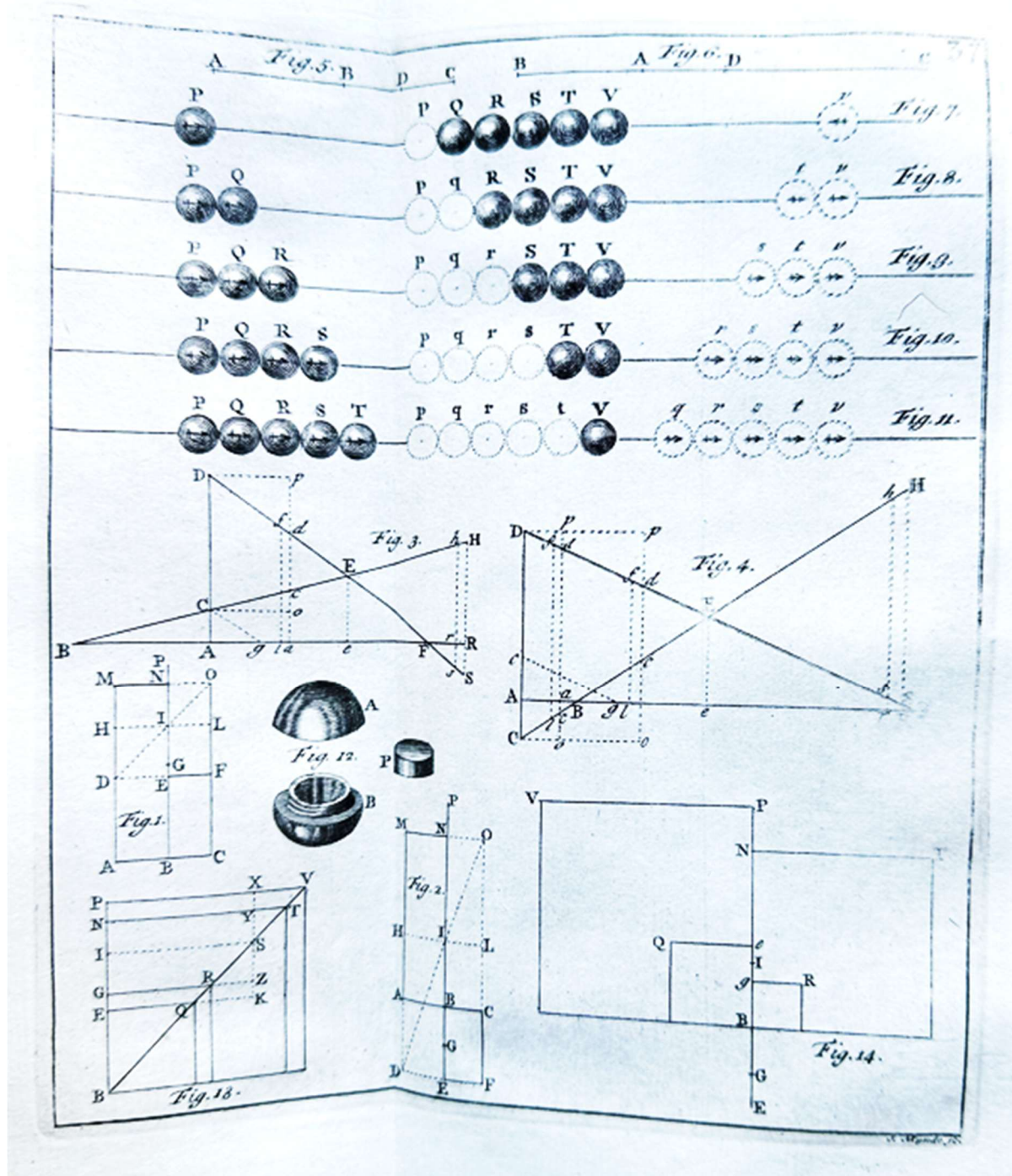


78. [NEWTON, Isaac (1643-1727)] 's GRAVESANDE, W. James [Willem Jacob van's] (1688-1742) ; John Theophilus DESAGULIERS (1683-1744). *Mathematical Elements of Natural Philosophy, confirm'd by experiments: or, an introduction to Sir Isaac Newton's philosophy. Written in Latin by the late W. James s'Gravesande [sic], . . . Translated into English by the late J. T. Desaguliers, . . . And published by his son J. T. Desaguliers.* London: Printed for W. Innys, T. Longman and T. Shewell, C. Hitch ... and M. Senex . . . , 1747. ¶ 2 volumes. 4to. [iv], lxxv, [1], 475, [1]; [ii], 389, [33] pp. 127 folding copper plates each detailing the complex laboratory instruments, tracks, and brass apparatuses of Gravesande's design. Original speckled calf; rebacked with original spine mounted, spine labels (two are original, two are modern); rubbed, inner joints reinforced. Small rubber-stamp on title of Bibliotheca Coll. Edinensis – duplicate. Very good set.

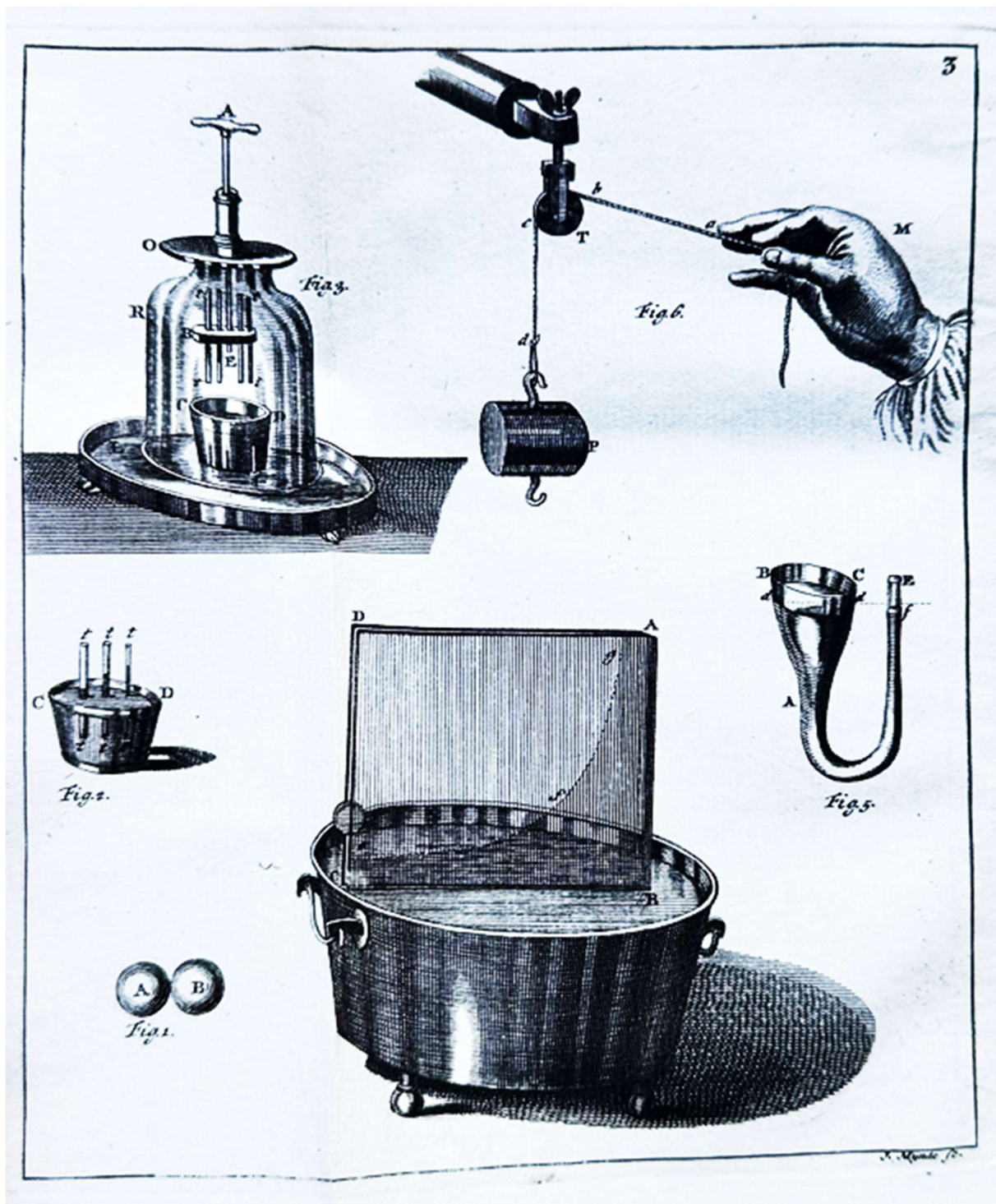
\$ 1,850

The sixth and final edition, much expanded, of 's Gravesande's extensive experimentation and instruction of Newtonian physics.

The 1747 edition holds unique historical significance as the sixth and final edition. It represents the ultimate, highly improved culmination of 's Gravesande's lifelong work to popularize Newtonian mechanics in Continental Europe through hands-on experimental demonstrations.



Willem Jacob 's Gravesande was a Dutch philosopher and mathematician. Born in 's-Hertogenbosch, he studied law in Leiden, and wrote a thesis on suicide. In 1715 he visited London and King George I. He became a member of the Royal Society. In 1717 he became professor in physics and astronomy in Leiden, and introduced the works of his friend Newton in the Netherlands. He was opposed against fatalists like Hobbes and Spinoza. In 1724 Peter the Great offered him a job in Saint Petersburg, but Willem Jacob did not accept.



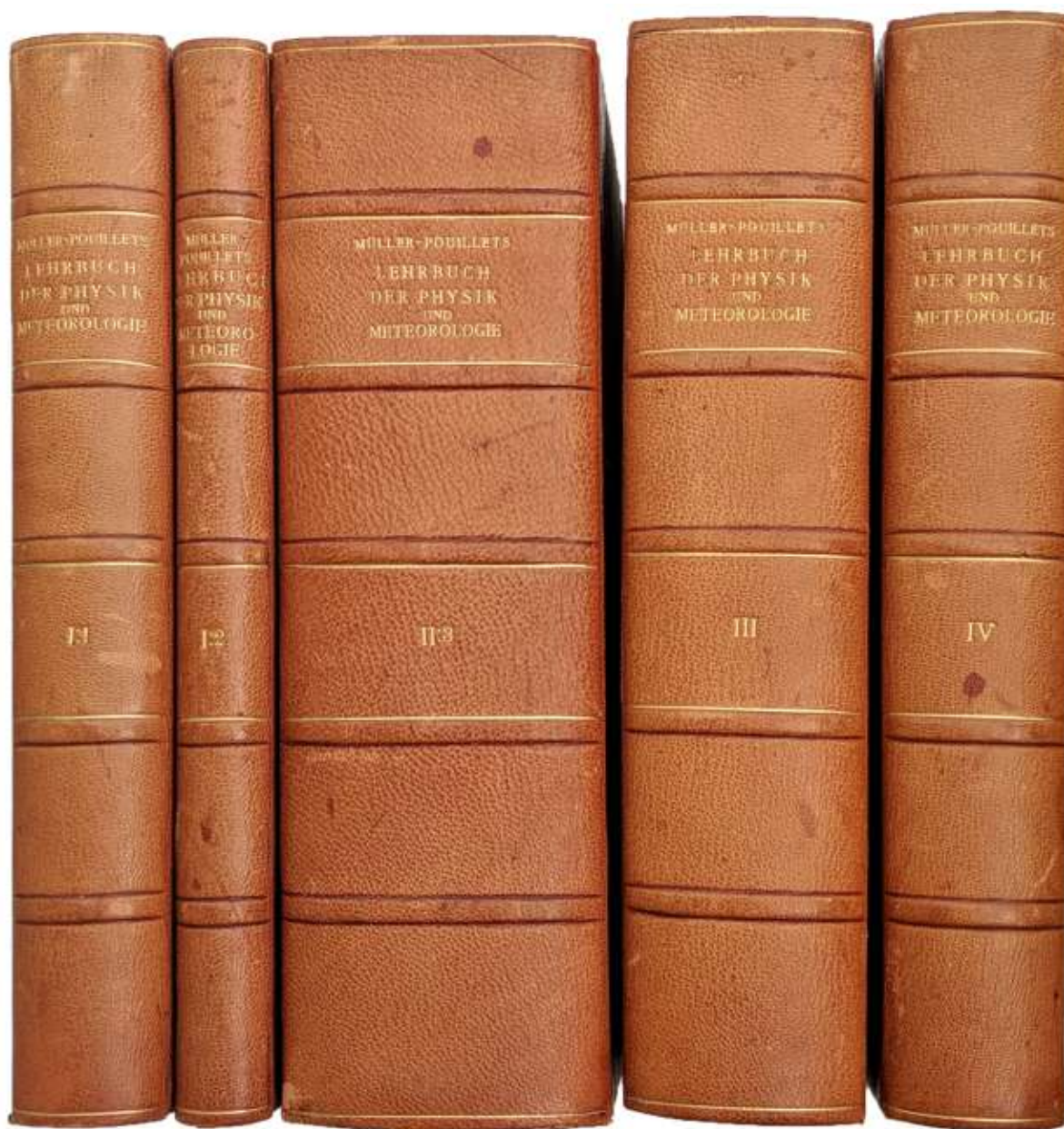
His main work is *Physices elementa mathematica, experimentis confirmata, sive introductio ad philosophiam Newtonianam* or *Mathematical Elements of Natural Philosophy, Confirm'd by Experiments* (Leiden 1720), in which he laid the foundations for teaching physics. Voltaire and Albrecht von Haller were in his audience, Frederic the Great invited him in 1737 to come to Berlin. His chief contribution to physics involved an experiment in which brass balls were dropped with varying velocity onto a soft clay surface. His results were that a ball with twice the velocity of another would leave

an indentation four times as deep, that three times the velocity yielded nine times the depth, and so on. He shared these results with Emilie du Chatelet, who subsequently corrected Newton's formula $E = mv$ to $E = mv^2$. The oldest magic lantern, as far as we know, is located in Leiden, the Netherlands, in the Museum Boerhaave. The projector was made about 1720 by the Dutch instrument maker Jan van Musschenbroek and was once the property of Willem Jacob 's Gravesande, professor of physics at the University of Leiden. After his death in 1742 the university bought with foresight his whole collection. The purchase price of the projection lantern was one hundred guilders. By this purchase the Leids Fysisch Kabinet (Physical Cabinet, Leiden) got the best and most complete collection of scientific instruments in the world. About 250 objects from this Cabinet, among them the magic lantern, have been preserved. Together they form one of the most important collections of the Museum Boerhaave. [See: de Luikerwaal de nederlandse taverlaantarn].

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[78] 's Gravesande

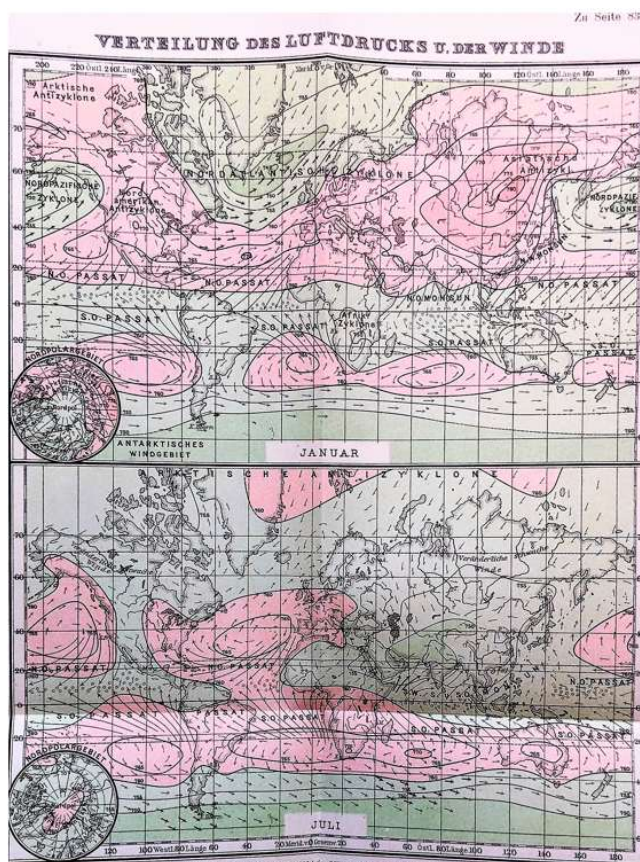
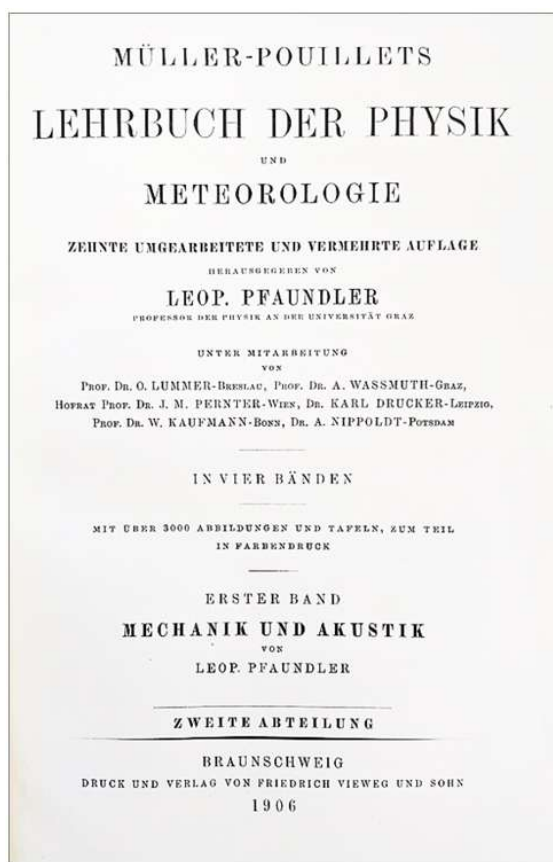


79. **POUILLET, Claude Servais Mathias** (1790-1868); **MULLER, Johann Heinrich Jacob** (1809-1875); **PFAUNDLER von Hadermur, Leopold** (1839-1920). *Muller-Pouillet's Lehrbuch der Physik und Meteorologie; Lehrbuch der Kosmischen Physik; Atlas zum Lehrbuch der Kosmischen Physik*. Braunschweig: F. Vieweg, 1905-7, 1909. ¶ 4 parts in 5 volumes. 8vo. xiv, 544; [4], [xv]-xvii, [1], [545]-801, [1]; xxvii, [1], 1189, [1]; xiv, 923, [1]; xii, 622, [1] pp. 22 plates (some folding, some in color), 838, 915, 499, 531 figs. Modern half brown morocco, paste-paper boards, blind- and gilt-stamped spine labels, raised bands. Fine. RW1212

\$ 475

FIRST EDITION in German, complete. This is the most advanced textbook on Cosmic Physics and Meteorology of its time. "His acclaimed textbook on physics

and meteorology, *Elements de physique experimentale et de meteorologie*, was published in four parts.[6] Also, it was translated into German by Johann Heinrich Jakob Muller, and published with the title, *Lehrbuch der Physik und Meteorologie*.” – Wikip.



