Leibnitz

3 lns + ½ page
& 1 diagram

p. 467

FIRST PUBLICATION OF THE DIFFERENTIAL CALCULUS IN A CONTEMPORARY ARMORIAL BINDING

LEIBNIZ, GOTTFRIED WILHELM

NOVA METHODUS PRO MAXIMIS ET MINIMIS, itemque tangentibus, quae nec fractas, nec irrationales quantitates moratur, & singulare pro illis calculi genus, per G.G.L.

With an engraved plate. In: Acta Eruditorum Anno MDCLXXXIV publicata, pp. 467-473. 4to. Contemporary calf, triple gilt line borders, with arms of Charles de Sainte-Maure, Duc de Montausier, crowned monogram of Charles and the Duchesse Julie in the corners, on the sides; semis of smaller monograms in the compartments of the back.

Leipzig, 1684

First edition of a fundamental work in the history of science. A very fine copy in contemporary armorial binding, which is of very rare occurrence for scientific works.

The calculus is a body of rules and processes by means of which continuously varying magnitudes are dealt with in mathematical analysis. Its discovery and publication by Leibniz marks a most important advance in the history of Mathematics.

The publication of the method led to a long and dreary controversy between Leibniz and Newton as to who had first made the discovery, which, as Cantor said, "redounded to the discredit of all concerned". Newton, it seems, had in fact made the same discovery, using a different notation, but failed to publish. Some of his friends attempted to remedy this oversight by claiming that Leibniz had stolen Newton's ideas.

The Duc de Montausier, the first owner of this copy, was the husband of the famous Julie for whom the "Guirlande de Julie", the most magnificent manuscript of the XVIIth century, was made.

Ravier, Bibliographie ... de Leibniz, No. 90; Burndy Library, Heralds of Science, No. 190; Grolier Club, 100 Important Books in Science (exhibition).

Purchased from H. P. Kraus 1959 AKH.HH

No. 220

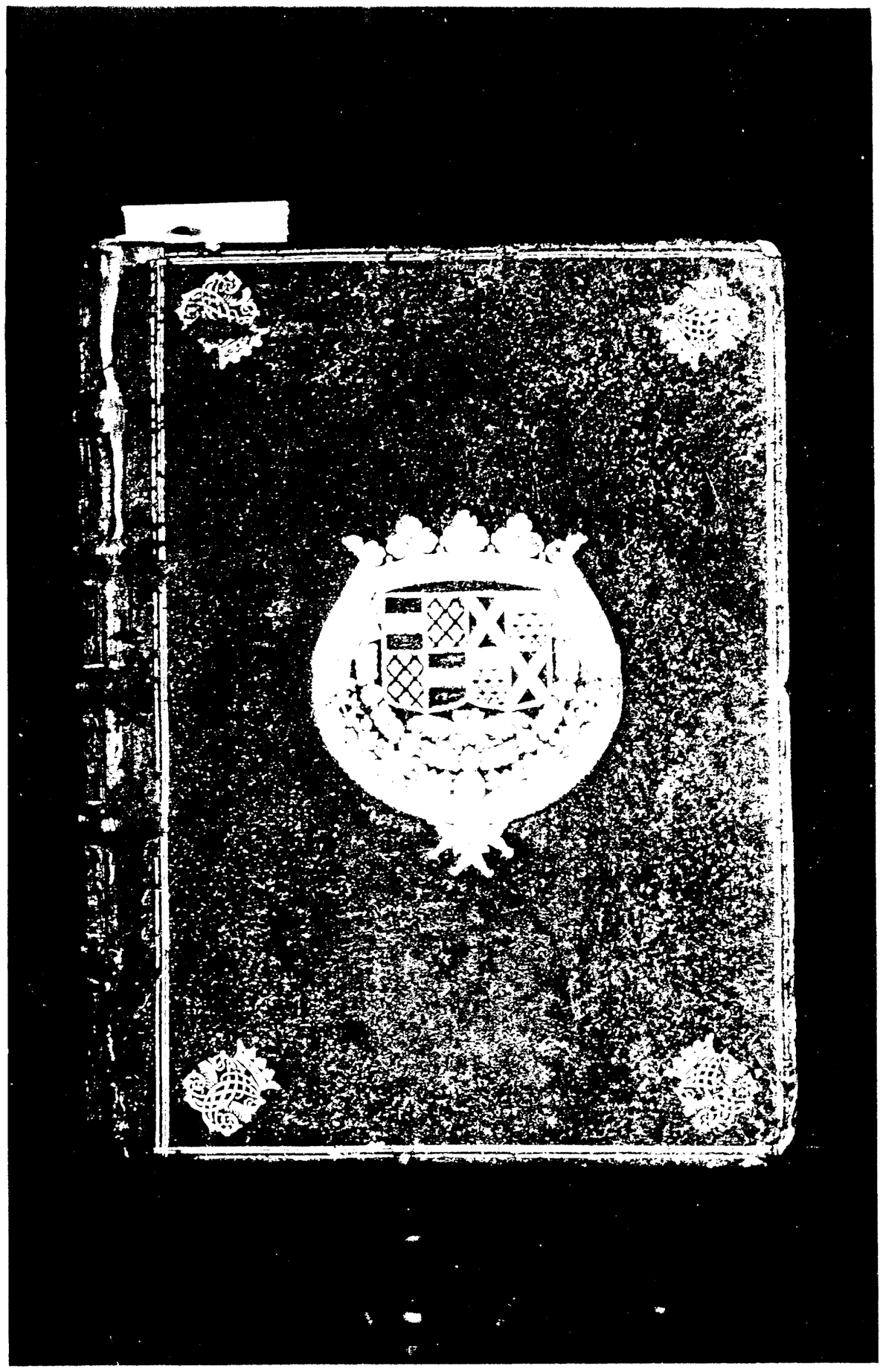
LEIBNIZ Nova methodus pro maximis & minimis, itemque tangentibus, quae nec fractas, nec irrationales quantitates moratur, & singulare pro illis calculi genus, per G. G. L. With a plate of geometric drawings. "Acta eruditorum anno MDCLXXXIV publicata ...": 467-473 pages; size 17.3 x 21.2 cm. Three quarters old calf, back stamped in gold, sprinkled edges.
Leipzig: J. Grossius & J. F. Gletitschius 1684

First Printing

The fame of Gottleib Wilhelm Leibniz (1646 - 1716) rests not on his metaphysical fancies but on his discovery of the differential and integral calculus. The controversy as to whether he had stolen the method from Newton during his visit to London in 1673 has been generally settled by vindication of the German scientist. Unfortunately, not all facts are available, and Leibniz on occasion was somewhat unethical (Voltaire, who could spot unscrupulous men because he himself was one, said: "Je suis fache pour Leibniz, qui surement etait un grand genie, qu'il ait ete un peu charlatan...")

In this short paper, Leibniz established the principles of the differential calculus (two years later he published his work on the integral calculus). Leibniz used his principle of derivatives for the calculus of elementary functions and proved that this derivation is also applicable to radical functions. Concerning the calculus of maxima and minima of a function, he demonstrated that vanishing of the first derivative indicated the existence of these maxima and minima which were then determined by the second derivative.

European mathematicians adopted the nomenclature and symbols of the new method as given by Leibniz rather than those of Newton.



ACTA ERUDITORUM

ANNO MDCLXXXIV

publicata,

ac

SERENISSIMO FRATRUM PARI,

DN. JOHANNI GEORGIO IV,

Electoratus Saxonici Hæredi,

&

DN. FRIDERICO AUGUSTO,

Ducibus Saxoniæ &c.&c.&c.

PRINCIPIBUS JUVENTUTIS

dicata.

Cum S. Cæsareæ Majestatis & Potentiorum Sup. Sax. Terra Saxonia Privilegia.

LIPSIÆ,

Prostant apud J. GROSSIUM & J. F. GLEITSCHIUM.

Typis CHRISTOPHORI GUNTHERI.

Anno MDCLXXXIV.