“Pouillet’s lectures — which were partially collected in his *Elements de physique experimentale et de meteorologie* (1927) and in the *Lecons de physique de la Faculte des sciences* (1828) — were widely read. (Pouillet published a popular account of *Elements* in 1850.) Although offering no spectacular novelties, they presented, in clear language, a survey of the state of the various branches of physics and of recent developments in them.” – *DSB* XI, p. 111.

A much revised and expanded version of what was originally Pouillet’s *Elements de Physique Experimentale et de Meteorologie* (1827), which Muller translated into *Lehrbuch der Physik und Meteorologie* (1842) and then expanded with the supplement *Lehrbuch der Kosmischen Physik* (1856). It was eventually taken to a ninth edition by Pfaundler (1886-98) and finally revised and expanded yet again by Pfaundler into this final edition including an additional volume, *Magnetismus und Elektrizitat* (1909), written by Walter Kaufmann (1871-1947) and Alfred Coehn (1863-1938). The final version unifies almost a century’s worth of effort in various disciplines into a single textbook.



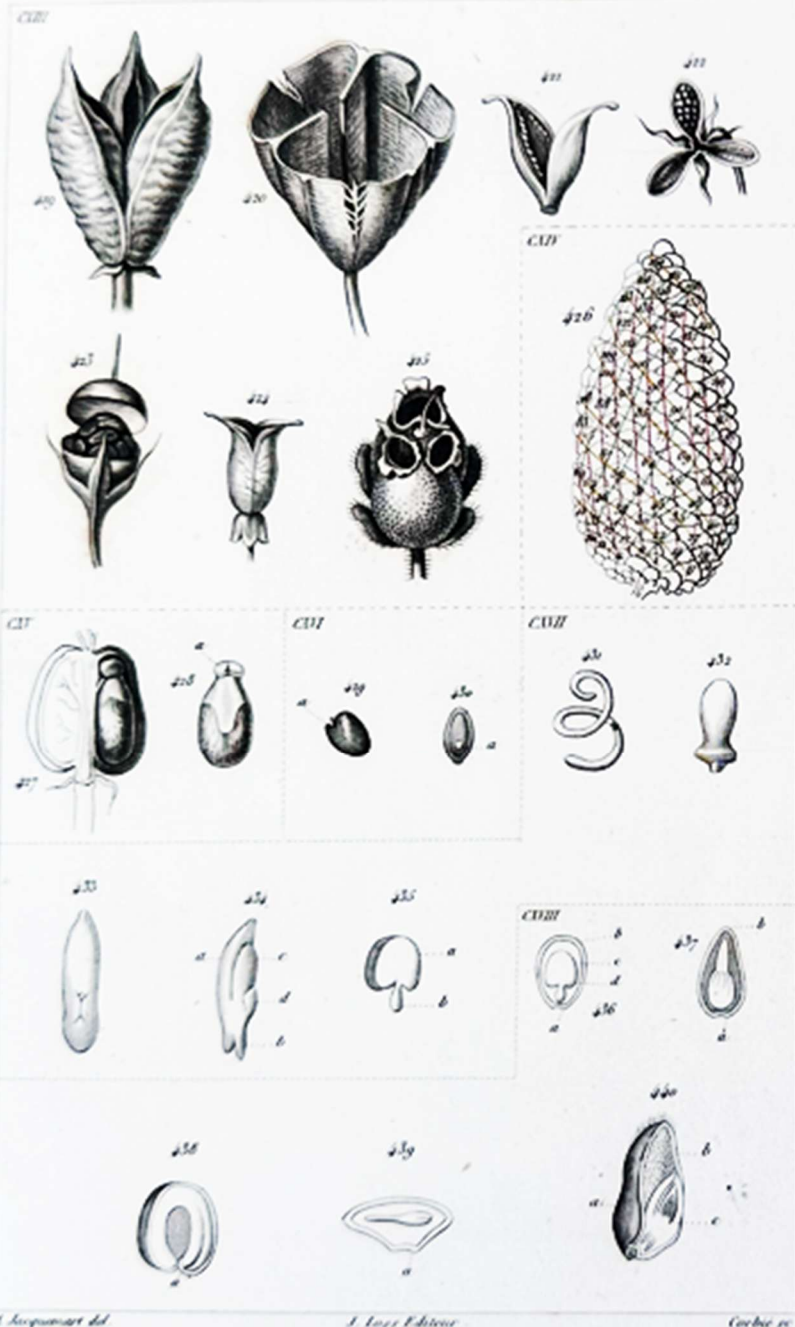
80. **SAINT-HILAIRE, Auguste de** (1779-1853). *Leçons de botanique comprenant principalement la morphologie végétale, la terminologie, la botanique comparée, l'examen de la valeur des caractères dans les diverses familles naturelles, etc.* Paris: P.-J. Loss, 1840. ¶ 8vo. [viii], viii, 930 pp. Indexes, 24 plates with tissue guards; foxed, some signatures browned. Contemporary quarter morocco, marbled boards, raised bands, gilt spine, decorative end-leaves; lightly rubbed. Very good. RARE. S7017

\$ 200

FIRST EDITION. An important series of lectures on the morphology of plants, written by Auguste de Sainte-Hilaire, professor at the Faculty of Sciences in Paris, and noted for his work on Brazilian botany.

§ BM (Nat. Hist.), IV, p. 1783; *DSB*, XII, p. 72.

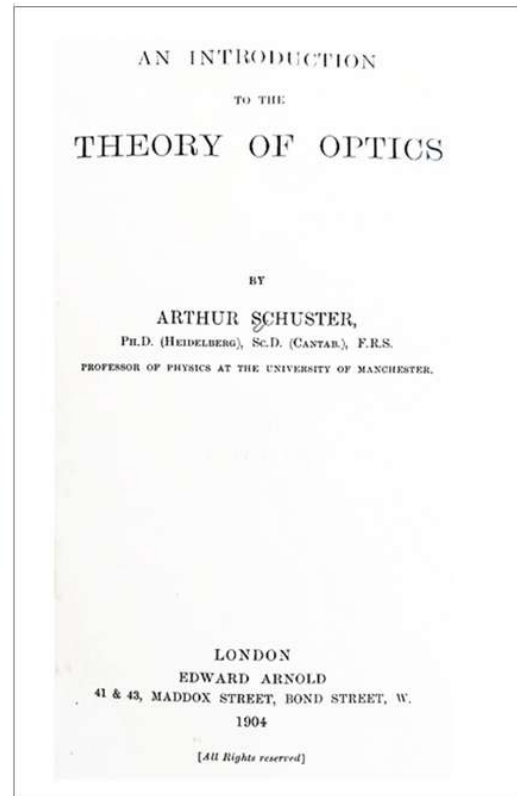
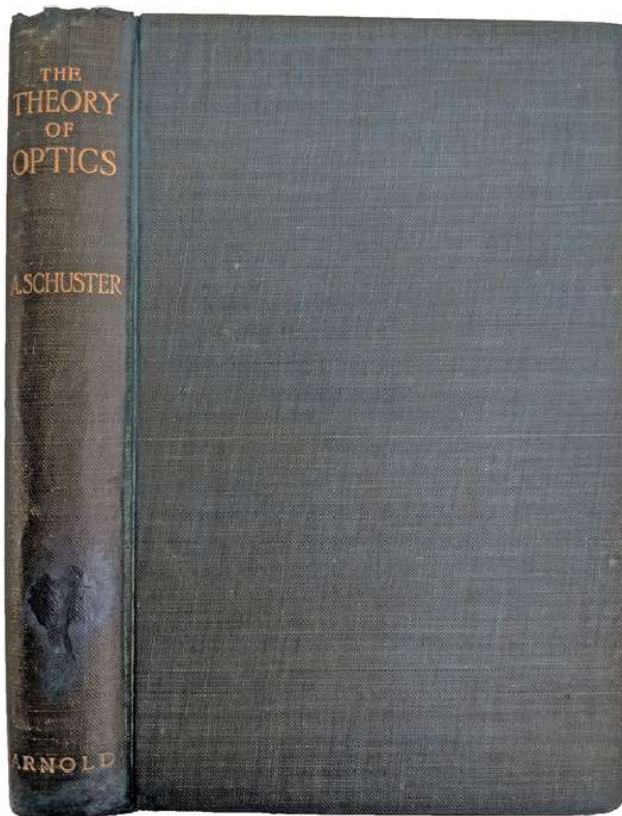
	Pag.
CHAP. IV. — SYSTÈME AXILE.	77
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§ I. — Des racines en général et particulièrement de celles qui croissent sous la terre.	79
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Fruits, Graines.

Folium imp.

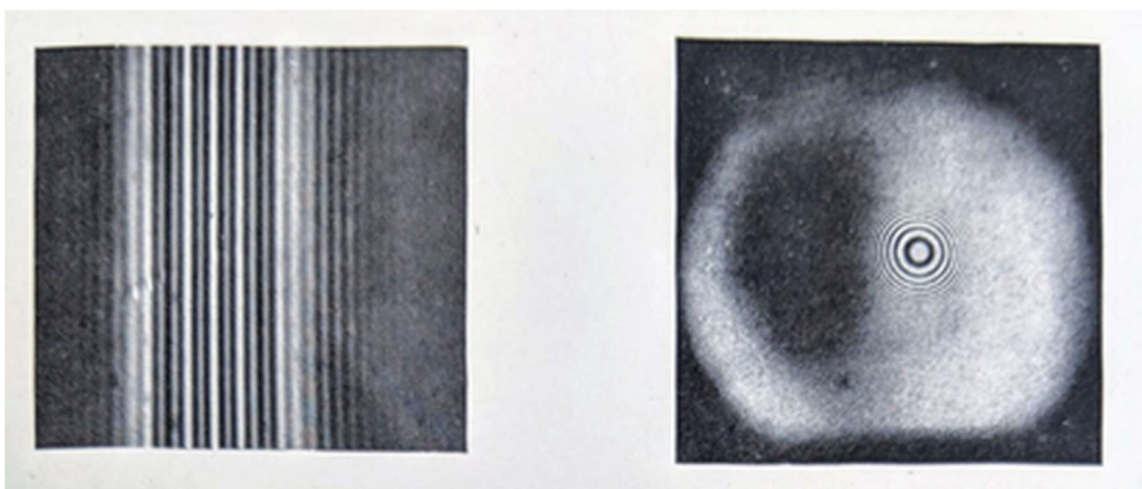
[80] SAINTE-HILAIRE

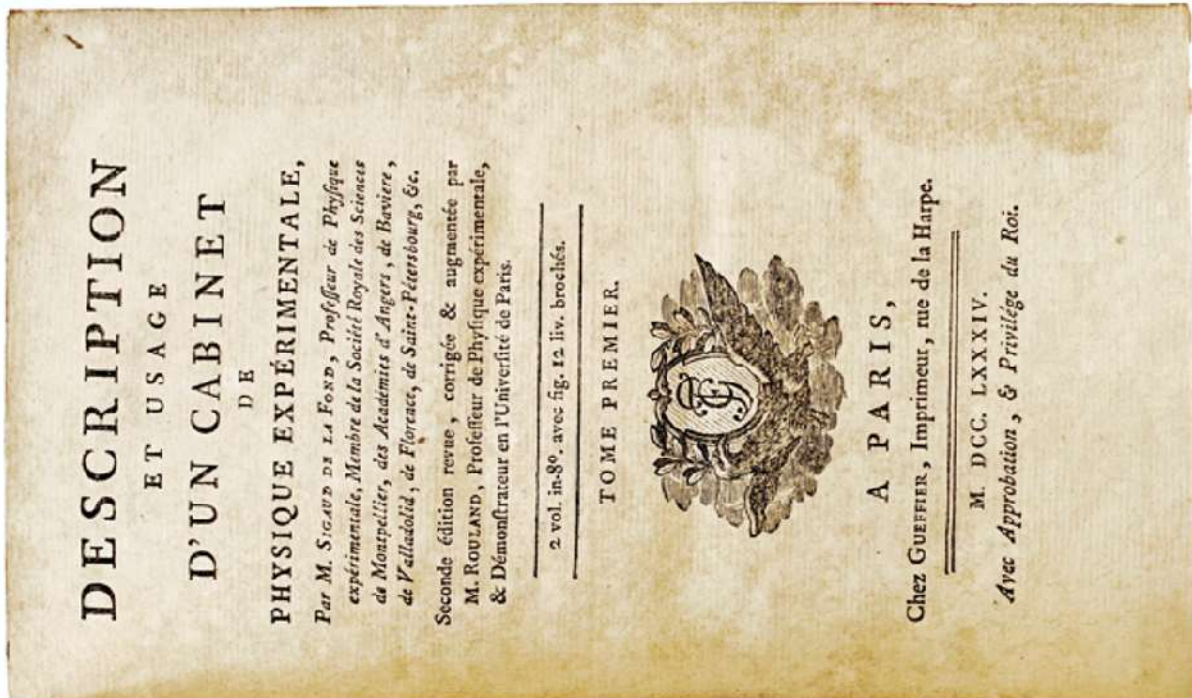


81. **SCHUSTER, Arthur** (1851-1934). *An Introduction to the Theory of Optics*. London: Edward Arnold, 1904. ¶ 8vo. xv, [1], 340, [4] pp. 180 figs., index, errata slip tipped-in. Navy gilt-stamped cloth; library markings. Magee University College Library bookplate, “withdrawn from stock” rubber stamp. Very good. RW1242

\$ 12.95

Schuster was a German-born British physicist and theoretical astronomer.







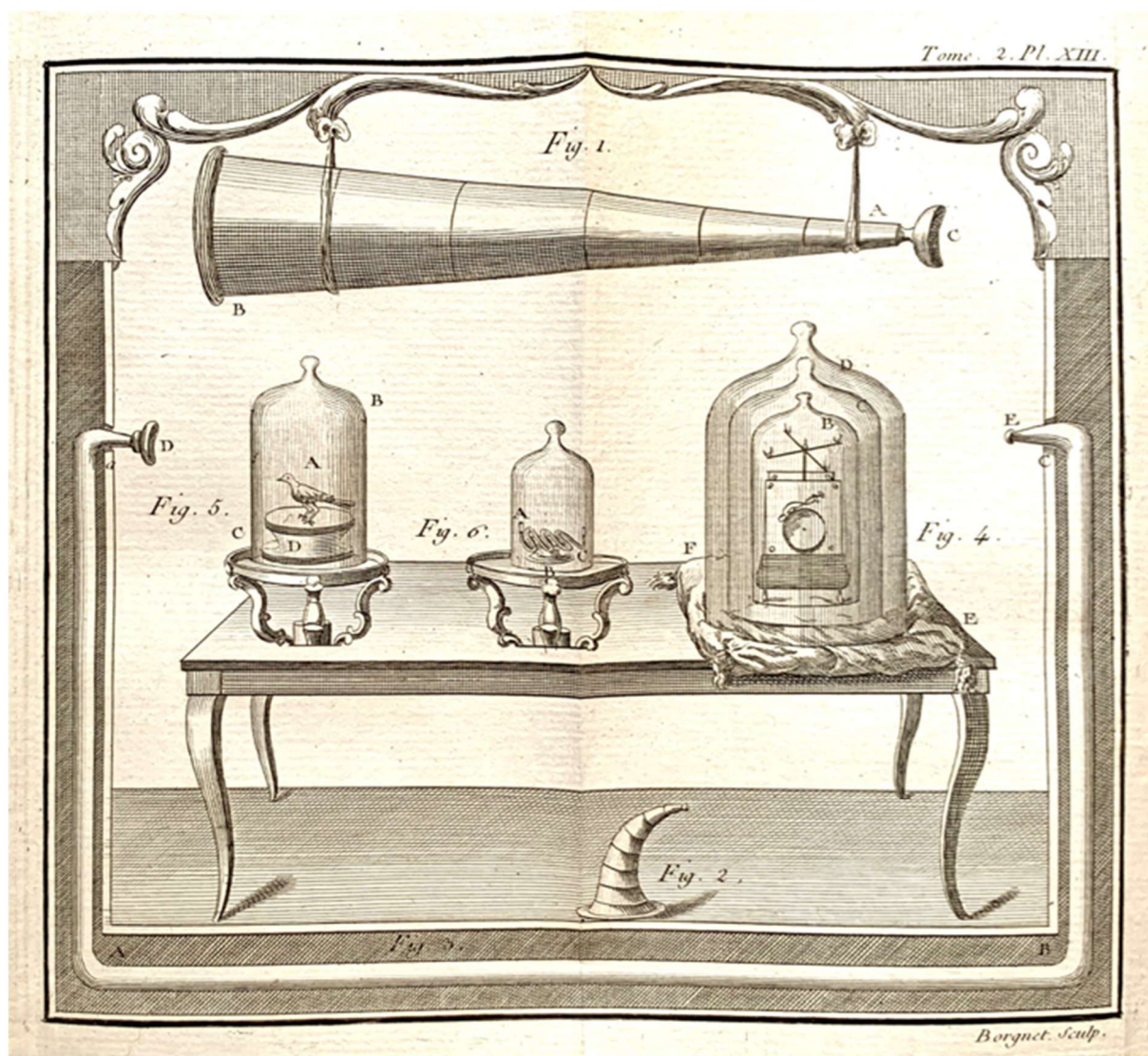
82. **SIGAUD DE LA FOND, Joseph-Aignan** (1730-1810). *Description et Usage d'un Cabinet de Physique Experimentale. Second edition revue, corrigee & augmentee par M. Rouland*. Paris: Chez Gueffier, 1784. ¶ Two volumes. 8vo. 198x124 mm. [4], xvi, 396; [4], 474, [2] pp. Half-titles, title vignette, 53 folding engraved plates of laboratory apparatus, head and tail pieces. Contemporary mottled calf, spine gilt-stamped with calf gilt-stamped labels; occasional toning, scattered minor spotting. Very good. S13853

\$ 750

Second edition, revised and enlarged, by Urbain Francois Roulaud, professor of physics and demonstrator at the University of Paris, also the nephew of Sigaud de Lafond. This work on laboratory equipment and technique was originally issued in 1775. This new edition notably depicts two plates (volume I, plates IXbis and

XIbis) illustrating a machine by George Atwood (1745-1807), FRS, a pump by Hesse and the hydraulic machine invented by Vera, whose purpose, clearly pedagogical, is to show experimentally and support Isaac Newton's laws of motion.

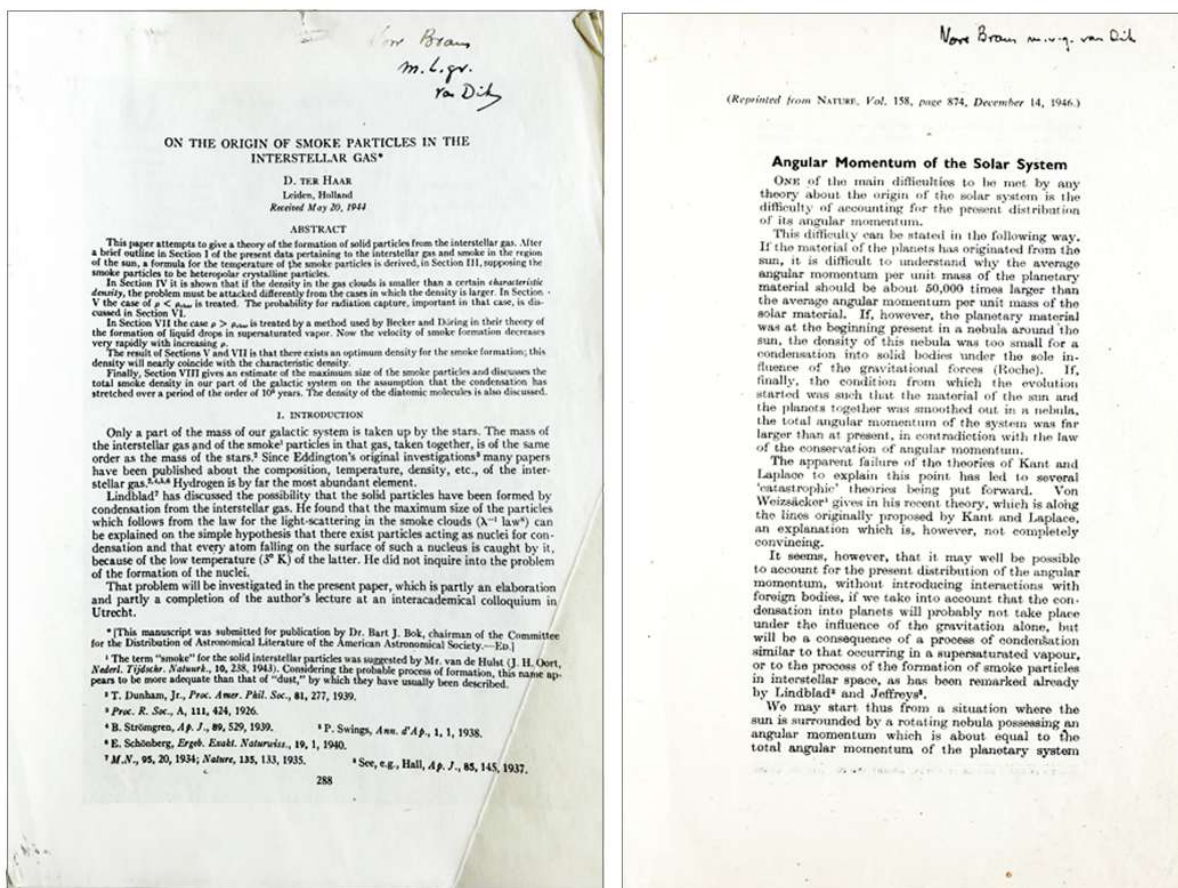
His numerous teaching experiments delved into many areas: electricity, chemistry, phosphorus, the recipe for toothpaste, medical uses, heat, distillation, precipitation, acoustics, air pressure, electricity, pumps, the inclined plane, the crane, centrifugal force, gravity, etc.



The plate XIII, for example, Tome 2: “in which a bird is placed under a bell jar and the air is evacuated with an air pump. This demonstrates the importance of air for breathing. The text describes how the bird first finds it difficult to breathe, then convulses, and finally perishes.” [History of Science Museum, Oxford].

Sigaud de la Fond, an obstetrician, studied under and succeeded the Abbe Nollet at the College Louis-le-Grand, taught courses of anatomy, physiology, and experimental physics. In 1795, he became a professor of physics and chemistry at the Ecole Centrale.

§ DSB, XII, p. 428.



63 Papers by the Influential Physicist & Professor, Fellow of Magdalen College

83. **TER HAAR, Dirk** (1919-2002). [63 papers.] *The Vibrational Levels of an Anharmonic Oscillator*. [College Park, MD]: *The Physical Review*, 1946. Very good. S13394

\$ 1,500

63 papers and offprints. Original wrappers. From the collection of Abraham Pais (1918-2000). Some papers are INSCRIBED by Ter Haar to Pais.

BIOGRAPHY: TER HAAR, Dirk (Oosterwolde, 19 April 1919 :: Drachten, 3 September 2002) (Dr., B.Sc., M.Sc., MA, D.Sc., FRSE) was an Anglo-Dutch physicist, he studied physics at Leiden University, worked as research fellow to Niels Bohr in Copenhagen, and took his Ph.D. in Leiden under Hendrik Kramers.

He became professor of physics at the University of St. Andrews (1949). He was a Fellow of Magdalen College and reader in theoretical physics at the University of Oxford. Many prominent scientists studied under TER HAAR, including Anthony Leggett, winner of the Nobel Prize in Physics (2003), and Deng Jiaxian, one of the leading scientists and founders of Chinese nuclear weapon programs.

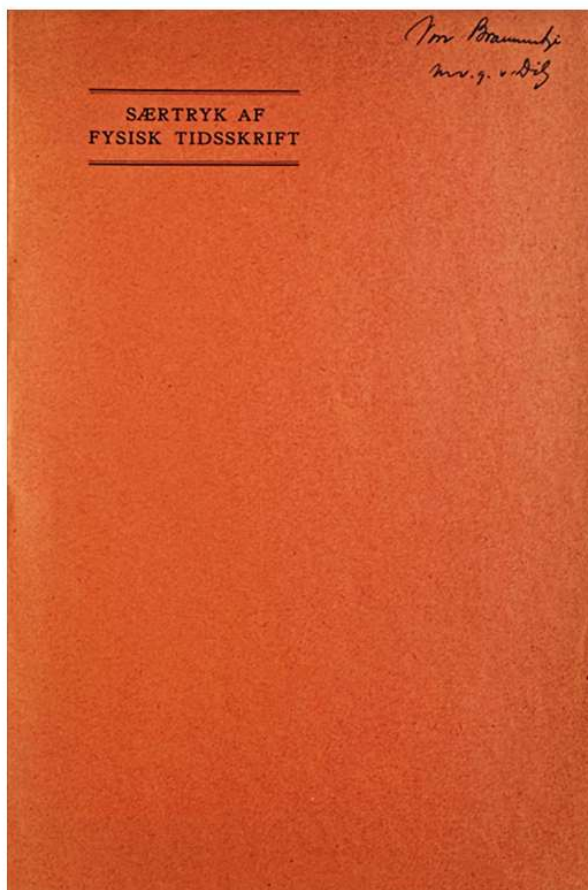
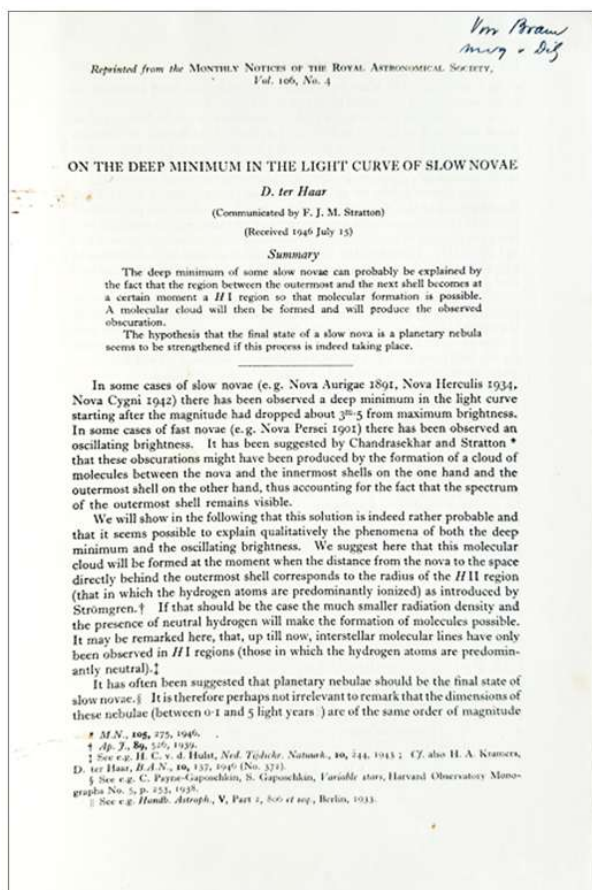
INVENTORY:

1. **TER HAAR, Dirk.** *On the Origin of Smoke Particles in the Interstellar Gas.* Leiden, Holland, May, 1944. pp. 288-299. Inscribed from author to Pais.

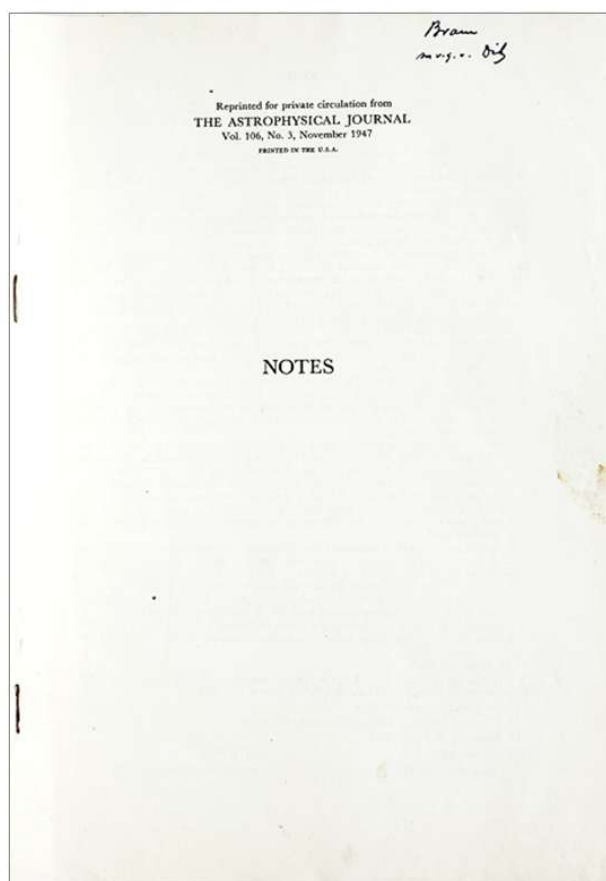
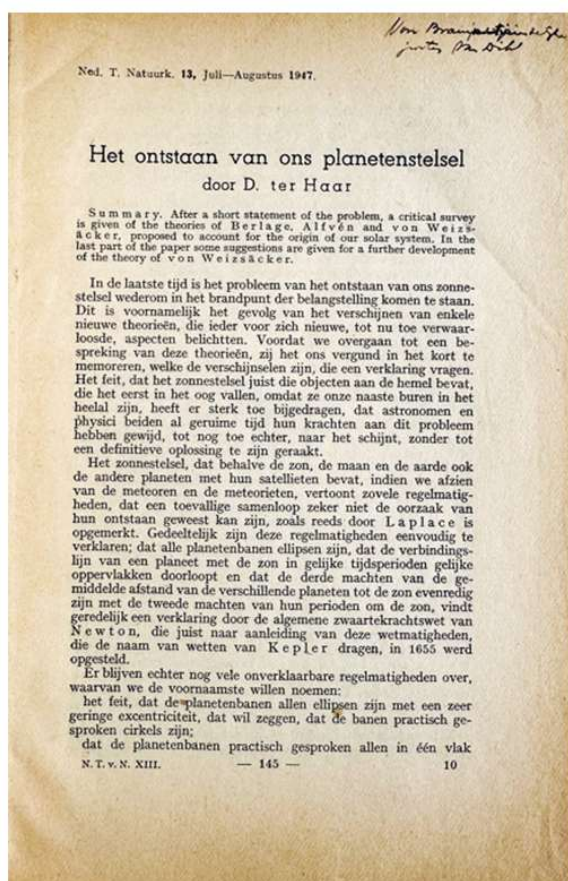
At the time, what astronomers now call “interstellar dust” was frequently referred to as “smoke particles”. Ter Haar’s work played a key role in early astrochemistry and our understanding of how solid matter condenses in deep space.

2. **TER HAAR, D.** *The Vibrational Levels of an Anharmonic Oscillator.* Institute for Theoretical Physics, University of Copenhagen, Denmark. Offprint from: the Physical Review, Vol. 70, Nos. 3 and 4, pp. 222-223, August 1 and 15, 1946. Inscribed from author to Pais.

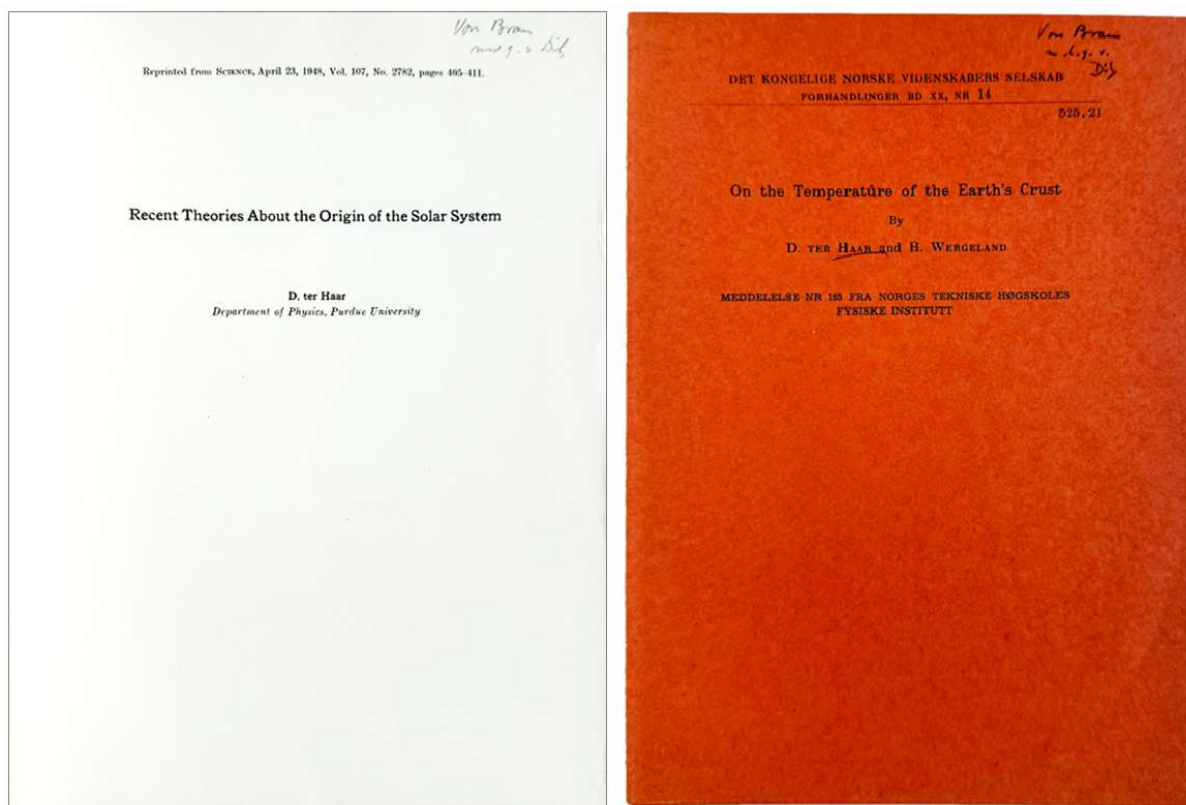
3. **TER HAAR, D.** *Angular Momentum of the Solar System.* Offprint from: Nature, Vol. 158, page 874, December 14, 1946. Inscribed to Pais from author.



4. **TER HAAR, D.** *On the Deep Minimum in the Light Curve of Slow Novae.* July, 1946. pp. 283- 285. Offprint from: the Monthly Notices of the Royal Astronomical Society, Vol. 106, no. 4. Inscribed from author to Pais.
5. **TER HAAR, Dirk.** *Planet systemets Opstaaen.* Offprint from: Særtryk af Fysisk Tidsskrift. Nr. 3-6, 1946. Original orange printed wrappers.
6. **TER HAAR, D.** *On the Redundant Zeros in the Theory of the Heisenberg Matrix.* Institute for theoretical Physics, University of Copenhagen, Denmark. Physica XII, no 8. November 1946. Signed by Pais as well as notes throughout.



7. **TER HAAR, D.** *Het ontstaan van ons planetenstelsel*. Ned. t. Natuurk, 13, Juli—Augustus 1947. pp. 145-154. Inscribed to Pais from author.
8. **TER HAAR, D.** *Notes; Remarks on F. Cernuschi's paper, "The Physics of Cosmic Grains"*. Reprinted for private circulation from: *The Astrophysical Journal*, pp. 484-485, Vol. 106, No. 3, November 1947. Inscribed from Ter Haar to Pais.
9. **TER HAAR, D.** *Recent Theories about the Origin of the Solar System*. Offprint from: *Science*, April 23, 1948, Vol. 107, no. 2782, pp. 405-411. Inscribed to Pais from author.
10. **TER HAAR, D.** *Creation of Mesons by High-Energy Particles*. Offprint from: *Science*, July 16, 1948, Vol. 108, no. 2794, pp. 57-58. Inscribed to Pais from author.
11. **TER HAAR, D.; BLEULER, E.** *Angular Correlation of Scattered annihilation Radiation*. Department of Physics, Purdue University. Offprint from: *Science*, July 2, 1948, Vol. 108, No. 2792, pages 10-11. (1-4). Inscribed from author to Pais.
12. **TER HAAR, D.; WERGELAND, Harald** (1912-1987). *On the Working Principle of the Hilsch Gadget*. Det Kongelige Norske Videnskabers Selskab Forhandling Bd. XX, nr 15. pp. 55-58. INSCRIBED to Pais from author.

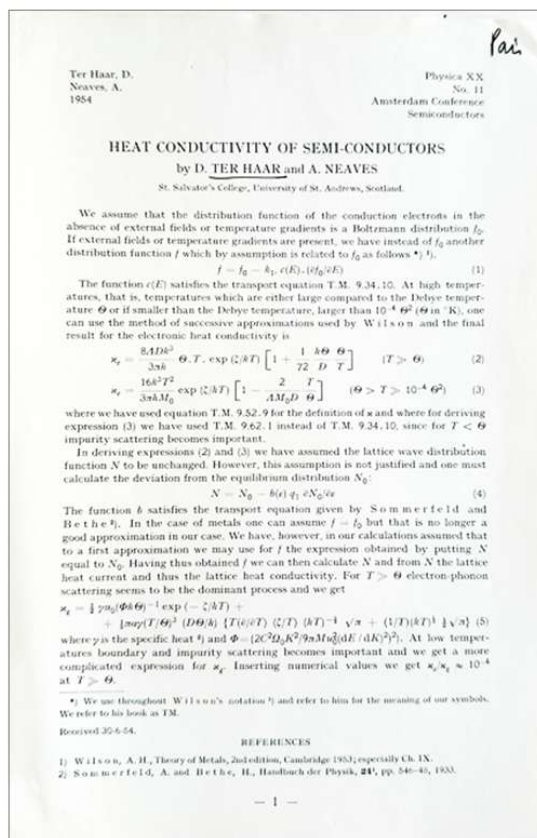
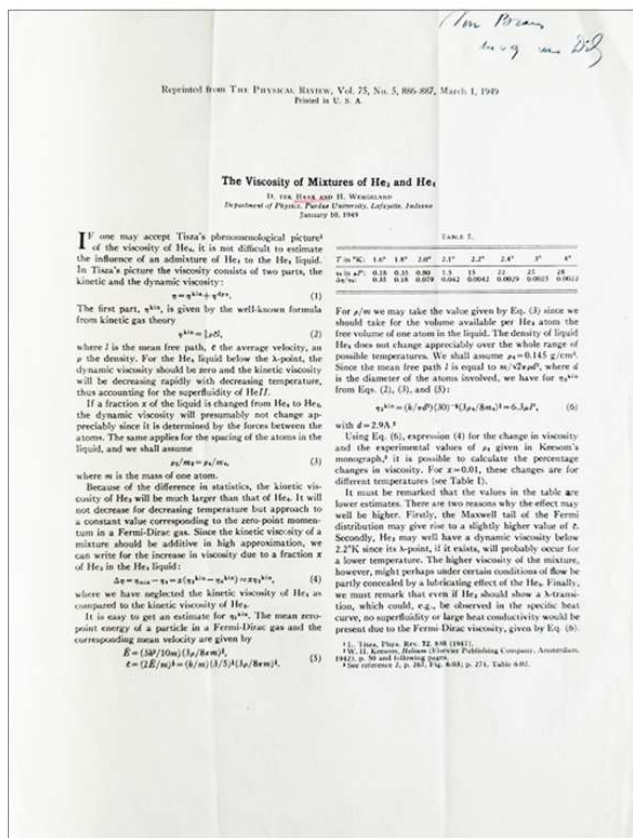


13. **TER HAAR, D.; WERGELAND, Harald** (1912-1987). *On the Temperature of the Earth's Crust*. Det Kongelige Norske Videnskabers Selskab. Forhandling Bd XX, Nr 14. Meddelelse Nr 165 Fra Norges Tekniske Hogskoles Fysiske Institutt. pp. 52-54, [1948]. Inscribed to Pais from author.