TAB.VI.

graduum octo & aliquot minutorum, quæ nondum satis certo determinare potui ex observationibus. Gradus tamen tam longitudinis quam latitudinis extra aleam dubitationis est, ut sequitur.

Dies Julii	Long. Com. ☌ °	′	Lat. Com. Bor. °	′	Dies Julii	Long. Com. ☌ °	′	Lat. Com. Bor. °	′
1	11.	18	13.	12	10	24.	42	32.	49
2	13.	16	17.	57	11	25.	44	40.	49
3	14.	53	22.	12	12	26.	38	41.	55
4	16.	45	25.	40	13	27.	23	43.	5
5	18.	30	28.	50	14	28.	31	44.	9
6	19.	50	31.	34	15	29.	49	45.	12
7	21.	7	33.	54	16	0. ♏	58	46.	20
8	22.	20	36.	6	17	2.	8	46.	42
9	23.	32	38.	0	18	2.	48	47.	20
					19	3.	40	47.	50

Quatuor dierum observationes (*nimirum 14, 15, 16, 17.*) meliori indigent calculo; nam aliquis fortasse minutorum error irrepsit. Alias etiam nonnullas habeo, nempe diei 18 & 19, (*harum longitudinem & latitudinem, ex Ephemeride delineationi transmissæ inserta, Tabulæ adjecimus*) quæ cum nudo oculo habitæ sint, abluderent fortasse pluribus minutis, si eas nunc afferrem. Postremis hisce noctibus cum jam senescente luna stellarum etiam minorum fulgor se proderet, Cometam quoque languentem prospexi prope lemniscos Coronæ.

Observatio diei primæ Julii accuratissima est; Cometa enim in telescopio apparebat una cum stella Virginis, quæ Bayero inscribitur σ, & audit *sub cingulo septentrionalis partis prima.*

Observationes sequentes usque ad diem quintam satis certæ haberi possunt. Omnium tamen certissima est observatio diei sextæ, qua die Arcturus in tubo optico simul cum Cometa inspiciebatur. Die pariter 14 Cometa & stella χ in collorobo Bootis seu venabulo subter humerum uno intuitu detegebantur. Aliæ observationes etiam satis accuratæ sunt.

Erratum.

In Actis anni 1684, pag. 459. lin. 31. pro *Veneris*, lege *Venetæ*.

H. P. KRAUS, RARE BOOKS AND MANUSCRIPTS

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THE DISCOVERY OF DIFFERENTIAL CALCULUS

Leibniz, Gottfried Wilhelm von. Nova Methodus pro Maximis et Minimis. In: Acta Eruditorum, pp. 467-473, and pl. XII, Anno MDCLXXXIV, 5 leaves, 591, (7) pp. With 14 engraved plates. Small 4to. Contemporary, probably original, half calf, richly gilt back, carmine edges.

Leipzig, Christophorus Guenther for J. Gross and J. F. Gletitsch, 1684 [redacted]

A very fine copy of the first appearance of one of the most important papers in the history of mathematics. These few pages are the basis for an entirely new branch of mathematics. The calculus was discovered at about the same time by Leibniz and Newton, but the latter neglected to publish his papers on the subject until well after 1684. This led to an embittered controversy between advocates of the two men, during which Leibniz was accused of having stolen Newton's work. British mathematicians continued for some time to use Newton's notation and methods, though these were inferior to those of Leibiz and were finally abandoned.

The Acta Eruditorum was one of the leading scientific journals of its time. It contained mostly book revievs, with some original papers, as the one above. The present copy of the Acta for 1684 is bound together with the volume for 1685 (3 leaves, 605 pp., misnumbered 595, (12) pp., 15 plates). The two volumes contain papers by or about J. Hevelius, Christian Huygens, Thomas Sydenham, Bartholin, Bernoulli, Robert Boyle, Nehemiah Grew, and many others.

Grolier Club, 100 Books (Science), 66a; Burndy Library, Heralds of Science, 109.