This work is part of the historical development of geophysical and cosmological models calculating the initial thermal state and subsequent cooling or heating mechanics of the forming Earth.

14. **TER HAAR, D.** *Note on the Origin of Cosmic Rays*. Offprint from: Science, September 16, 1949, Vol. 110, no. 2855, pp. 285-286.
15. **TER HAAR, D.** *The Energy Level density and Partition Function of Nuclei*. Offprint from: The Physical Review, Vol. 76, No. 10, pp. 1525-1526, November 15, 1949.
16. **TER HAAR, D.** *Helium Drie*. Ned T. Natuurk, 15, October 1949. pp. 233-242.
17. **TER HAAR, D.** *Stellar Rotation and Age*. Offprint for private circulation from: The Astrophysical Journal, vol. 110, No. 3, November 1949. pp. 321-328.

18. **TER HAAR, D.** *On the Origin of the Chemical Elements.* Offprint from: Science, January 28, 1949, Vol. 109, No. 2822, pages 81-82. INSCRIBED to Pais from author.



19. **TER HAAR, D.; WERGLAND, Harald** (1912-1987). *The Viscosity of Mixtures of He3 and He4.* Offprint from: The Physical Review, Vol. 75, No. 5, pp. 886-887, March 1, 1949. Inscribed from author to Pais.

20. **TER HAAR, D.** *Het ontstaan van de chemische elementen.* Ned. T. Natuurk 15, April 1949. pp. 85-95.

21. **TER HAAR, D.** "Can We Account for the observed Abundances of the Chemical Elements?" Purdue University, Lafayette, Indiana. Offprint from: American Journal of Physics, Vol. 17, No. 5, 282-287, May, 1949. Inscribed from the author to Pais.

22. **TER HAAR, D.; STRICK, E.** *Production of π -Mesons by High Energy Nucleons.* Offprint from: The Physical Review, Vol. 76, No. 2, pp. 304, July 15, 1949.

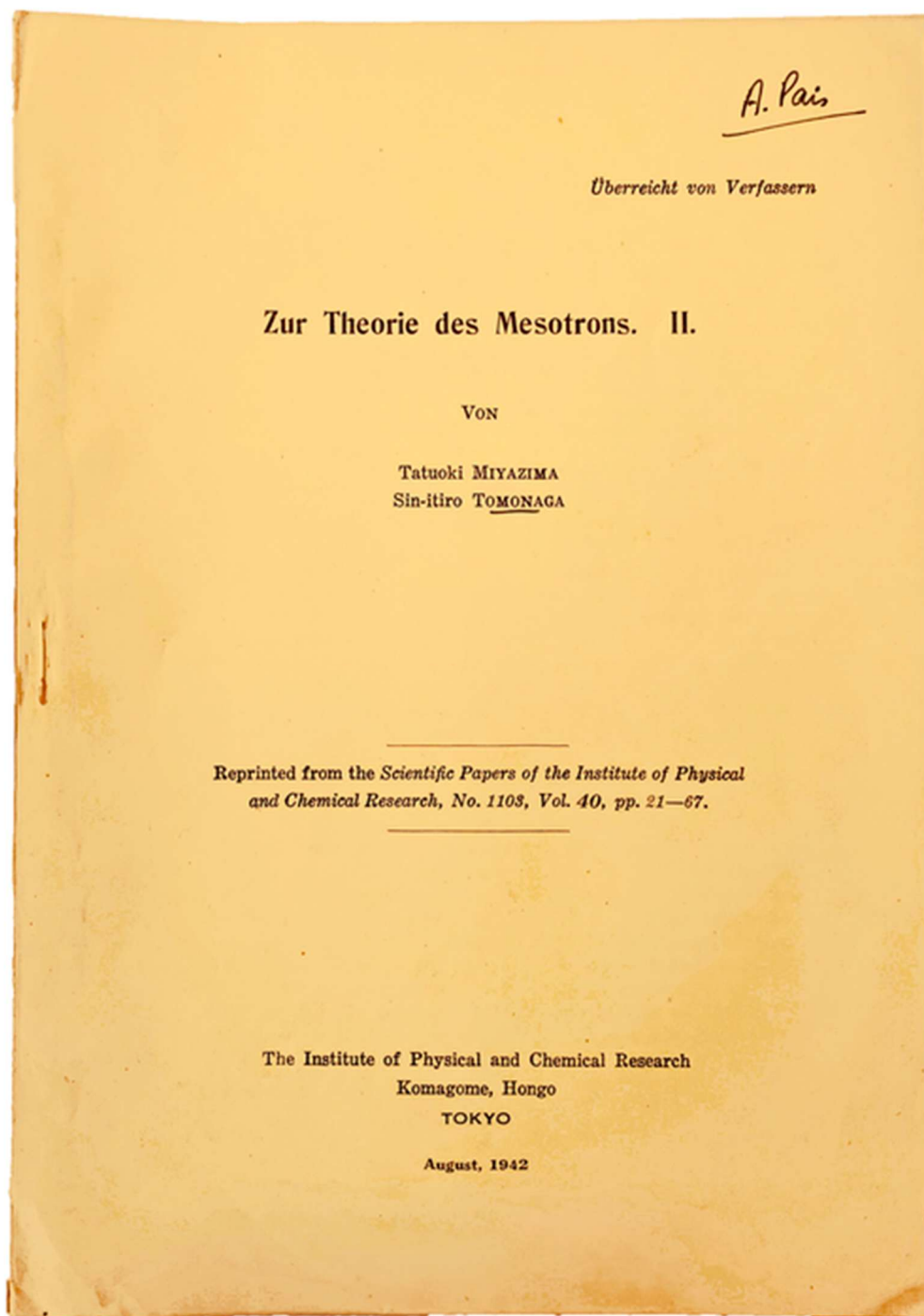
23. **TER HAAR, D.; STRICK, E.** *Production of π -Mesons by High Energy Electrons.* Offprint from: The Physical Review, Vol. 78, No. 1, pp. 68-69, April 1, 1950.

24. **TER HAAR, D.** *A Phenomenological Theory of Visco-Elastic Behaviour. I & II.* Physica XVI, no 9. September 1950. pp. 719-752.
25. **TER HAAR, D.** *Further Studies on the Origin of the Solar System.* Offprint for private circulation from: The Astrophysical Journal, Vol. 111, No. 1, January 1950. pp. 179-190.
26. **TER HAAR, D.** *Cosmogonical Problems and Stellar Energy.* Offprint from: Reviews of Modern Physics, Vol. 22, No. 2, pp. 119-152, April, 1950.
27. **TER HAAR, D.; MARTIN B.** *Statistics of the Three-Dimensional Ferromagnet.* Offprint from: The Physical Review, Vol. 77, No. 5, pp. 721-722, March 1, 1950.
28. **TER HAAR, D.** *An Easy Approximate Method of Determining the Relaxation Spectrum of a Viscoelastic Material.* Offprint from: Journal of Polymer Science, vol. VI, number 2, February, 1951. pp. 247-250.
29. **TER HAAR, D.** *The Perfect Bose-Einstein gas in the theory of the quantum-mechanical grand canonical ensembles.* Offprint without change of pagination from: The Proceedings of the Royal Society, A, volume 212, pp. 552-558, 1952. Signed by Bram Pais.
30. **TER HAAR, D.** *Letter to the Editor, Gentile's intermediate statistics.* Department of Natural Philosophy, St. Andrews. Physica XVIII, no 3. Maart 1952. p. 199. Signed by Bram Pais.
31. **TER HAAR, D.; MARTIN, B.** *Statistics of the Three-Dimensional Ferromagnet, I. The Variational Method.* Physica XVIII, no 8-9. Augustus-September 1952. pp. 569-581. Signed by Bram Pais.
32. **TER HAAR, D.** *Statistics of the Three-Dimensional Ferromagnet, II. Comparison of various approximation Methods.* Physica XIV, no 11. November 1952. pp. 836-840. Signed by Bram Pais.
33. **TER HAAR, D.** *A Molecular Sum Rule.* Offprint from: The Proceedings of the Royal Society of Edinburgh. Section A (Mathematical and Physical Sciences). Vol. LXIII—Part IV (no 28). pp. 381-384. Published by Oliver & Boyd, 1952. Signed by Bram Pais.
34. **TER HAAR, D.** *The Origin of Stars and Galaxies.* Offprint from: The Scientific Monthly, Vol. LXXVII, No. 6, pp. 279-288, December, 1953. Signed by Bram Pais.

35. **TER HAAR, D.** *The Isotherms of an imperfect gas*. Offprint from: The Proceedings of the Cambridge Philosophical Society, Volume 49, Part 1, pp. 130-135, 1953. Signed by Bram Pais.
36. **TER HAAR, D.** *On the size of Interstellar Clouds*. Zeitschrift fur Astrophysik, Bd. 32, pp. 251-256 (1953). Signed by Bram Pais.
37. **TER HAAR, D.** *The second virial coefficient near Absolute Zero*. Offprint from: The Proceedings of the Physical Society, A, Vol. LXVI, pp. 847-848, 1953. Signed by Bram Pais.
38. **TER HAAR, D.; GREEN, C. D.** *The Statistical Aspect of Boltzmann's H-Theorem*. Offprint from: The Proceedings of the Physical Society, A, Vol. LXVI, pp. 153-159, 1953. Signed by Bram Pais.
39. **TER HAAR, D.** *Cosmic Cloud Hypothesis of the Origin of the Solar System*. Offprint from: Science, August 14, 1953, Vol. 118, No. 3059, pp. 195-196. Signed by Bram Pais.
40. **TER HAAR, D.** *The Age of the Universe*. Offprint from: The Scientific Monthly, Vol. LXXVII, No. 4, pp. 173-181. October, 1953. Signed by Bram Pais.
41. **TER HAAR, D.** *On Kuiper's Theory of the Origin of the Solar System*. Offprint from: The Proceedings of the Royal Society of Edinburgh, Section A (Mathematics), Vol. LXIV—Part I (No. 1). pp. 1-8. Published by Oliver & Boyd, 1953. Signed by Bram Pais.
42. **TER HAAR, D.** *Statistics of the Three-Dimensional Ferromagnet, III. Some Numerical Results*. Physica XIX, pp. 611-614, 1953. Signed by Bram Pais.
43. **TER HAAR, D.** Letter to the Editor, *The law of corresponding states*. Physica XIX, pp. 375-376, 1953. Signed by Bram Pais.
44. **TER HAAR, D.; GREEN, C. D.** *Fluctuations in Simple Mechanical Models*. Physica XXI, pp. 63-72, 1954.
45. **TER HAAR, D.** *On Freundlich's Red-Shift*. Offprint from: The Philosophical Magazine, Ser. 7, vol. 45, March, 1954, pp. 320-324. Signed by Bram Pais.
46. **TER HAAR, D.** *Some more remarks on Freundlich's Red-Shift*. Offprint from: The Philosophical Magazine, Ser. 7, vol. 45, pp. 1023-1024, October 1954. Signed by Bram Pais.

47. **TER HAAR, D.; NEAVES, A.** *Heat Conductivity of Semi-Conductors*. Physica XX, No. 11, p. 1, 1954. Signed by Bram Pais.
48. **TER HAAR, D.; DEMPSEY, E.** Letter to the Editor, *The three-dimensional face centred cubic ferromagnet*. Physica XX, pp. 437-439, 1954. Signed by Bram Pais.
49. **TER HAAR, D.; DEMPSEY, E.** Letter to the Editor, *The three-dimensional body-centred cubic ferromagnet*. Physica XX, pp. 667-668, 1954. Signed by Bram Pais.
50. **TER HAAR, D.; ROSS, A. W.** *Volume Changes in a Substitutional Alloy*. Offprint from: The Proceedings of the Physical Society, A, Vol. LXVII, pp. 388-391, 1954. Signed by Bram Pais.
51. **TER HAAR, D.** Correspondence, To the Editors of "The Observatory" *On the relative size of cosmic mass agglomerations*. Offprint from: The Observatory, Vol. 74, No. 880, pp. 128-129. June 1954. Signed by Bram Pais.
52. **TER HAAR, D.** *Lambda Transition of Liquid Helium*. Offprint from: The Physical Review, Vol. 95, No. 4, pp. 895-897, August 15, 1954. Signed by Bram Pais.
53. **TER HAAR, D.; PODOLANSKI, J.** *The Origin of the Elements*. St. Andrews University, Scotland. [1954]. University of Manchester, England. pp. 20-41. Signed by Bram Pais.
54. **TER HAAR, D.** *Terminology of Statistical Mechanics*. Offprint from: American Journal of Physics, Vol. 22, No. 9, pp. 638-639, December, 1954. Signed by Bram Pais.
55. **TER HAAR, D.** *Foundations of Statistical mechanics*. Reprinted from Reviews of Modern Physics, Vol. 27, No. 3, 289-338, July, 1955.
56. **TER HAAR, D.** *On the use of Grand Ensembles in Statistical Mechanics: A New Derivation of Saha's Formula*. Offprint from: American Journal of Physics, Vol. 23, No. 6, pp. 326-331, September, 1955.
57. **TER HAAR, D.; NEAVES, A.** *On the thermo-electric power of metals*. Offprint without change of pagination from: the Proceedings of the Royal Society, A, volume 228, pp. 568-574, 1955.
58. **GREEN, C. D.; TER HAAR, D.** *The Ehrenfest's wind-wood model in two dimensions*. Offprint from: the Proceedings of the Cambridge Philosophical Society, Volume 51, Part 1, pp. 141-148, 1955.

59. **TER HAAR, D.** *Spontaneous vibrations of a gas column.* St. Salvator's College, St. Andrews, Scotland. Conference de Physique des basses temperatures, Paris, 2-8, Sept. 1955. [3] pp. Signed by Bram Pais.
60. **TER HAAR, D.; NICOL, W. M.** *Proof of the Heisenberg Relations.* Department of Natural Philosophy, University, St. Andrews. Offprint from: Nature, Vol. 175, p. 1046, June 11, 1955.
61. **TER HAAR, D.; COLDWELL-HORSFALL, Rosemary A.** *On the Magneto-resistance Effects in Metals.* From the: Philosophical magazine, Ser. 7, vol. 46, p.1149, October 1955.
62. **TER HAAR, D.** *On the Transport Properties of Metals and Semi-Conductors.* Physica XXII, pp. 61-68, 1956. Signed by Bram Pais.
63. **TER HAAR, D.; DEMPSEY, E.** *Statistics of the Three-Dimensional Ferromagnet. IV: The Face Centred and Body Centred Cubic Lattices.* Physica, XXII, pp. 1-13. 1956. Signed by Bram Pais.



84. **TOMONAGA, Sin-itiro** [Sin-Itiro Tomonaga, or, Shin-ichiro] (1906-1979). [8 offprints, 1 extract, including:] *Über den Zusammenstoß des Mesotrons mit Elektronen*. [Tokyo]: Scientific Papers of the Institute of Physical and Chemical Research, 1940. ¶ Original wrappers. From the collection of Abraham Pais. Very good. ST13395

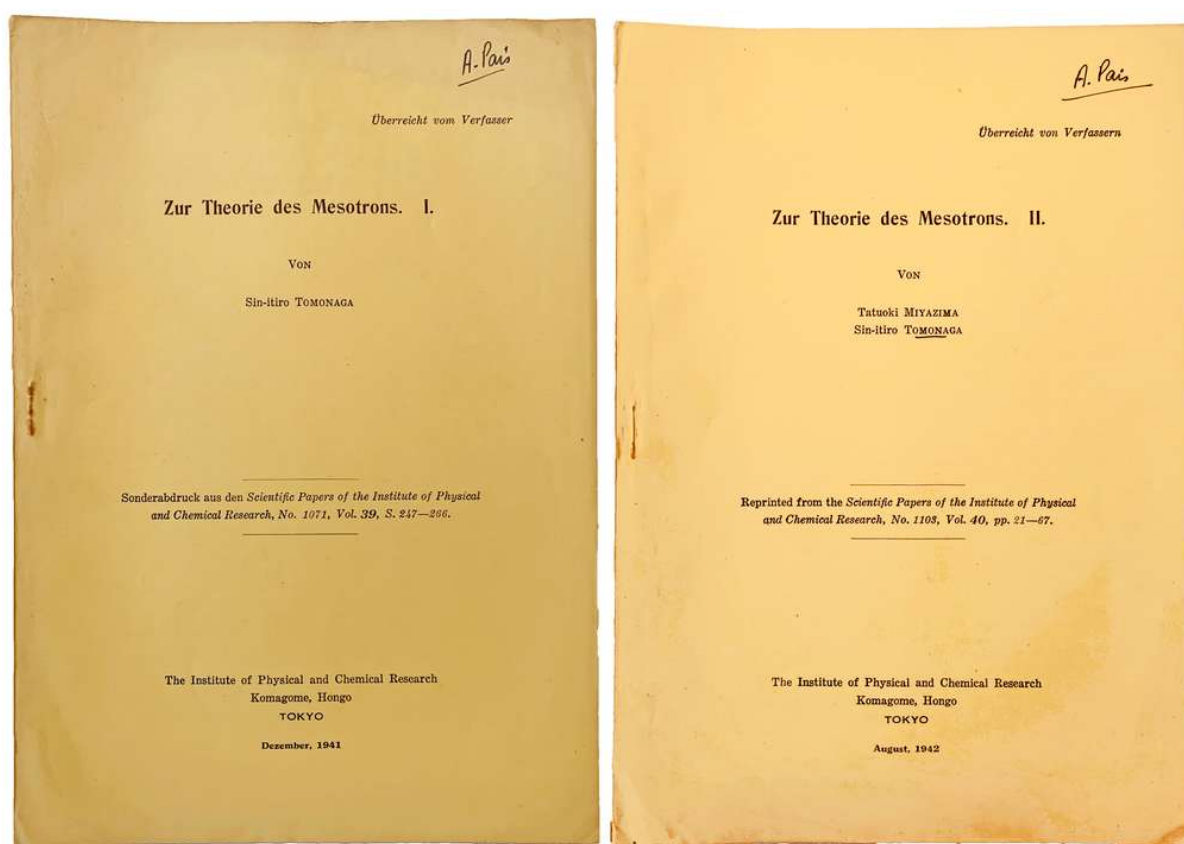
\$ 5,000

INVENTORY:

1. **TOMONAGA, Sin-iti-ro.** *Über den Zusammenstoß des Mesotrons mit Elektronen.*

Offprint from: Scientific Papers of the Institute of Physical and Chemical Research, no. 976, vol. 37, pp. 399-413, June 1940. Original yellow printed wrappers. Signed by Pais. "In 1940, Dr. Tomonaga directed his attention to the meson theory and developed the intermediate coupling theory in order to clarify the structure of the meson cloud around the nucleon." – Nobel Lectures, 1972.

This is a "foundational work investigating collision processes between mesotrons and electrons. This research marked an early shift toward developing intermediate coupling theory and laid the conceptual groundwork for his later work in quantum field theory."



2. **TOMONAGA, Sin-iti-ro.** *Zur Theorie des Mesotrons. I.* Offprint from: Scientific Papers of the Institute of Physical and Chemical Research, no. 1071, vol. 39, pp. 247-266, Dezember 1941. Original yellow printed wrappers. Signed by Pais.

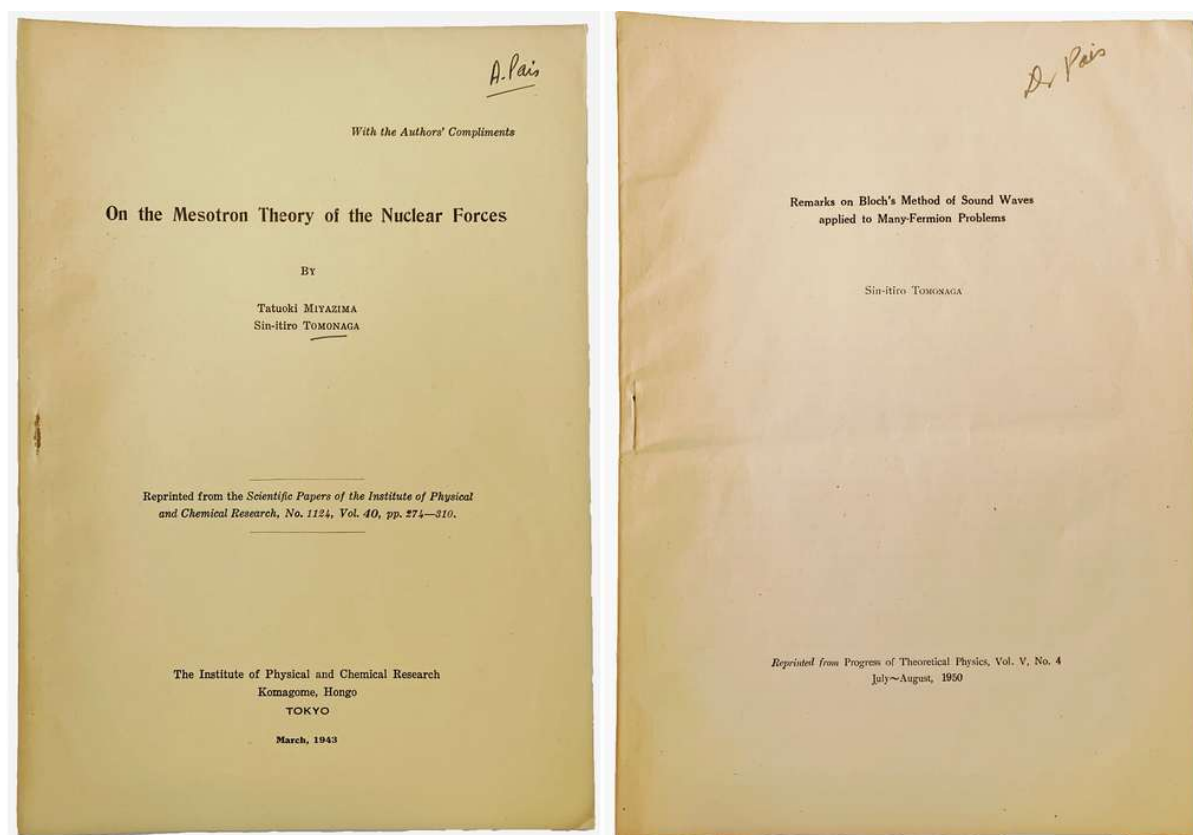
"In this 1941–1942 series, Tomonaga developed an approximation scheme that bridged the gap between weak and strong forces—the intermediate coupling theory. He mathematically described the behavior of the "meson cloud" surrounding a nucleon, successfully accounting for how the field's reaction alters the interaction without resulting in mathematical break-downs."

3. **TOMONAGA, Sin-itiro.** *Bemerkung über die Streuung der Mesotronen am Kernteilchen.* Offprint from: Scientific Papers of the Institute of Physical and Chemical Research, no. 1105, vol. 40, pp. 73-86, September 1942. Original yellow printed wrappers. Signed by Pais.

This paper represents a foundational milestone in the development of modern meson theory and quantum field theory.

4. **TOMONAGA, Sin-itiro; MIYAZIMA, Tatuoki [MIYAJIMA].** *Zur Theorie des Mesotrons. II.* Offprint from: Scientific Papers of the Institute of Physical and Chemical Research, no. 1103, vol. 40, pp. 21-67, August 1942. Original yellow printed wrappers. Signed by Pais.

See: Laurie M. Brown and Yoichiro Nambu, “Physicists in Wartime Japan,” *Scientific American*, Vol. 279, No. 6 (December 1998), pp. 96-103.



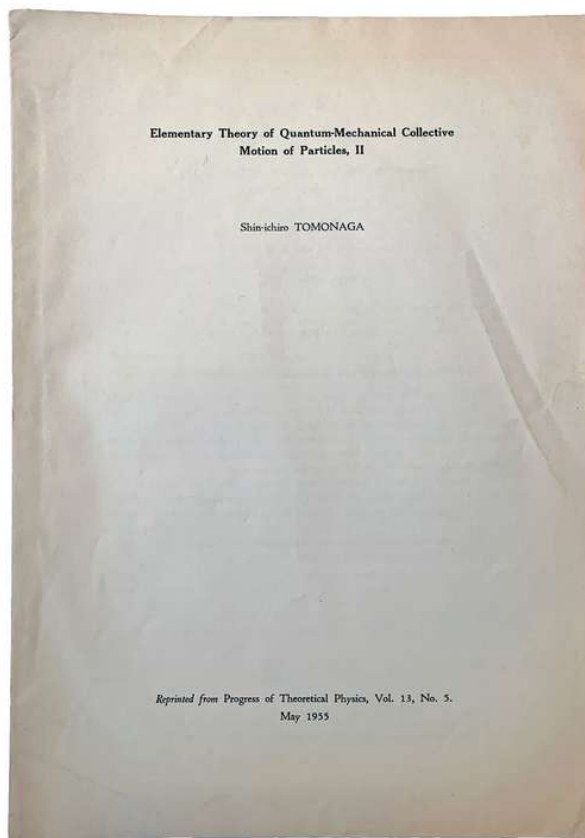
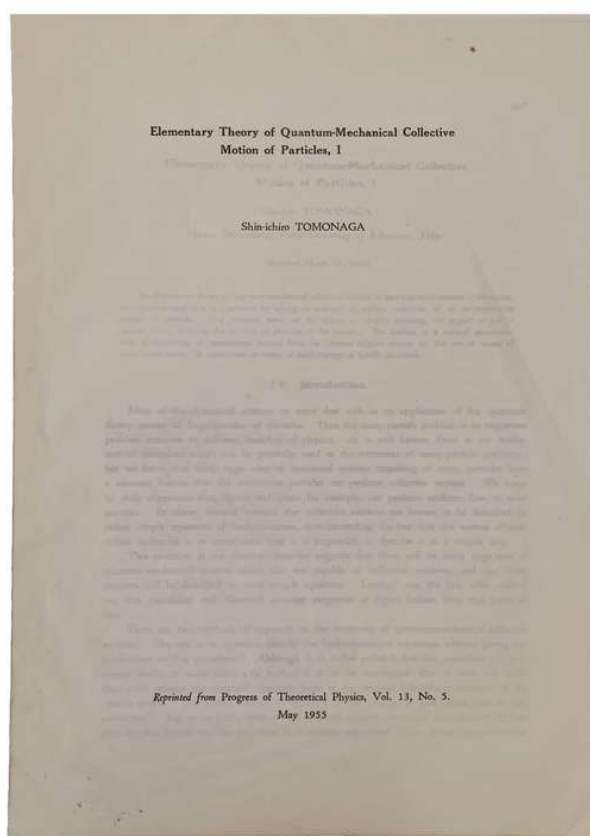
5. **TOMONAGA, Sin-itiro; MIYAZIMA, Tatuoki.** *On the Mesotron Theory of the Nuclear Forces.* Offprint from: Scientific Papers of the Institute of Physical and Chemical Research, no. 1124, vol. 40, pp. 274-310, March 1943. Original yellow printed wrappers. Signed by Pais.

“Following his work in 1940 on the meson cloud around a nucleon, Tomonaga developed and expanded his **intermediate coupling theory** to address

the limitations of both perturbation theory and strong-coupling approximations in meson-nucleon interactions.”

6. **TOMONAGA, Sin-itiro.** *Remarks on Bloch's Method of Sound Waves applied to Many-Fermion Problems.* Offprint from: *Progress of Theoretical Physics*, vol. 5, no. 4, pp.544-569, July-August, 1950. Signed by Pais.

This paper “established a foundational framework for many-body physics by demonstrating that the collective behavior of one-dimensional interacting fermions can be described via quantized sound waves. This approach laid the groundwork for the Tomonaga–Luttinger liquid paradigm by treating fermions in terms of equivalent bosonic sound quanta.”



7. **TOMONAGA, Shin-ichiro.** *Elementary Theory of Quantum-Mechanical Collective Motion of Particles, I.* Offprint from: *Progress of Theoretical Physics*, vol. 13, no. 5, pp.467-481, May 1955.

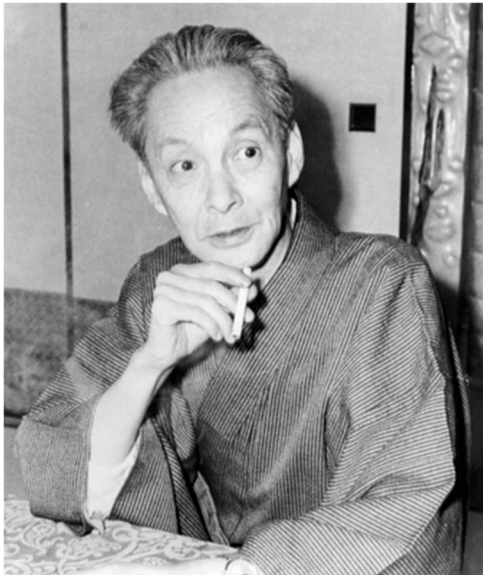
This work built upon Tomonaga's earlier 1950 studies on one-dimensional fermion systems (which laid the groundwork for the Tomonaga-Luttinger liquid)

and heavily influenced microscopic theories of nuclear collective motion and quantum fluids.

8. **TOMONAGA, Shin-ichiro.** *Elementary Theory of Quantum-Mechanical Collective Motion of Particles, II.* Offprint from: Progress of Theoretical Physics, vol. 13, no. 5, pp. 482-496, May 1955.

9. **TOMONAGA, Sin-itiro.** *Development of Quantum Electrodynamics.* Extracted from: *Physics Today*, vol. 19, no. 9, pp. 25-32, September 1966. Signed by Pais.

Tomonaga, having just received the Nobel Prize, discusses how his wartime isolation in Japan led to a formulation equivalent to the post-war independent works of Julian Schwinger and Richard Feynman.



BIOGRAPHY: Tomonaga was a prominent Japanese physicist, influential in the development of quantum electrodynamics, work for which he was jointly awarded the 1965 Nobel Prize in Physics – along with Richard Feynman and Julian Schwinger – for the study of QED, specifically for the discovery of the renormalization method. Nobel biography: Tomonaga completed work for Rigakushi (bachelor's degree) in physics at Kyoto Imperial University in 1929, with one of his intimate friends. Dr. Hideki Yukawa, Nobel laureate.

He was engaged in graduate work for three years at the same university and was then appointed a research associate by Dr. Yoshio Nishina at the Institute of Physical and Chemical Research, Tokyo, where he started to work in a newly

developed frontier of theoretical physics quantum electrodynamics - under the guidance of Dr. Nishina. His paper on the photoelectric pair creation is well-known. Tomonaga stayed in Leipzig, Germany, from 1937 to 1939, to study nuclear physics and the quantum field theory in collaboration with the theoretical group of Dr. W. Heisenberg, where he published a paper "Innere Reibung und Wärmeleitfähigkeit der Kernmaterie", which was chosen as the thesis for Rigakuhakushi (Doctor of Science) at Tokyo Imperial University in December, 1939.

In 1940, Dr. Tomonaga directed his attention to the meson theory and developed the intermediate coupling theory in order to clarify the structure of the meson cloud around the nucleon. He joined the faculty of Tokyo Bunrika University (which was absorbed into the Tokyo University of Education in 1949*) as Professor of Physics in 1941. It was in 1942 when he first proposed the covariant formulation of the quantum field theory in which the concept of the quantum state was generalized so as to be relativistically covariant.

During the Second World War, Dr. Tomonaga was interested in developing a theory of microwave systems. He solved the motion of electrons in the magnetron and also developed a unified theory of the systems consisting of wave guides and cavity resonators. As soon as the War was over, Tomonaga came back to academic research again with a programme in which he was first to summarize and extend the intermediate coupling theory and secondly to apply the covariant field theory to actual physical systems. His aim was to investigate the nature of field reaction in the meson theory as well as in quantum electrodynamics. He was confident, prior to the Lamb-Retherford experiment, by means of a model calculation that divergence difficulty in quantum electrodynamics could be overcome simply by handling the infinite mass and charge due to field reactions in some way or another. It was only a step further for him to develop the renormalization theory with covariant formalism in his right hand and experimental support in his left.

Dr. Tomonaga was invited to the Institute for Advanced Study, Princeton, in 1949 where he was engaged in the investigation of a one-dimensional fermion system. Thus he first succeeded in clarifying the nature of collective oscillations of a quantum-mechanical many-body system and opened a new frontier of theoretical physics, modern many-body problem. In 1955, he published an elementary theory of quantum mechanical collective motions. Dr. Tomonaga took the leadership in establishing the Institute for Nuclear Study, University of Tokyo, in 1955. From 1956 to 1962 he was appointed President of the Tokyo University of Education and since 1963 he has been President of the Science Council of Japan and Director of the Institute for Optical Research, Tokyo University of Education. He occupies an important position in various governmental committees for scientific research and policymaking. Tomonaga's honours and awards include the Japan Academy Prize (1948); the Order of Culture (1952); the Lomonosov Medal, U.S.S.R. (1964).

Dr. Tomonaga is a member of the Japan Academy, the Deutsche Akademie der Naturforscher "Leopoldina" and a foreign member of the Royal Swedish Academy of Science. He is a corresponding member of the Bayerische Akademie der Wissenschaften and a foreign associate of the National Academy of Science of U.S.A. Tomonaga has published widely in scientific journals on such subjects as quantum electrodynamics, the meson theory, nuclear physics, cosmic rays, and the many-body problem. His book, "Quantum Mechanics", was published in 1949 and translated into English in 1963.

Parkstone, Dorset.
May 28th. 1892

Horace Pearce Esq.

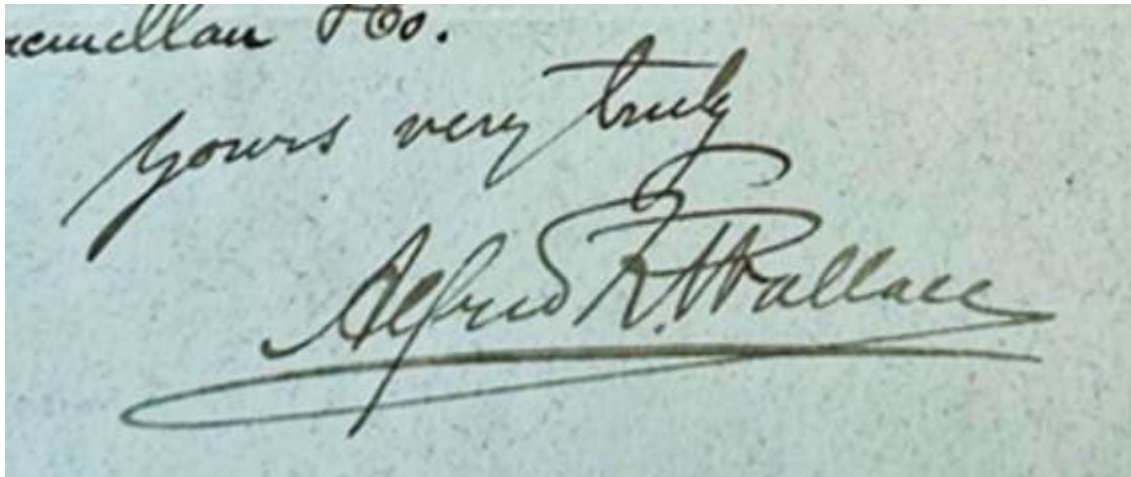
Dear Sir

You will find ~~find~~ in
my "Travels in the Amazon & Rio Negro"
(new ed. in the Minerva Library of Ward
& Lock) p. 326 all that I know
about the species of the opp. sides of
Amazon & Rio Negro, which include
mammals, birds, & insects. My
"Malay Archipelago" and all my
works on Natural History are published
by Macmillan & Co.

Yours very truly

Alfred R. Wallace

[85] Alfred Russel WALLACE
Autograph letter signed



Mentioning his own Published Books

85. **WALLACE, Alfred Russel** (1823-1913). **AUTOGRAPH LETTER SIGNED**, to Horace Pearce. Parkstone, Dorset, May 28th, 1892. ¶ 1 page. 7x 4.5 inches. Written on bluish-green paper. Verso showing remnant of paper wherein this was likely mounted for preservation. Fine.

\$ 1,750

Transcription:

Parkstone, Dorset, May 28th, 1892.

Horace Pearce, Esq.

Dear Sir,

You will find in my "Travels on the Amazon & Rio Negro (new ed.[ition]) in the Minerva Library of Ward + Lock) p. 326 all that I know about the species of the opp. sides of Amazon + Rio Negro, which include mammals, birds, + insects. My "Malay Archipelago" and all my works on natural history are published by Macmillan + Co.

Yours very truly, Alfred R. Wallace

British naturalist, explorer, and biologist, Wallace, best known for proposing a theory of natural selection which prompted Charles Darwin to publish his own.

Parkstone, Dorset.
May 10th. 1891
The Curator, Botanic Gardens,
Kew.

Dear Sir

I believe cut flowers
& hardy plants are supplied to
teachers from Kew. If so
will you please send the
Rules under which they are
supplied to my daughter, who
gives lessons on plants to
children. Her address is; -
Miss V. Wallace
11, Norland Place
Uxbridge Road
London. W.