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Leipzig, 1684 [redacted]

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Ravier, Bibliographie... de Leibniz, No. 90; Burndy Library, Heralds of Science, No. 190; Grolier Glub, 100 important books in Science (Exhibition 1958.)

Kraus

$\frac{dy}{dx} = \frac{x^2}{y}$

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HELLMUT LEHMANN-HAUPT
BIBLIOGRAPHICAL CONSULTANT

January 22, 1965

Mr. Henry Posner
Chairman of the Board
Pittsburgh Outdoor Advertising Co.
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Pittsburgh, Penna.

Dear Mr. Posner,

I take pleasure in offering you today a brief but exceedingly important article by LEIBNIZ which, as you will read in our description, must be considered the basis for an entirely new branch of mathematics, namely the Differential Calculus. It is also considered one of the very desirable items in the list of science books; both the Grolier Club, 100 Books and the Burndy Library, Heralds of Science give it a high rating.

You understand that we are offering you the article as contained in the complete 1684 volume of Acta Eruditorum.

Yours very sincerely,

Hellmut Lehmann-Haupt

HELLMUT LEHMANN-HAUPT

HLH:dmp
Enc.

January 27, 1965

Dr. Helmut Lehmann-Haupt
H. P. Kraus
16 East 46th Street
New York 17, New York

Dear Dr. Lehmann-Haupt:

Thank you very much for your offer of January 22nd.

I already have the Leibniz 1684 Nova Methodus pro Maximus et Minimis. I note that you are offering only the article as contained in the complete volume of Acta Eruditorum for I have the complete volume with all the plates and all the articles and I bought it from you for [redacted]

Best regards.

Very truly yours,

Henry Posner:rs

4to. [18], 429, [11] pp. Engraved frontispiece portrait, and 25 engraved plates (mostly folding). Contemporary boards (neatly rebacked); bookplate removed, otherwise a very good copy. [redacted]

First Latin edition of *Sevende Vervolg der Brieven, waar in gehandelt werd*...This collection contains Letters 108-146. For a detailed account of these letters, see Dobell's *A. van Leeuwenhoek and His Little Animals.*

Dobell, 27

170. LEIBNIZ, Gottfried Wilhelm

Accessiones historicae, quibus utilia superiorum temporum historiis illustrandis scripta... Leipzig: Nicolai Forsteri, 1698.

4to. [9] ff., 4-315 pp.; [2], 40; 124; 119, [3] pp. Old calf (rebacked) with new endpapers. Bookplate of [Sir Thomas?] Foley and holograph signature of Thomas Rymer, editor of *Foedera* and friend of Leibniz. [redacted]

First edition of the first great text on history by Leibniz. A two-volume work subsequently appeared (1700), but Ravier is uncertain whether the work was revised or reprinted. While the fame of Leibniz rests mainly on his scientific and philosophical contributions, his profession and main preoccupation was history. Included in the volume are an anonymous Saxon chronicle, the Treves Chronicle, Jean de Winterthur's chronicle, and an ancient chronicle of Holstein, all in original spelling, with corrections and critical notes. Leibniz treats each author, establishing the origin of the text and its historical significance. His "extraordinary historical erudition," as noted by Carr, raised history from a field of speculation to a branch of science.

Leibniz (1646-1716) is a giant in the fields of mathematics, philosophy, and metaphysics. In his quest to establish a philosophical system and a unified theory of space and time, he greatly influenced Boole, Schopenhauer, and Kant.

Ravier, 43
Daville, *Leibniz historien*
Carr, *Leibniz*
No copy located in NUC

171. LEIBNIZ, Gottfried Wilhelm

Protogaea sive de Prima Facie Telluris et Antiquissimae Historiae vestigiis in ipsis naturae monumentis... Göttingen: J. G. Schmid, 1749.

Lg. paper copy. 4to. [4], xxvi, [2], 86 pp., with 12 folded engraved plates. Title in red and black; a fine, uncut copy in old boards.