86. **WALLACE, Alfred Russel** (1823-1913). **AUTOGRAPH LETTER SIGNED** addressed to "Sir" but he also names the gentleman's title, though not by name – the man Wallace has written to was George Nicholson, the Curator, Botanic Gardens, Kew. Parkstone, Dorset, 1891. ¶ 2 pages. 7x 4.5 inches. Written on bluish-green paper. Fine.

\$ 2,000

In this letter Alfred Russel Wallace writes to the curator of the Botanic Gardens, Kew, being George Nicholson who served in that capacity from 1886-1901. The letter was actually written in support of the lessons his daughter offers to children, each lesson being about plants.

Transcription:

Parkstone, Dorset, May 10th, 1891.
The Curator, Botanic Gardens, Kew.

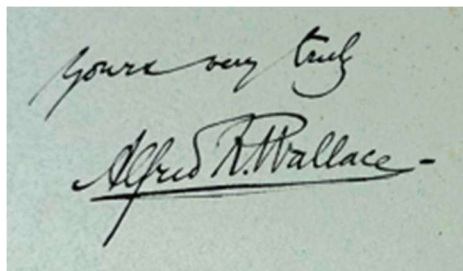
Dear Sir,

I believe cut flowers of hardy plants are supplied to teachers from Kew. If so[,] will you please send the Rules under which they are supplied to my daughter who gives lessons on plants to children. The address is:

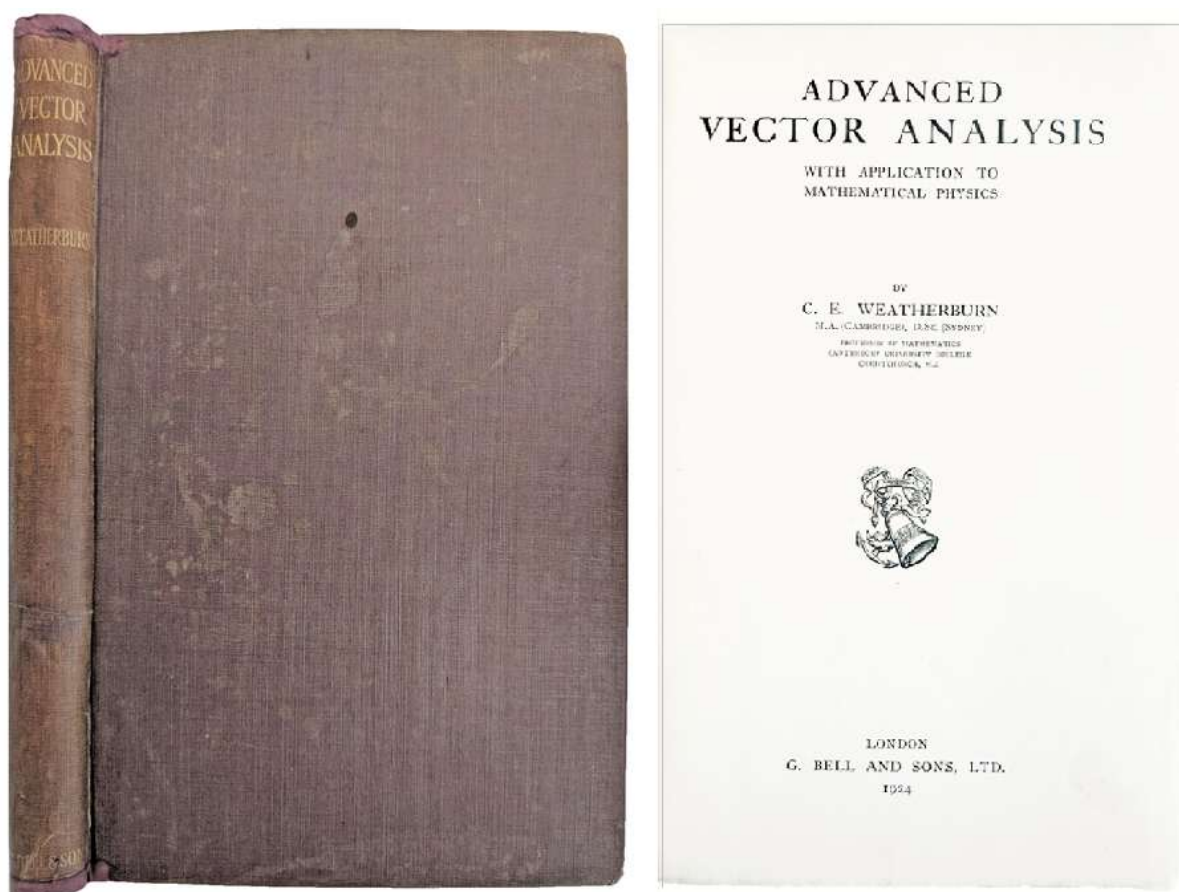
Miss V. Wallace
11, Norland Place
Uxbridge Road
London W

The writer has destroyed a good many of the half-hardy plants you sent me, the autumn before last.

Yours very truly, Alfred R. Wallace

A photograph of a handwritten signature in cursive script. The first line reads "Yours very truly" and the second line reads "Alfred R. Wallace -". The signature is written in dark ink on a light-colored, slightly textured paper.

George Nicholson (1847–1908) held the position of Curator at Kew from 1886 to 1901, succeeding John Smith II and preceding William Watson. He was a prominent botanist and the Curator of Kew Gardens best known for editing and expanding *The Illustrated Dictionary of Gardening* (1885–1889).



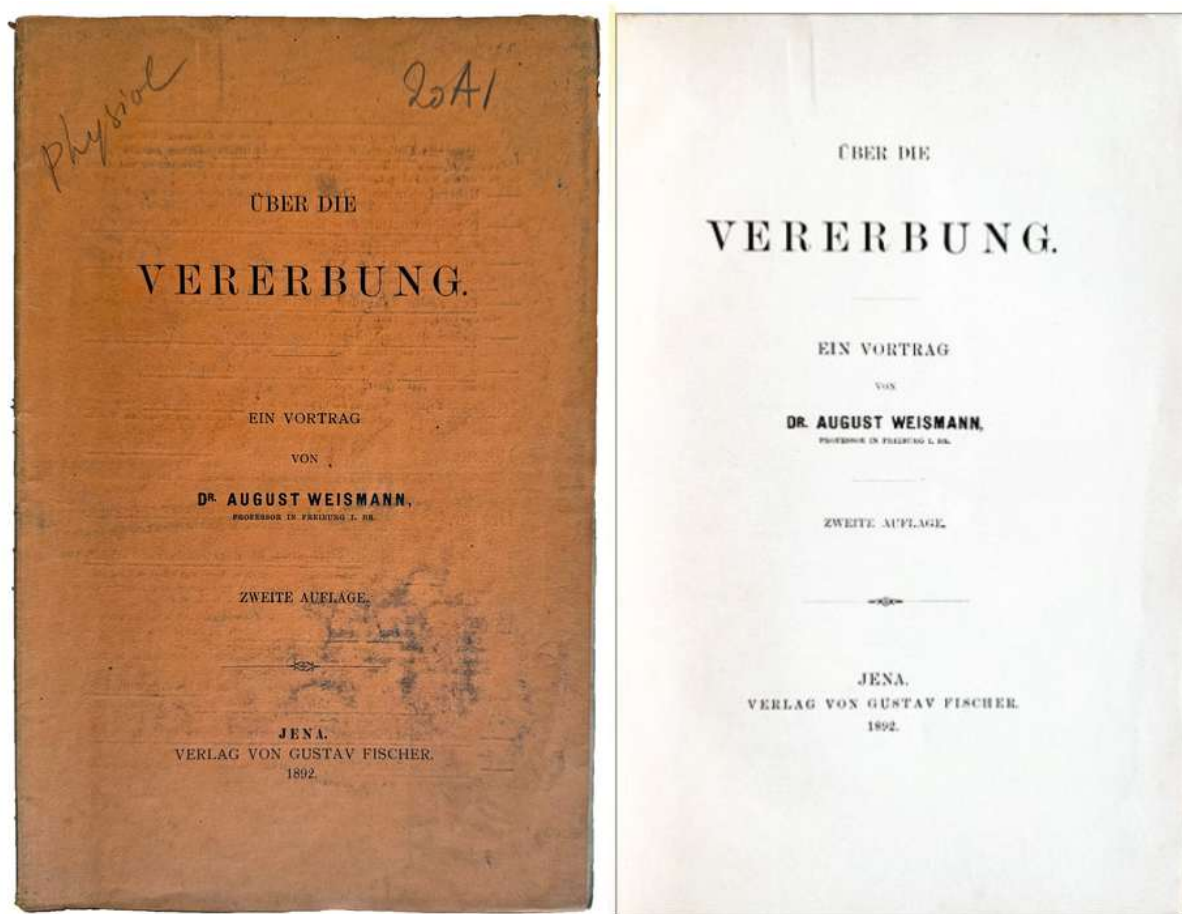
87. **WEATHERBURN, Charles Ernest** (1884-1974). *Advanced Vector Analysis; with Application to Mathematical Physics*. London: G. Bell, 1924. ¶ 8vo. xiv, [2], 222 pp. 36 figs. Brown gilt-stamped cloth; soiled, spine repaired with kozo. With the ownership signature of [Professor] A. H. Wilson, Haverford College, [1932?]. [Hand-written note: "F.W. Weston owned this book . . . "—with his faded signature, April 1926. Good.

\$ 30

Weatherburn was an Australian mathematician.

"In 1923 was appointed chair of mathematics in Canterbury College, University of New Zealand. He returned to Australia in 1929 as chair of mathematics at the University of Western Australia, a post he held until he retired in 1950." — Wikip.

PROVENANCE: Professor of mathematics, Albert Harris Wilson, Haverford College, PA, was educated at Vanderbilt University and the University of Chicago.



88. **WEISMANN, August Friedrich Leopold** (1834-1914). *Über die Vererbung*. Jena: Gustav Fischer, 1892. ¶ 8vo. 49, [1] pp. Occasional light pencil marginalia. Original printed wrappers; top cover soiled and with pencil notations. Very good. S7034

\$ 25

SECOND EDITION. “August Friedrich Leopold Weismann studied how the traits of organisms developed and evolved in a variety of organisms, mostly insects and aquatic animals, in Germany in the late nineteenth and early twentieth centuries. Weismann proposed the theory of the continuity of germ-plasm, a theory of heredity. Weismann postulated that germ-plasm was the hereditary material in cells, and parents transmitted to their offspring only the germ-plasm present in germ-cells (sperm and egg cells) rather than somatic or body cells. Weismann also promoted Charles Darwin’s 1859 theory of the evolution of species. Weismann argued that only changes to the germ cells, and not body cells, could be inherited, a theory that influenced theories of heredity throughout later centuries”.

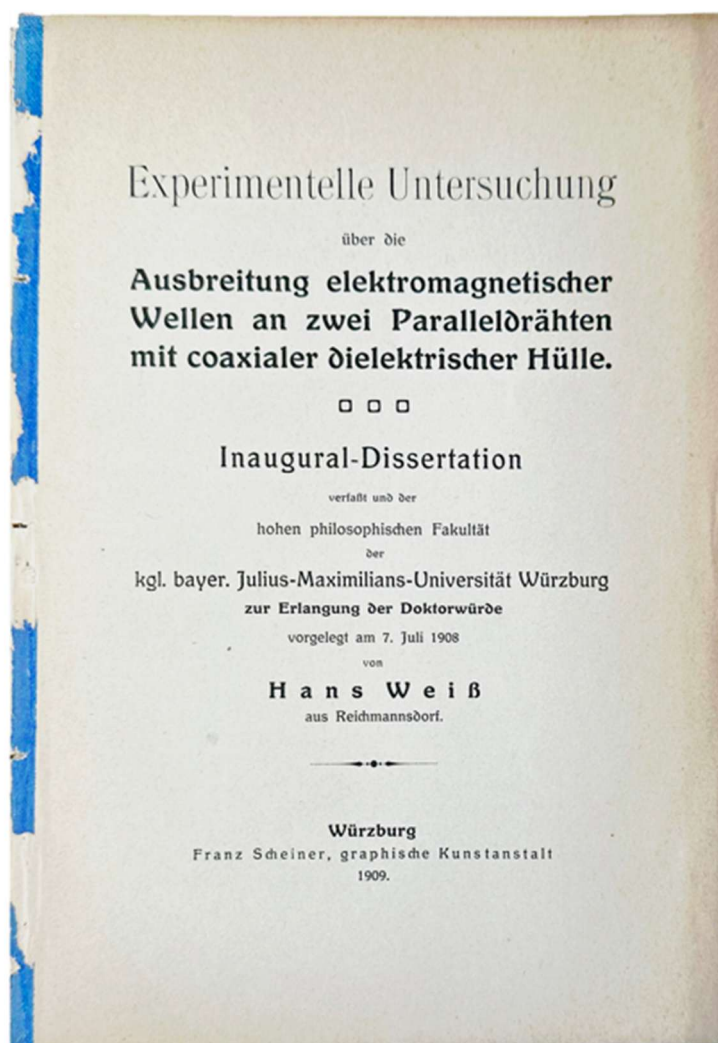
“In 1884, Weismann quit microscopic study again due to the deterioration of his eyesight and instead focused on theoretical questions in biology. The following year, Weismann published an essay titled “*Die Continuität des Keimplasmas als*

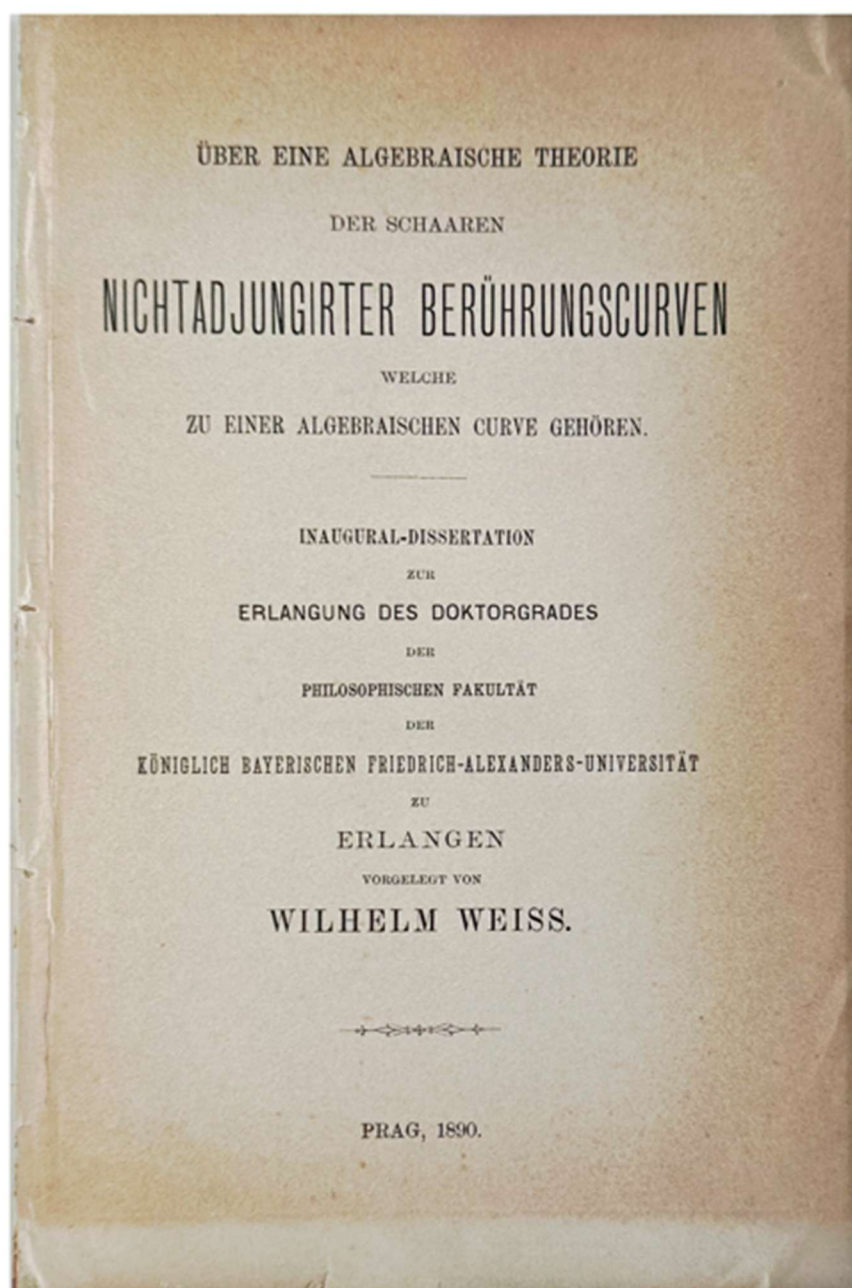
Grundlage einer Theorie der Vererbung ("The Continuity of the Germ-plasm as the Foundation of a Theory of Heredity") . . . Inspired by his work on the generation of sex cells and parthenogenesis, Weismann hypothesized that the germ-plasm, which he now argued was a substance in the nucleus of a germ cell, had a highly complex structure". – Yawen Zou, *August Friedrich Leopold Weismann (1834-1914)*, Arizona State University, Embryo Project Encyclopedia.

August Weismann became professor of zoology at the University of Freiburg in 1874. He was the founding director of the Zoological Institute at the University of Freiburg, starting in 1867.

§ DSB, XIV, pp. 232-239.