1985

First edition of a geological classic. "Leibniz proposes the bold theory that the earth was originally in a molten state, and that the primary rocks were formed by the cooling of the surface, which also produced the primeval ocean by condensing the surrounding vapours. The sedimentary strata resulted from the subsiding of the waters which had been put in motion by the collapse of the crust on the contracting nucleus. The process was several times repeated until at last equilibrium was established" (Geikie, *Founders of Geology*, pp. 81-84).

In addition, the work deals with mineralogy and contains an account of the mode of occurrences of the metals and minerals of the Harz mountains and a detailed description of a number of fossils found in Hanover and Brunswick in the copper schists.

Zittel, pp. 27-28
Ravier, 440
Waller, II, 10895

FABULOUS WORK ON COMPUTERS—WITH A VOLVELLE

172. LEUPOLD, Jacob

Theatrum Arithmetico-Geometricum, das ist: Schau-Platz der Rechen—und Mess-Kunst... Leipzig: Christoph Zunkel, 1727.

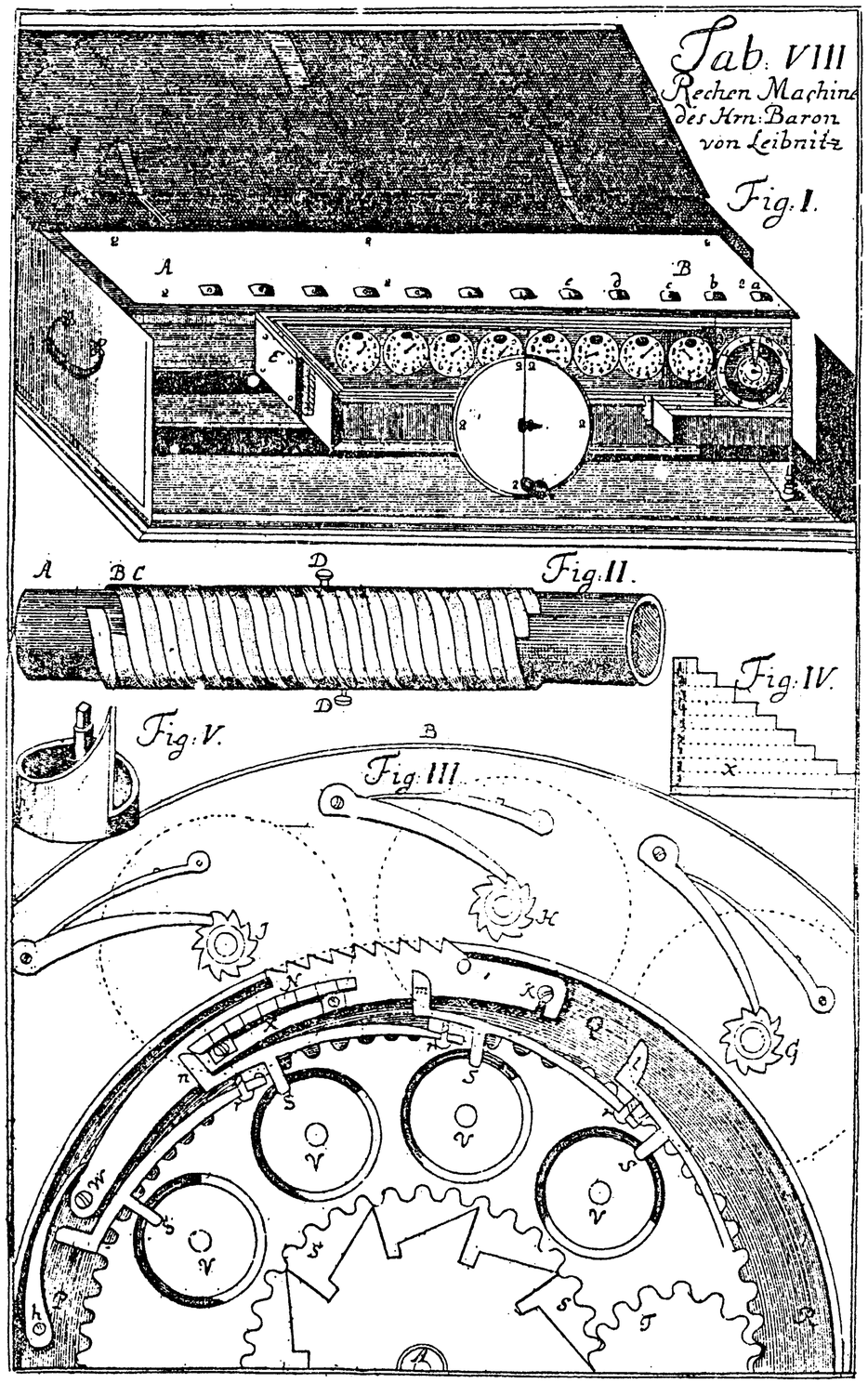
(bound with)