89. **WEISS, Hans (of Reichmannsdorf)** (b. 1882).
Experimentelle Untersuchung über die Ausbreitung elektromagnetischer Wellen an zwei Paralleldrähten mit coaxialer dielektrischer Hülle, Inaugural-Dissertation . . . von Hans Weiss,
 . . . Würzburg: F. Scheiner, 1909. ¶ 8vo. 30, (1) pp. 4 charts. Self-wraps. Very good.
 S9856 \$ 10



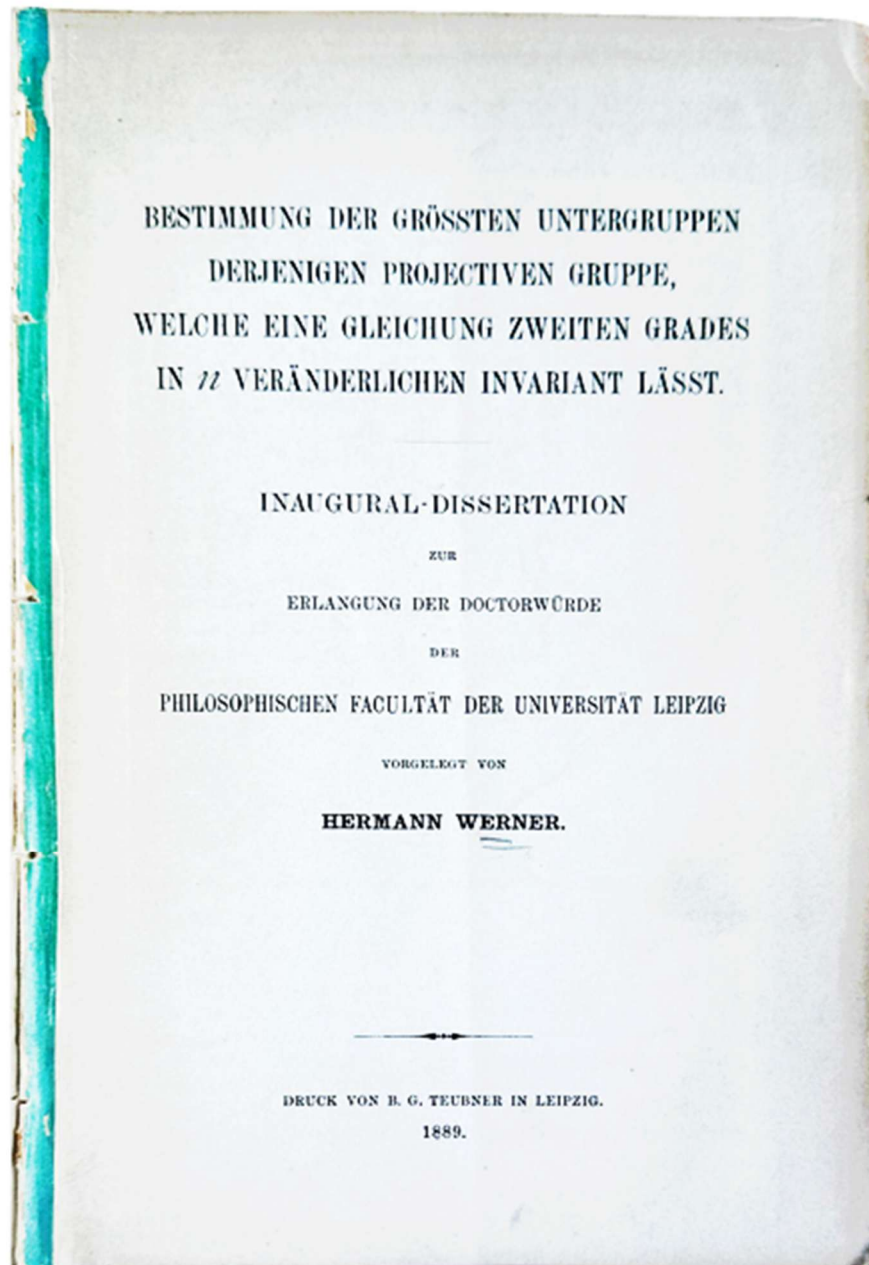


90. **WEISS, Wilhelm.** *Über eine algebraische Theorie der Schaaren nichtadjungirter Berührungscurven, welche zu einer algebraischen Curve gehören. Inaugural-Dissertation . . . von Wilhelm Weiss.* Prag: A. Haase, 1890. ¶ 8vo. 34 pp. Self-wraps; bottom edge a bit chipped. Very good. S9855

\$ 10

“On an Algebraic Theory of Sets of Non-Adjoint Tangent Curves Associated with an Algebraic Curve.”

Dedicated to Prof. Dr. Max Nother.



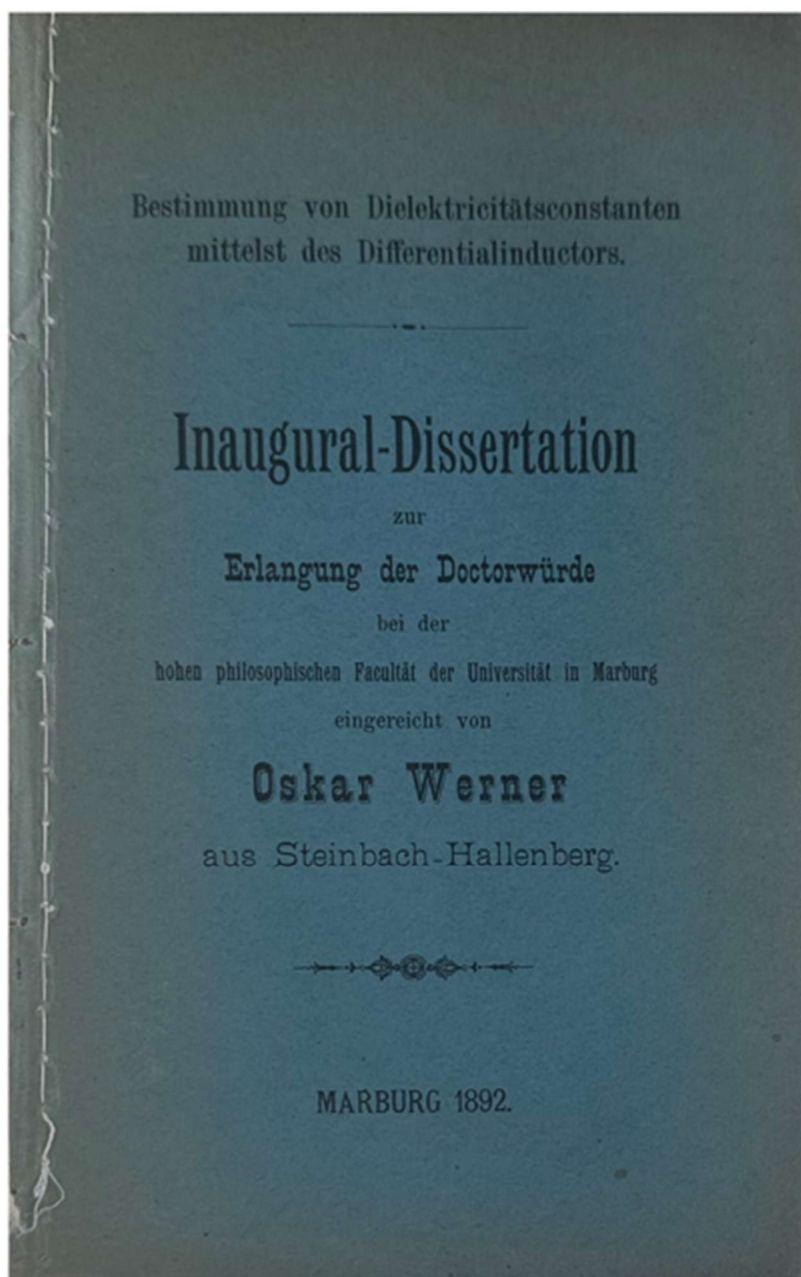
91. **WERNER, Hermann** (b.1862). *Bestimmung der grössten Untergruppen derjenigen projectiven Gruppe, welche eine Gleichung zweiten Grades in " n " Veränderlichen invariant lasst. Inaugural-Dissertation . . . von Hermann Werner.* Leipzig: B. G. Teubner, 1889. ¶ 8vo. 48 pp. Self-wraps. Very good. S9848

\$ 12

[Determination of the maximal subgroups of the projective group that leaves a quadratic equation in n variables invariant].

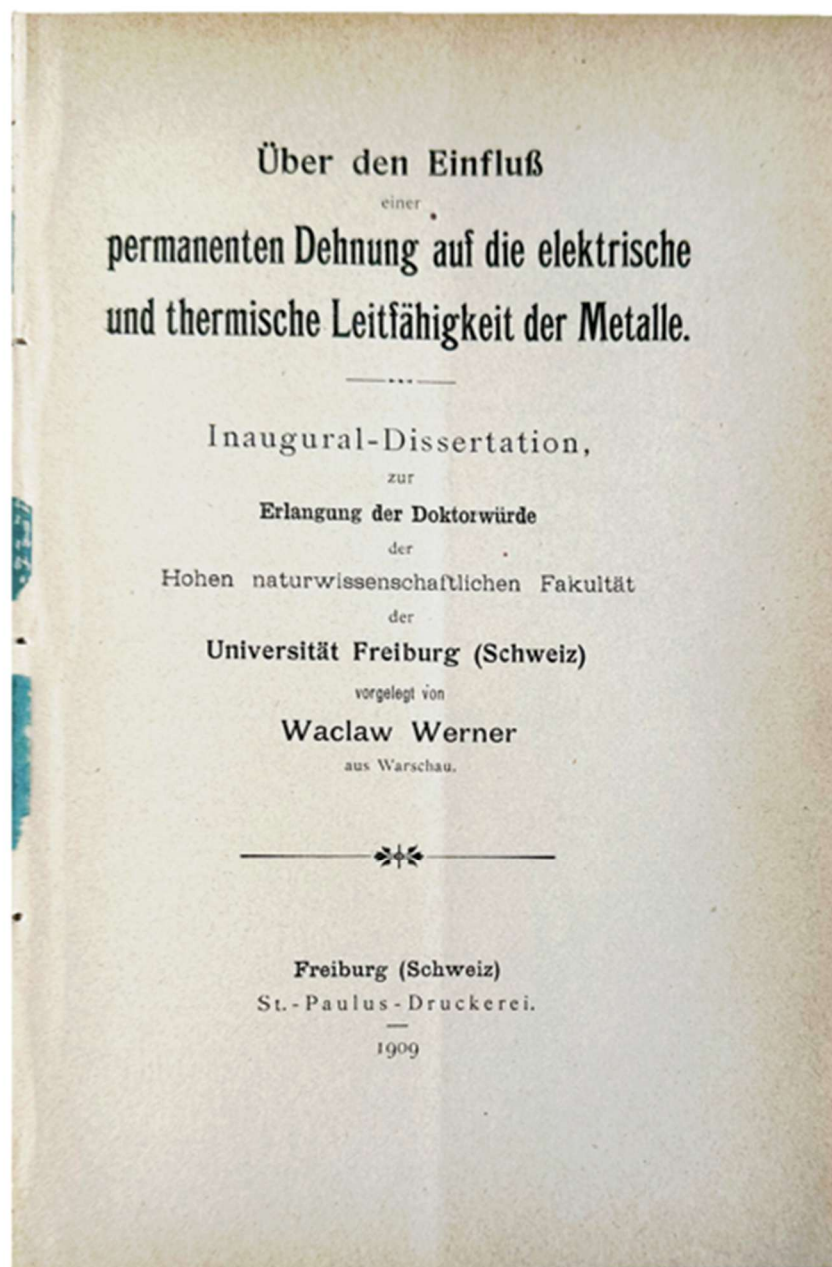
Prof. Dr. Sophus Lie (1842-1899) was Werner's advisor at the University of Leipzig. "Marius Sophus Lie (1842-1899) was a Norwegian-born mathematician.

He largely created the theory of continuous symmetry, and applied it to the study of geometry and differential equations.” – Wikip.

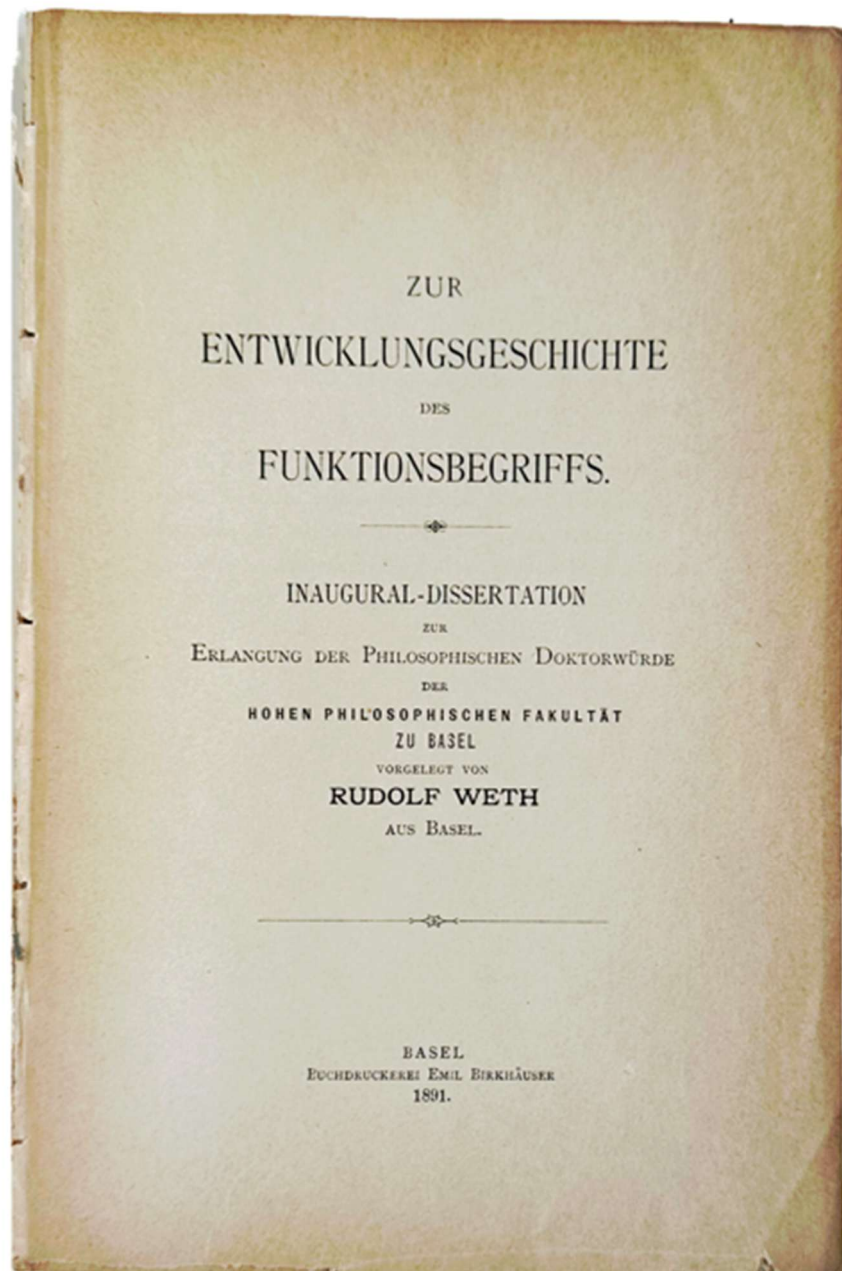


92. **WERNER, Oskar** (b. 1866). *Bestimmung von Dielektricitätsconstanten mittelst des Differentialinductors, Inaugural-Dissertation . . . von Oskar Werner, . . .* Marburg, 1892. ¶ 8vo. 34, (1) pp. 3 figs. Self-wraps; disbound. Very good. Rare. S9844 \$ 12

“Determination of Dielectric Constants Using a Differential Inductor, Doctoral Dissertation . . . by Oskar Werner.”



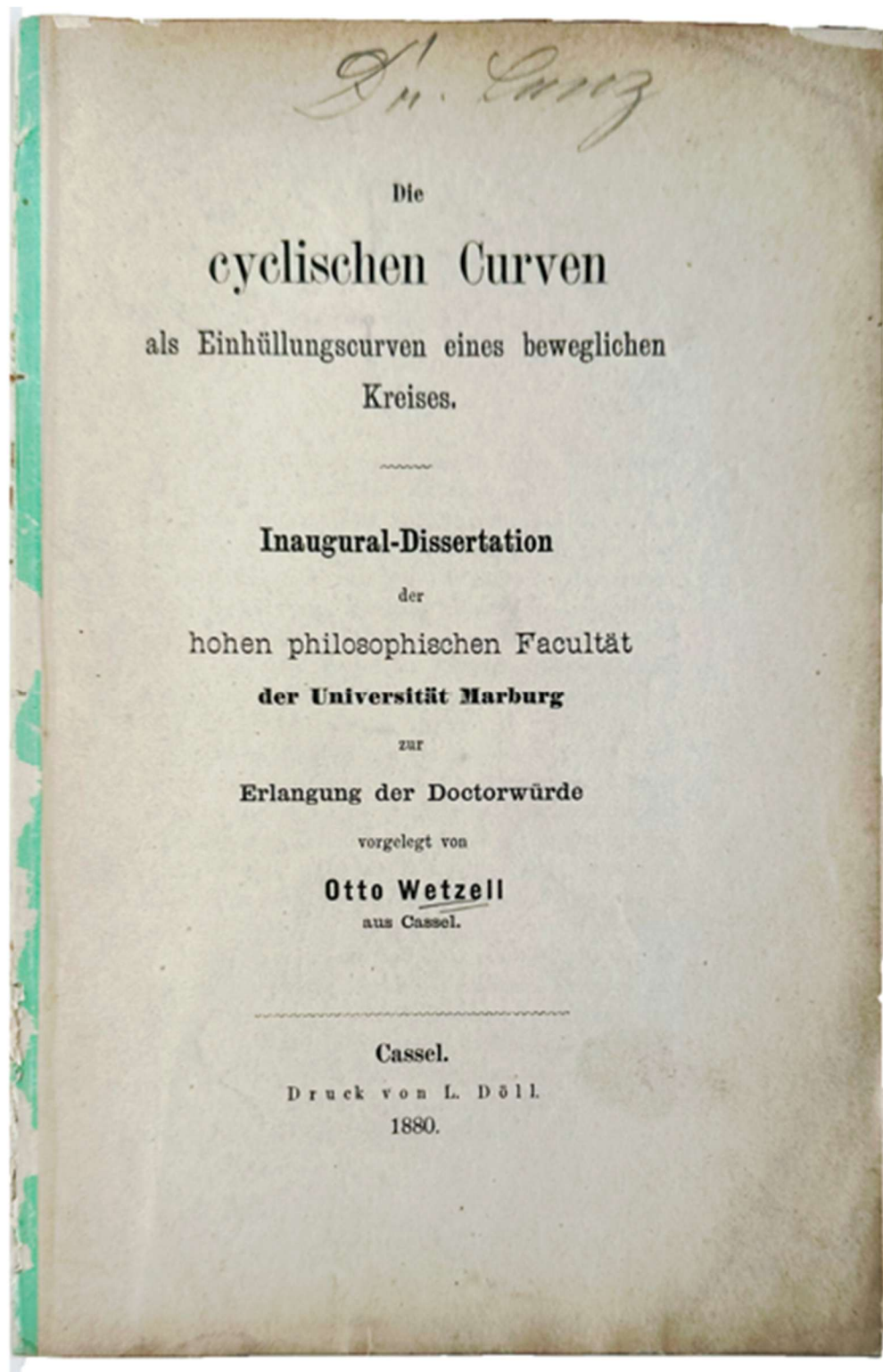
93. **WERNER, Waclaw** (b. 1879). *Über den Einfluss einer permanenten Dehnung auf die elektrische und thermische Leitfähigkeit der Metalle, Inaugural-Dissertation . . . von Waclaw Werner, . . .* Freiburg (Schweiz): St. Paulus Druckerei, 1909. ¶ 8vo. 81, (1) pp. Figs., tables. Self-wraps. Very good. S9842 \$ 12



94. **WETH, Rudolf** (1866-1925). *Zur Entwicklungsgeschichte des Funktionsbegriffs, Inaugural-Dissertation . . . von Rudolf Weth, . . .* Basel: E. Birkhauser, 1891. ¶ 8vo. 64, (1) pp. Self-wraps; a bit browned. Very good. S9825

\$ 10

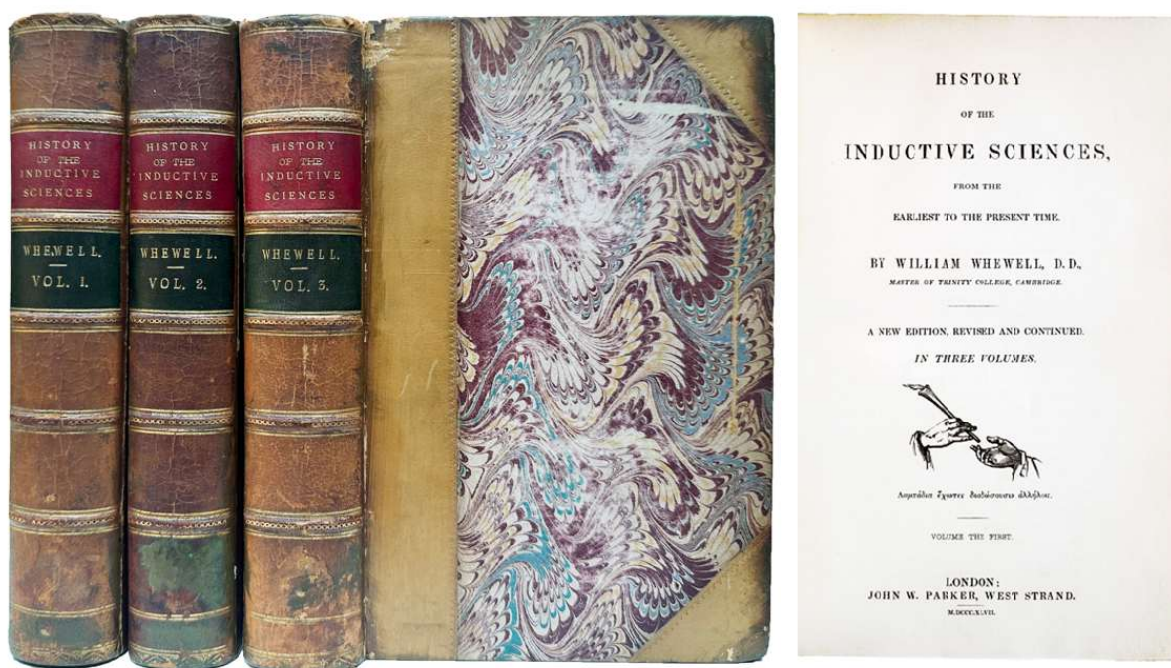
“On the History of the Concept of Function, Inaugural Dissertation . . . by Rudolf Weth.”