Theatri Machinarum Supplementum Das ist Tusak zum Schau-Platz der Machinen und Instrumenten, Darinnen vornehmlich enthalten Eine Sammlung aller noch ubrigen Geometrischen Instrumenten und was sonst bey Ausmessung der Linien, Flachen und Corper in acht zu nehmen vorkommt... Leipzig, 1739.

Folio. [12], 200, [4] pp., with 43 folding plates; [10], 100, [96] pp., with 40 folding plates. Titles in red and black, chapter vignettes, tables and text illustrations. Original vellum; an exceptionally fine copy. [redacted]

First edition of one of the most beautiful, as well as important, pictorial technical works ever printed. This vast work, with its fine copperplates and its up-to-date information on new machines and methods, was of great value to the craftsmen and mechanical engineers of the eighteenth century.

Of particular interest in the first volume is Leupold's calculating machine, which he attributes to Gaspar Schott. A calculating machine of Leibniz's is depicted as well as machines by other mathematicians and scientists. During the eighteenth century,



172. *Leupold*

many attempts were made to create a satisfactory calculating machine that could be made commercially. The chief difficulty was the inability to achieve the high degree of accuracy needed to construct such details as wheel teeth. (For a description and full-plate reproduction of Leupold's machine, see Wolf's *History of Science...in the Eighteenth Century*, pp. 657-658.)

The second volume was published posthumously and is now very rare. It contains a register of all the technical terms used in his *Theatrum Machinarum* and an index of all the authors mentioned. The pedometer is first described and illustrated in this work and shown for use on horses, carriages, and wheelbarrows. Also depicted are surveying instruments, horological instruments, pulleys, compasses, water clocks, bridges, ramps, locks, ship instruments, and much more.

Leupold (1674-1727) studied in Saxony and at the Universities of Jena and Wittenberg. He became an expositor of mechanical engineering and designer of a high pressure steam engine. His improvements of the air pump earned him the post of Councillor of Mines under the Prussian Government and membership in the Berlin Academy of Sciences.

Catalogue of the Collections in the Science Museum South Kensington (Calculating Machines & Instruments), pp. 8, 12

173. LEVENS, Peter

A right profitable booke for all diseases called, The Path-way to Health wherein are to bee found most excellent and approved medicines of great vertue: as also notable potions and drinks, and for the distilling of divers precious waters, and making of oyles, and other confortable receits for the health of the body, never before imprinted. London: John Beale for Robert Bird, 1632.

4to. [2], 114, [6] leaves. Title within ornamental woodcut borders; printed in black letter. Contemporary calf (slightly warped); tears in blanks; interior in excellent condition. [redacted]

A rare and early collection of medical secrets. Although there is an index, the author does not classify his subjects, but begins with diseases of the head and follows the body downward: "for him that hath lost his mind; for the meigrim in the heade; for paine in the eares; for the tooth-ache; for goute; for the king's evil; to draw arrow's out of a body..." After the disease is specified, the recipe for its cure follows. The remedies employed are generally of vegetable origin with a few mineral substances such as gold, mercury, powder of burnt bones—many administered in wine or ale.

Ferguson, in his *History of Inventions & Books of Secrets* (pp. 139-144), notes that Levens (fl. 1587) was born in Yorkshire and studied at Oxford. He is said to have