95. WETZELL, Otto. *Die cyclischen Curven als Einhüllungscurven eines beweglichen Kreises*. Cassel: L. Doll, 1880. ¶ 8vo. 22 pp. Self-wraps. Very good. S9824

\$ 10

“Cyclic curves as [enveloping-curves] of a moving circle.”



96. **WHEWELL, William, D.D.** (1794-1866). *History of the Inductive Sciences, from the earliest to the present time. The third edition, with additions. In three volumes.* London: John W. Parker, 1847. ¶ 3 volumes. Small 8vo. xxxii, 394; xii, 488; xiv, 565, [1] pp. Original full tan calf, gilt-tooled image of Trinity College, Cambridge on each cover, all edges marbled, massed gilt spine, raised bands, deep red and brown paired spine labels; rubbed. Very good.

\$ 350

“The *History* had no rivals in its day and remains, despite unevenness, one of the important surveys of science from the Greeks to the nineteenth century. Whewell appreciated the importance of Greek science, especially astronomy, but showed typical disregard for the contributions of medieval scientists. His assessment of the importance of contributions of such major figures as Galileo and Descartes suffers from a heavy intrusion of religious and philosophical biases. But his treatment of Newton and other modern mathematical scientists is fair and sometimes brilliant, and is based throughout upon detailed considerations of texts.” – DSB.

“His large-scale *History of the Inductive Sciences* (first edition published 1837) was a survey of science from ancient to modern times. He insisted upon completing this work before writing his *Philosophy of the Inductive Sciences*, founded upon their history. Moreover, Whewell sent proof-sheets of the *History* to his many scientist-friends to ensure the accuracy of his accounts. Besides knowing about the history of science, Whewell had first-hand knowledge of scientific practice: he was actively involved in science in several important ways. In 1825 he

traveled to Berlin and Vienna to study mineralogy and crystallography with Mohs and other acknowledged masters of the field. He published numerous papers in the field, as well as a monograph, and is still credited with making important contributions to giving a mathematical foundation to crystallography. He also made contributions to the science of tidal research, pushing for a large-scale world-wide project of tidal observations; he won a Royal Society gold medal for this accomplishment. (For more on Whewell's contributions to science, see Becher 1986; Ruse 1991; Ducheyne 2010a; Snyder 2011)."

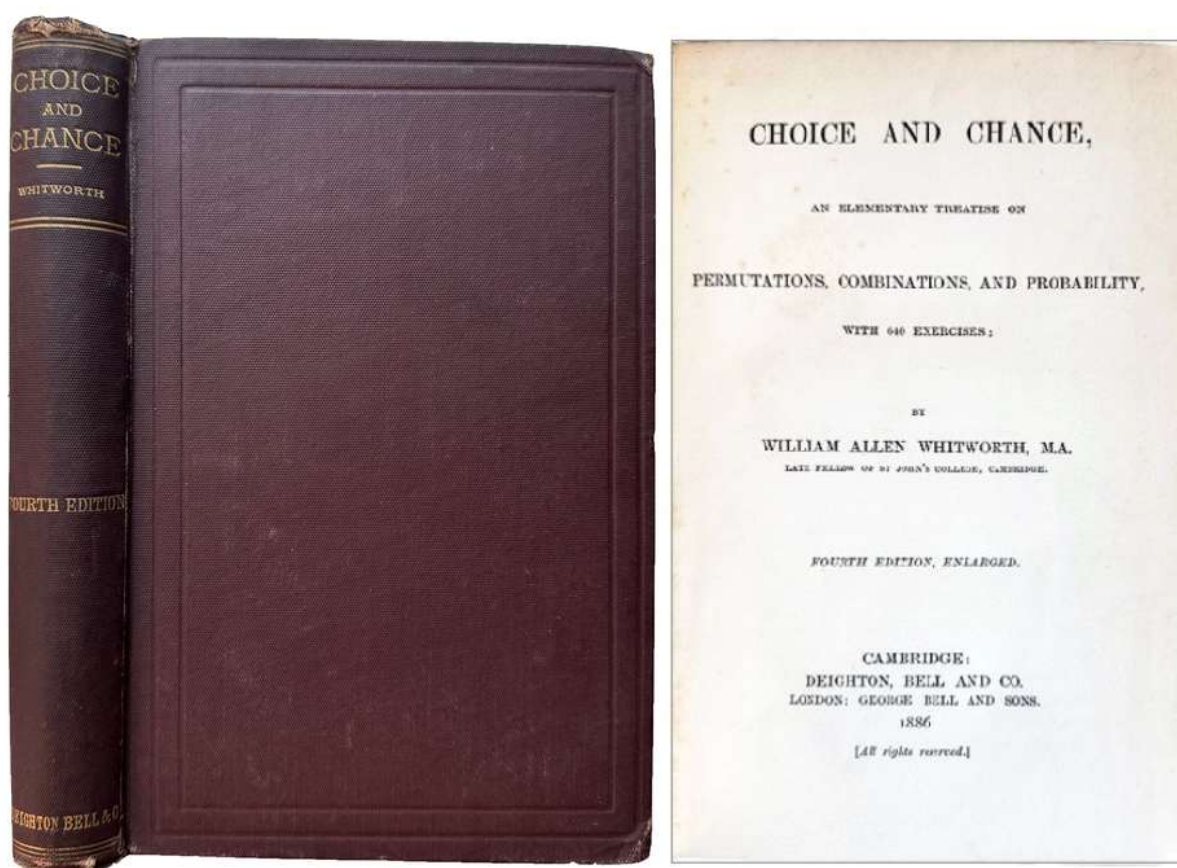


"William Whewell (1794–1866) was one of the most important and influential figures in nineteenth-century Britain. Whewell, a polymath, wrote extensively on numerous subjects, including mechanics, mineralogy, geology, astronomy, political economy, theology, educational reform, international law, and architecture, as well as the works that remain the most well-known today in philosophy of science, history of science, and moral philosophy. He was one of the founding members and a president of the British Association for the Advancement of Science, a fellow of the Royal Society, president of the Geological Society, and longtime Master of Trinity College, Cambridge. In his own time his influence was acknowledged by the major scientists of the day, such as John Herschel, Charles Darwin, Charles Lyell and Michael Faraday, who frequently turned to Whewell for philosophical and scientific advice, and, interestingly, for terminological assistance. Whewell invented the terms "anode," "cathode," and "ion" for Faraday. In response to a challenge by the poet S.T. Coleridge in 1833, Whewell invented the English word "scientist;" before this time the only terms in use were "natural philosopher" and "man of science". Whewell was greatly influenced by his association with three of his fellow students at Cambridge: Charles Babbage, John Herschel, and Richard Jones. Over the winter of 1812 and spring of 1813, the four

met for what they called “Philosophical Breakfasts” at which they discussed induction and scientific method, among other topics (see Snyder 2011).”

“Whewell’s first explicit, lengthy discussion of induction is found in his *Philosophy of the Inductive Sciences*, founded upon their History, which was originally published in 1840 (a second, enlarged edition appeared in 1847, and the third edition appeared as three separate works published between 1858 and 1860). He called his induction “Discoverers’ Induction” and explained that it is used to discover both phenomenal and causal laws. Whewell considered himself to be a follower of Bacon, and claimed to be “renovating” Bacon’s inductive method; thus one volume of the third edition of the *Philosophy* is entitled *Novum Organon Renovatum*. Whewell followed Bacon in rejecting the standard, overly-narrow notion of induction that holds induction to be merely simple enumeration of instances. Rather, Whewell explained that, in induction, “there is a New Element added to the combination [of instances] by the very act of thought by which they were combined” (1847, II, 48). This “act of thought” is a process Whewell called “colligation.” Colligation, according to Whewell, is the mental operation of bringing together a number of empirical facts by “superinducing” upon them a conception which unites the facts and renders them capable of being expressed by a general law. The conception thus provides the “true bond of Unity by which the phenomena are held together” (1847, II, 46), by providing a property shared by the known members of a class (in the case of causal laws, the colligating property is that of sharing the same cause).” – *Stanford Encyclopedia of Philosophy*.

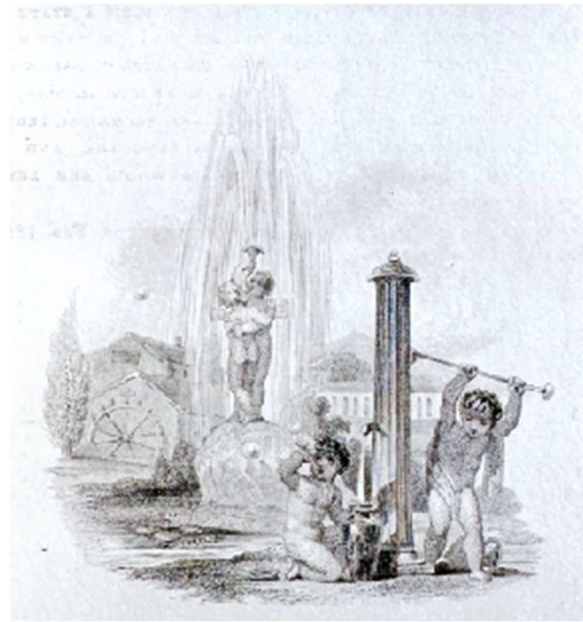
CONTENTS: I: History of the Greek School Philosophy; History of Greek Astronomy; History of Physical Science in the Middle Ages; History of Formal Astronomy; additions. II: History of Mechanics, including fluid mechanics; History of Physical Astronomy; History of Acoustics; History of Optics; History of Thermotics and Atmology; additions. III: History of Electricity; History of Magnetism; History of Galvanism, or Voltic Electricity; History of Chemistry; History of Mineralogy, History of Systematic Botany and Zoology; History of Physiology and Comparative Anatomy; History of Geology; with additions.



97. **WHITWORTH, William Allen** (1840-1905). *Choice and Chance. An Elementary Treatise on Permutations, Combinations, and Probability, with 640 Exercises*. Cambridge: Deighton, Bell, 1886. Fourth edition, enlarged. 8vo. viii, 299, [ads.] 16 pp. Figs. Original maroon cloth, gilt spine; inner hinges cracked (repaired with kozo), spine ends slightly frayed. Good. S8794

\$ 40

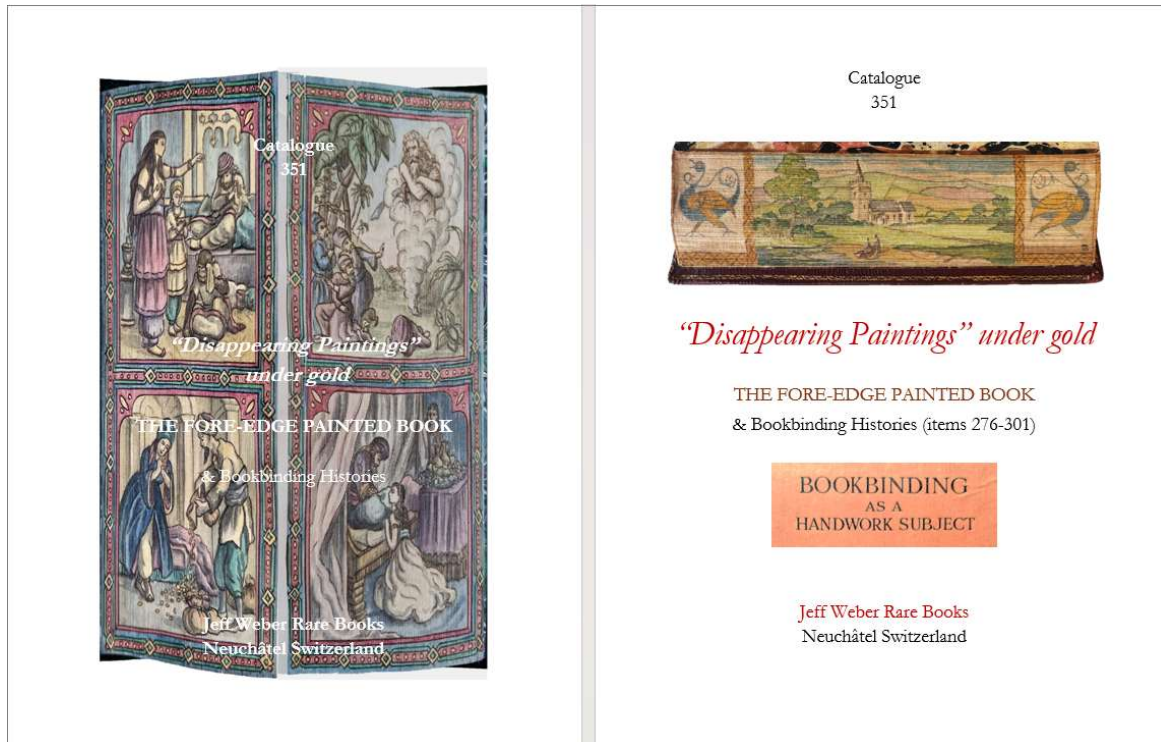
Whitworth “published works about the logarithmic spiral and about trilinear coordinates, but his most famous mathematical publication is the book *Choice and Chance: An Elementary Treatise on Permutations, Combinations, and Probability* (first published in 1867 and extended over several later editions). The first edition of the book treated the subject primarily from the point of view of arithmetic calculations, but had an appendix on algebra, and was based on lectures he had given at Queen’s College. Later editions added material on enumerative combinatorics (the numbers of ways of arranging items into groups with various constraints), derangements, frequentist probability, life expectancy, and the fairness of bets, among other topics”.



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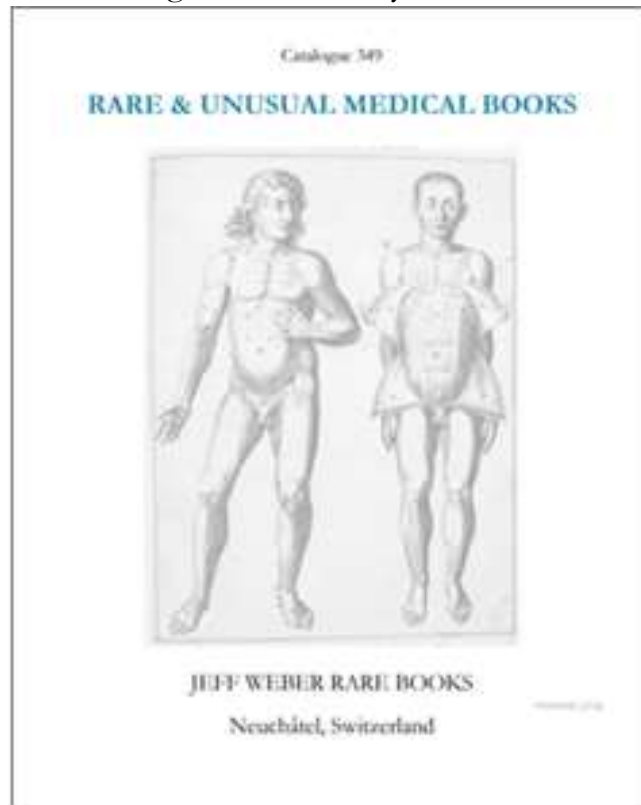
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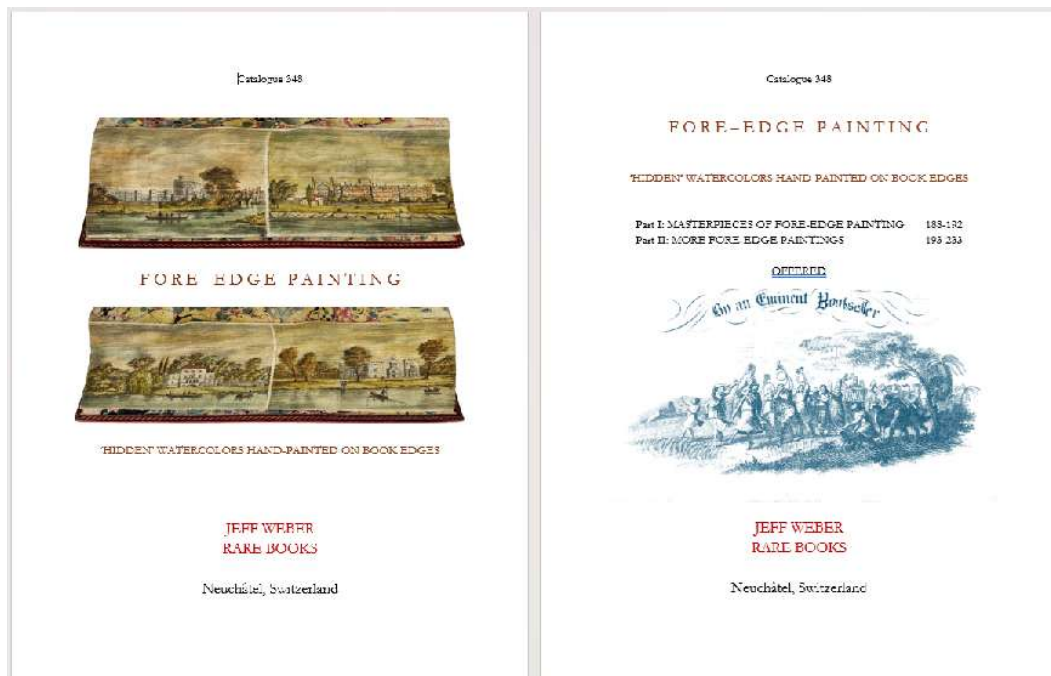
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